Social Impact Assessment Study for Klipspruit Colliery's proposed Nwabu Project - Pit BD and Pit H Underground Mining Expansion Project

Prepared for

Seriti Power (Pty) Ltd

Document Detail

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EAP:	Niara Environmental Consultants (Pty) Ltd		

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0	Vumile Ribeiro	Nondumiso Gwala	1 July 2024	

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Independence

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Declaration of Independence

I Vumile Ribeiro, as duly authorised representative of Niara Environmental Consultants (Pty) Ltd., hereby confirm my independence and declare that I:

- 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; and
- 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 of the EAP:	V. Ribeiro
Designation:	Environmental Consultant
Qualifications:	Post Graduate Degree (Hons): BSocSc Environmental Analysis and Management
Name of Company:	Niara Environmental Consultants (Pty) Ltd
Experience (Years):	Seventeen (17)
Date:	July 2024

Specialist Checklist

In terms of the NEMA 2014 EIA Regulations contained in GN R982 of 04 December 2014 all specialist studies must comply with Appendix 6 of the NEMA 2014 EIA Regulations (GN R982 of 04 December 2014). The table below show the requirements as indicated in this Report.

EIA REGULATIONS 2017 GNR 327, 325 and 324 Appendix 6 **CONTENT OF THE SPECIALIST REPORTS**	**In accordance with the EIA Regulations**	**Cross reference in this Report**
(a) details of— the specialist who prepared the report; and the expertise of that specialist to compile a specialist report including a curriculum vitae;	✓	Section 1.4
(b) a declaration that the specialist is independent in a form as may be specified by the competent authority;	✓	Page 1
(c) an indication of the scope of, and the purpose for which, the report was prepared	✓	Section 1.2
(cA) an indication of the quality and age of Base Data used for the specialist report	✓	Section 4.5
(cB) a description of existing impacts on the site, cumulative impacts of the proposed development and the levels of acceptable change	✓	Section 9.7
(d) the date and season of the site investigation and the relevance of the season to the outcome of the assessment;	✓	Section 4.5.2
(e) a description of the methodology adopted in preparing the report or carrying out the specialised process inclusive of equipment and modelling used;	✓	Section 4
(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 alternatives.	✓	Section 8
(g) an identification of any areas to be avoided, including buffers;	✓	N/A
(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	✓	Section 4.5.8
(i) a description of any assumptions made and any uncertainties or gaps in knowledge;	✓	Section 6.2
(j) a description of the findings and potential implications of such findings on the impact of the proposed activity or activities	✓	Section 9
(k) any mitigation measures for inclusion in the EMPr	✓	Section 9
(l) any conditions for inclusion in the environmental authorisation;	✓	N/A
(m) any monitoring requirements for inclusion in the EMPr or environmental authorisation;	✓	Section 12.3
(n) a reasoned opinion— i. whether the proposed activity, activities or portions thereof should be authorised; and (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;	✓	Section 13
(o) a summary and copies of any comments received during any consultation process and where applicable all responses thereto; and	✓	N/A
(p) any other information requested by the competent authority	✓	N/A

Executive Summary

Introduction

Seriti Power (Pty) Ltd ("Seriti Power") is the holder of a Mining Right for coal in respect of its Klipspruit Colliery ("KPS") operation issued under the Department of Mineral Resources and Energy ("DMRE") (Ref No. MP 30/5/1/2/2/125 MR).

KPS consists of three mining areas under a single Mining Right. These areas are referred to as:

- KPS Main Pit which includes the Main Pit, Smaldeel and Bankfontein Pits;
- "KPSX" or Klipspruit Extension Weltevreden including Pit BD, Pit H, Pit G and Pit S; and
- "KPSS" or Klipspruit South which includes the KPSS East of the Thungela conveyor and the KPSS West of the Thungela conveyor.

KPS Main Pit holds an Environmental Management Programme Report ("EMPr"), converted in terms of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002) ("MPRDA") and approved on 14 September 2010 and the EMPr for KPSS and KPSX (Pit BD) which was approved on 17 August 2017. KPS was further awarded an Environmental Authorisation ("EA") for the Opencast ("OC") mining of Pit H in October 2022. In August 2023, an EA was granted for the OC mining of Pit G & S.

In October 2022, KPS was granted a Section 102 ("S102") amendment approval as contemplated under the MPRDA to convert the mining method for KPSX and KPSS from opencast ("OC") to underground ("UG") bord and pillar mining. A subsequent amendment application for the EA was submitted to the DMRE on the 18th August 2023 as provided for under Regulation 29 of the NEMA Environmental Impact Assessment ("EIA") Regulations ("GNR 326"), for the conversion of the mining method from OC to UG of the area within KPSX named Pit BD. The approval of this EA is still pending.

KPS intends to apply for a change in mining method to the remainder of the KPSX and KPSS reserves from OC to UG (including all future mining areas of KPSX that fall outside of the Pit BD and inclusive of Pit H). This project has been termed and will for the purposes of this application be referred to as, the "Nwabu Project".

KPS intends on applying for an EA and an Integrated Water Use License ("IWUL") for proposed change in mining method to KPSX and KPSS. The application process to be followed in terms of NEMA, for the additional activities proposed across KPSX and KPSS, is a Basic Assessment ("BA") process as contemplated under Chapter 4 of GNR 326. Seriti Power is also required to apply for a Water Use Licence for the proposed amendments, in terms of Section 21 of the National Water Act, 1998 (Act No. 36 of 1998).

Methodology

The definition of Social Impact Assessment (SIA) as defined by Vanclay (2002) gives an understanding of the backdrop against which this SIA was conducted. According to this definition, an SIA "is the process of analysing (predicting, evaluating and reflecting) and managing the intended and unintended consequences on the human environment of planned interventions (policies, programmes, plans and projects) and any social change processes invoked by those interventions so as to bring about a more sustainable and equitable biophysical and human environment". The SIA assesses social-economic impacts associated with the proposed Project.

The purpose of the SIA Report is to provide baseline information regarding the socio-economic environment, to identify possible social and economic risks/fatal flaws and to suggest ways in which these impacts can be mitigated. This will assist decision-makers on the proposed Project in making informed decisions by providing information on the potential or actual consequences of their proposed activities. The process entailed the following:

- A baseline socio-economic description of the affected environment;
- Identification of potential social change processes that may occur as a result of the project; and
- Identification of potential social and socio-economic impacts.

Conducting an SIA is one of the ways in which project-related social risk can be managed. Such an assessment can assist with identifying possible social impacts and risks. Disregarding social impacts can alter the cost-benefit equation of development and in some cases even undermine the overall viability of a Project. When conducted thoroughly, a SIA may have many benefits for a proposed development (UNEP, 2002) such as:

- Reduced impacts on communities of individuals;
- Enhanced benefits to those affected;
- Avoiding delays and obstruction – helps to gain development approval (social license);
- Lowered costs;
- Better community and stakeholder relations; and
- Improved proposals.

This Report presents the results of the SIA for the proposed Project Mining Right Application near EMalahleni in Mpumalanga Province of South Africa. The terms of reference for this study are as follows:

- To augment and update the existing socio-economic baseline profile as defined in the projects scoping phase, with an emphasis on the local (project-specific) area, by means of (inter alia) a reconnaissance site visit;
- To describe the land use of the area affected by the proposed Mine, informed by input of interested and affected parties;
- To investigate the potential impact of the Project-related activities on the social environment;

- To identify, describe and rate the significance of social impacts that may result from the Project, including the potential impact of the Project from a cumulative nature; and
- To develop feasible, practical and cost-effective mitigation and enhancement measures to ameliorate the significance of negative impacts and enhance the benefits of positive social impacts.

Activities

To ensure that the objectives of the study are answered, data had to be collected. Data mostly centred on a desktop study, in which the following documents were scrutinised:

- Review of literature and desktop studies, confirming the social setting and characteristics of the study area.
- Data, including census data, project maps and planning documents (2022 Census Survey and documents from Mpumalanga Province, Nkangala District Municipality and Victor Khanye Local Municipality).
- Review of relevant planning and policy frameworks for the areas.
- Review of information from similar project.

It is the specialist's opinion that, under the current situation, due process has been followed. Where impacts have been assumed to be potentially significant, various mitigation measures to manage and monitor the impacts of the development. Adequate mitigation measures have been provided and are expected to reduce the significance of almost all negative impacts although not always to acceptable levels, while positive impacts will on average be significantly enhanced to maximise benefits to surrounding communities. The recommended mitigation measures must be implemented to minimise the impacts and ensuring compliance with current legislative requirements

Key Findings and Recommendations

The proposed Nwabu Underground Mining Project can have significant socio-economic impacts on nearby communities. These impacts can be both positive and negative and may vary across the different communities, the local economy, and the regulatory environment. Some of the key findings are:

Positive Socio-Economic Impacts

Employment Opportunities:

- Direct Employment: Seriti: KPS has created jobs for local residents, both in the mine and in related industries such as transportation and equipment manufacturing.
- Indirect Employment: Additional jobs will be created in the local economy to support the mining workforce, including services such as housing, food, healthcare, and education.

Economic Growth:

- Increased Local Revenue: Mining companies often pay taxes and royalties, which can be significant sources of revenue for local governments. This can lead to improved infrastructure, healthcare, and education services.
- Business Development: The presence of a large mining operation can stimulate the growth of local businesses and attract new ones, boosting the local economy.

Community development and social upliftment:

- Improved Infrastructure: Seriti may invest in local infrastructure such as roads, schools, and hospitals, benefiting the broader community.

Negative Socio-Economic Impacts

Health and Safety Risks:

- Occupational Hazards: Miners face health and safety risks, including exposure to hazardous substances, risk of accidents, and respiratory diseases such as black lung.
- Community Health: The communities near KPS operations can be affected by air and water pollution, leading to long-term health issues.

Environmental Degradation:

- Water Contamination: KPS mining operations can contaminate local water supplies with heavy metals and other pollutants, affecting both human health and agriculture.

Social Disruption:

- Community Conflict: The influx of workers and the economic disparity between mining employees and other residents in Phola and Ogies can lead to social tensions and conflicts within the community.

Community Health and Safety:

- For community: Communities that become heavily dependent on KPS can suffer economically when mining operations cease, leading to unemployment and economic decline.
- For workers: Heavy reliance on KPS (and cumulatively, other mining operations) can stifle the development of other economic sectors, making the community vulnerable to fluctuations in the mining industry.

Mitigation Measures

To minimize the negative socio-economic impacts, various mitigation measures can be implemented:

- Regulation and Enforcement: Strong regulatory frameworks and enforcement mechanisms to ensure that Seriti adheres to environmental and safety standards.

- Community Engagement: Involving local communities in decision-making processes and ensuring that their concerns and needs are addressed.
- Sustainable Practices: Promoting sustainable mining practices that minimize environmental damage and ensure the long-term well-being of the community.
- Economic Diversification: Encouraging the development of other economic sectors to reduce dependence on mining and create a more resilient local economy.
- Health and Safety Programs: Implementing comprehensive health and safety programs to protect workers and community members from mining-related hazards.
- By addressing these impacts thoughtfully and proactively, communities can better manage the socio-economic consequences of underground coal mining and work towards sustainable development.

The Project has the potential to benefit local, regional and national economies. From a socio-economic perspective, it is recommended that the proposed opencast Project proceed due to the associated positive socio-economic impacts. This recommendation is however subject to the condition that the mitigation and enhancement measures listed for each potential socio-economic impact, negative and positive, be implemented, and that a social management and a social monitoring plan be developed to manage and monitor the implementation of these measures.

A social management plan and social monitoring plan must be developed to manage and monitor the implementation of these measures and recommend corrective measures, where necessary and implement mitigation measures recommended in other specialist studies, including traffic, dust, blasting, ground and surface water and others, that are likely to have socio-economic impacts.

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List of Abbreviations and Acronyms

AIDS	Acquired Immunodeficiency Syndrome
BBBEE	Broad Based Black Economic Empowerment
CRR	Comments and Response Report
CLO	Community Liaison Officer
CRDP	Comprehensive Rural Development Programme
DFFE	Department of Fisheries, Forestry and Environmental
DBSA	Development Bank of South Africa
DMRE	Department of Mineral Resources and Energy
GEF	Global Environmental Fund
EAP	Environmental Assessment Practitioner
EHS	Environmental, Health, and Safety
EIA	Environmental Impact Assessments
EMPr	Environmental Management Programme
ESTA	Extension of Security of Tenure Act
FTLM	Fetakgomo Tubatse Local Municipality
FPIC	Free, Prior, and Informed Consent
GEF	Global Environmental Fund
GDA	Growth and Development Strategy
ha	Hectares
HDSA	Historically Disadvantaged South Africans
HIV	Human Immunodeficiency Virus
IDP	Integrated Development Plans
KPI	Key Performance Indicator
IWUL	Integrated Water Use License
IFC	International Finance Corporation
IFC PS	International Finance Corporation Performance Standards
IPILRA	Interim Protection of Informal Land Rights Act
LRA	Labour Relations Act
LRP	Livelihood Restoration Plan
LED	Local Economic Development
MRA	Mining Right Application
MPRDA	Mineral and Petroleum Resources Development Act
MS	Microsoft
NEMA	National Environmental Management Act
NGO	Non-governmental organisation

NIHL	Noise induced hearing loss
PAC	Project Affected Communities
PGM	Platinum Group Metal
PM	Particulate Matter
PGDS	Provincial Growth and Development Strategy
PPE	Protection Personal Equipment
PPP	Public Participation Process
RAP	Resettlement Action Plan
ROM	Run off Mine
SAPS	South African Police Services
SEIA	Socio-Economic Impact Assessment
SEP	Stakeholder Engagement Plan
SDM	Sekhukhune District Municipality
SMME	Small and medium-sized enterprises
SLP	Social and Labour Plan
SIA	Social Impact Assessment
SMP	Social Management Plans
ToR	Terms of Reference
TSF	Tailings Storage Facility
UN	United Nations
WULA	Water Use License Application
ZOI	Zone of Influence

1 Introduction

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Niara Environmental Consultants (Pty) Ltd (Niara) has been appointed as an Independent Environmental Assessment Practitioner (EAP) by Seriti Power to undertake a Basic Assessment, and an Integrated Water Use Licence Application (IWULA). The Basic Assessment will be conducted in terms of the EIA Regulations (as amended), promulgated in terms of the National Environmental Management Act (NEMA) (Act No. 107 of 1998). In addition, approval is also required in terms of the National Water Act (NWA) (Act No. 36 of 1998) for water uses associated with the proposed Project. The Social Impact Assessment (SIA) forms part of this process. The SIA assesses social-economic impacts associated with the proposed Nwabu Project and associated infrastructure to be developed as part of the Project.

KPS and KPSS are located approximately 1 km west of the town of Ogies, with KPSX located 6 km north of the town of Ogies, in the eMalahleni Local Municipality within the Nkangala District Municipality in the Mpumalanga Province. Refer to Figure 1-1 for a locality setting.

Table 1-1 provides the location for which the proposed project will be undertaken. Plan 2a in Appendix B provides a local setting for the proposed infrastructure.

Table 1-1: Activity Location

Farm Name:	Hartebeestlaagte 325 JS, Weltevreden 324 JS, Tweefontein 328 JS, Wildebeesfontein 327 JS, Grootpan 7 IS, Oggiesfontein 4 IS, Prinshof 2 IS, Klipfontein 3 IS, Smaldeel 1 IS, Phola Plant 830 IS, Zwaaiwater 11 IS.
Magisterial District:	Nkangala District Municipality
Distance and Direction from Nearest Town:	Approximately 6km north of Ogies town.
21 Digit Surveyor General Code for each Farm Portion	Attached as Appendix B.

1.1 Locality Map

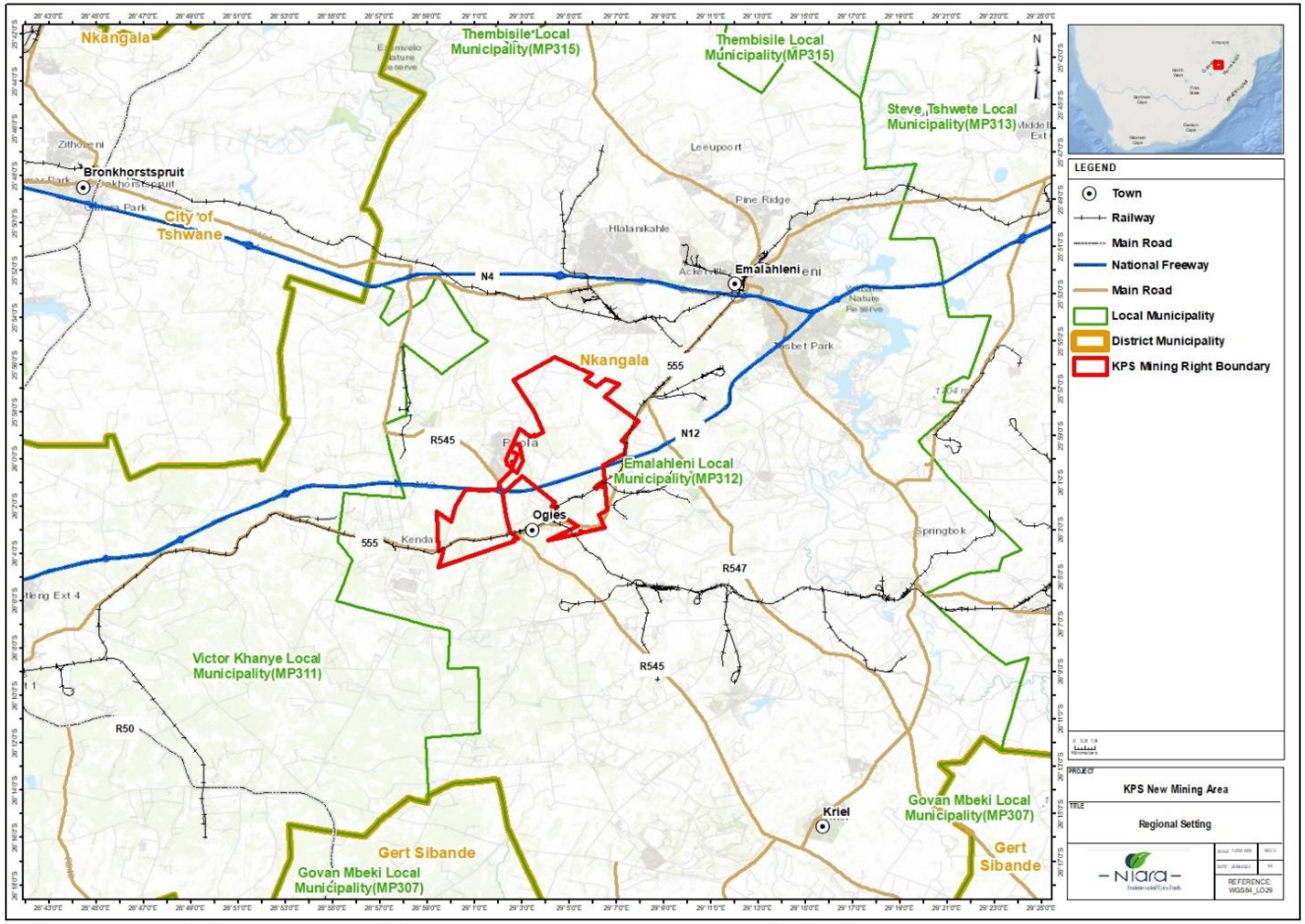

Figure 1-1: Locality Map

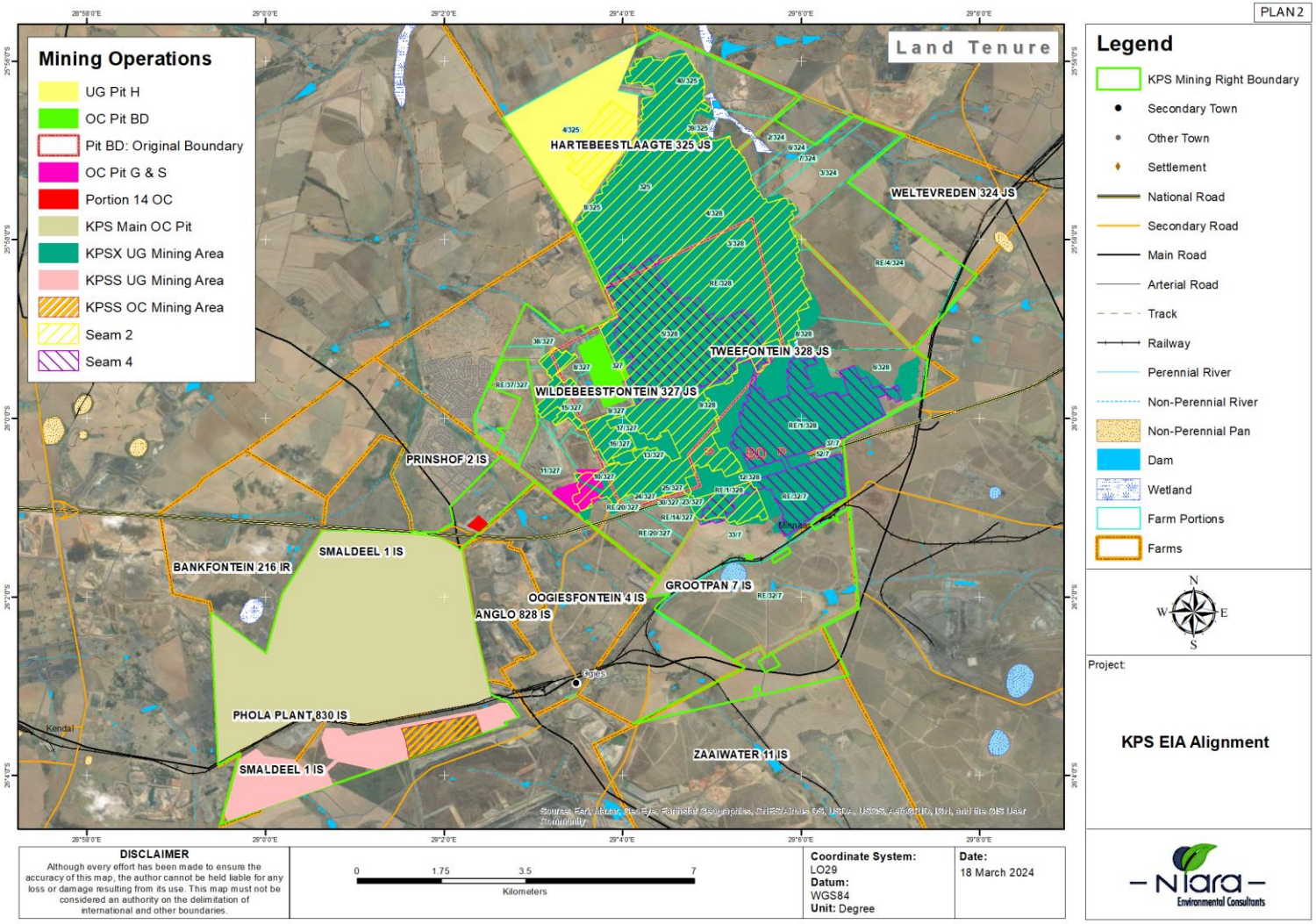

Figure 1-2: Affected farm portions over existing and proposed UG mining areas

1.2 Scope of Work

The overall objective of the SIA is to identify and analyse the potential impacts of the Project, gather sustainable development opportunities as well as to mitigate the negative impacts.

The purpose of the SIA is to:

- Review stakeholder's engagement records;
- Undertake a baseline assessment to determine the socio-economic baseline, property value or infrastructure assets, to determine current commercial and economic contributions of potentially directly affected persons and to identify and quantify potential alternative land use activities;
- Determine the impact on socio-economic conditions of directly affected persons by determining the potential impact, in financial terms, of the loss in property value or infrastructure assets and determining the economic loss, in terms of net present value, of commercial, economic or as a result of the proposed mining activity; and
- Undertake a comparative assessment of the identified land use and development alternatives and their potential on the environment, social and cultural impacts given generally accepted sustainable development principles which consider the costs and benefits of social, environmental and economic factors.
- Provide an assessment based on collected baseline data to identify positive and negative socioeconomic impacts at both the local and national level;
- Propose mitigation and management methods.

1.3 Terms of Reference

The terms of reference (TOR) in an SIA according to Barbour (2007:28) should indicate how and to what extent the SIA specialist should be involved for the purpose and scale of the proposed intervention. The issues raised in the scoping phase of an EIA, which cannot be effectively addressed with the currently available information, form the basis for the terms of reference of specialist studies (DEAT, 2002).

The Terms of Reference (ToR) for the SIA are to:

- To develop the baseline questionnaire to conduct interviews as a way to understand the socio-economic and background of the communities;
- Describe the socio-economic baseline information for the Project area and surrounding areas;
- Identify, describe, and assess the anticipated significance of potential socio-economic impacts that may arise due to the implementation of the Project.

- Recommend suitable mitigation measures and management actions to evade or minimise potential negative impacts, and to enhance the positive impacts associated with the Project.

The SIA provides a baseline description of the project area, specifically focussing on the communities living and working in close proximity to the area. The potential impacts of the proposed project on the social environment will be identified and assessed in terms of an assessment methodology. Mitigation measures will be proposed to enhance the positive impacts and reduce the significance of the negative impacts.

The process included the following:

- Confirmation of study area;
- Review of available secondary data;
- Social and economic baseline description of the potentially impacted areas;
- Communication with landowners of alternative sites and conducting a site visit;
- Identifying and assessing potential direct, indirect and cumulative impacts, both positive and negative;
- Reviewing other specialist studies, as impacts that are not classified as social impacts can result in social impacts;
- Identifying measures to enhance positive social impacts and mitigate negative social impacts; and
- Making a recommendation on whether the proposed Project should proceed from a social perspective.

Categories of impacts to be considered (Vanclay 2003: 84-89) include:

- Health and social wellbeing
  - Death; Nutrition; Actual health and fertility; Perceived health; Mental health; Aspirations for future; Autonomy; Stigmatization; Feelings in relation to the project.
- Quality of the living environment
  - Physical quality – exposure to noise, dust, risk, odour etc.; Leisure and recreation opportunities; Aesthetic quality; Availability of housing; Quality of housing; Physical & social infrastructure; Personal safety & hazard exposure; Crime & violence.
- Economic impacts & material wellbeing
  - Workload; Standard of living; Economic prosperity and resilience; Income; Property values; Employment; Replacement cost of environmental functions; Economic dependency.
- Cultural impacts

- Change in cultural values; Violation of culture; Experience of being culturally marginalized; Commercial exploitation of culture; Loss of local language; Loss of natural and cultural heritage.

- Family and community impacts
  - Alterations in family structure; Obligations to family/ancestors; Family violence; Social networks – interaction with others in community; Community connection –sense of belonging; Community cohesion; Social differentiation and inequity; Social tension and violence.
- Institutional, legal, political and equity impacts
  - Capacity of government agency to handle workload generated by project; Integrity of government agencies – absence of corruption and competence of agency; Legal rights; Human rights; Participation in decision making; Access to legal advice; Fairness of distribution of impacts across community.
- Gender relations
  - Woman's physical integrity – decide about own body; Personal autonomy of woman – independence in all aspects; Gendered division of labour – income, household, childbearing and rearing of children.; Access to resources & facilities; Political emancipation of woman.

This SIA Report will form an appendix to the main EIA Report.

1.4 Details and Expertise of Specialist

Founded by Vumile Ribeiro, Niara Environmental Consultants (Pty) Ltd is a 100% black female owned organisation. Our focus is environmental management services, integrated water resources management, biophysical studies as well as social issues and processes. Our key management personnel have accumulated vast experience in environmental management, integrated water resources management, mine closure and rehabilitation, and related fields. We assist our clients and communities they operate within in recognising that a healthy natural resource base is essential for economic self-sufficiency and that it provides opportunities for future livelihood options. Integral to this approach, is the need to educate our clients about the impact of their activities on their environment.

Our Managing Director, Vumile Ribeiro has 17 years of professional and international experience in Environmental Assessment and Management primarily in the minerals resources and energy sector. She has extensive experience in compiling Environmental Impact Assessments and Water Use Licence Applications for mining, electricity supply (generation, transmission and distribution), road infrastructure, as well as water management projects. Her roles include the operational management responsibilities of Niara Environmental Consultants, project management, report writing, client liaison, as well as business development.

Having worked for a multi-disciplinary advisory firms and environmental consultancies, she has a competent understanding of the work effort and cross collaboration required for a successful multidisciplinary organisation. Vumile has been involved

in a number of EIAs and has a particular interest in health impacts assessments, water resource management, mining, energy and stakeholder engagement. Vumile has considerable experience across a range of developmental and environmental sciences and has worked in South Africa, Mozambique, the DRC, Sierra Leone and Liberia and is familiar with Regulatory Environmental Legislation in other parts of Africa. Vumile is very well versed in the IFC Environmental and Social Performance Standards and the associated Equator Principles, which have informed the approach and standard for a number of ESIA processes that she has been involved in.

2 Project Description

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2.1 Mining

KPSX was approved in 2011 with the mining of the full extent of Pit BD via the OC method. Pit H was further approved in 2023 for mining via OC method. When Seriti Power took over the operation of KPS in 2021 from South32 SA Coal Holdings, Seriti Power undertook an evaluation of all the assets obtained. The evaluation's focus was on the viability of the mine, including product market evaluations, operational optimisation and cost optimisation. This resulted in Seriti Power's change in mining strategy for the whole of KPS's remaining reserves from OC to UG. UG mining was the initial strategy for KPSS mining in 2006 but was later changed to OC in 2017 due to the economic value at the time.

2.1.1 KPSX Proposed Mining

The KPSX mining of Pit BD was amended from OC to UG in October 2022 through a S102 amendment process as contemplated under the MPRDA. The EA amendment is still outstanding. The S102 approved amendment covers the full extent of the unmined UG reserves within the KPSX (including Pit H) and KPSS mining areas as indicated in **Figure 1-2** above. The mineable coal seams within the KPSX area are the following and the focus of the UG mining will be on the main seams as illustrated in **Figure 2-1** and **Figure 2-2**:

- 5 seam ("S5")
- 4 upper A seam ("S4A")
- 4 upper seam ("S4U")
- 4 lower seam ("S4L")
- 2A seam ("S2A")
- 2 seam ("S2")
- 1 seam ("S1")

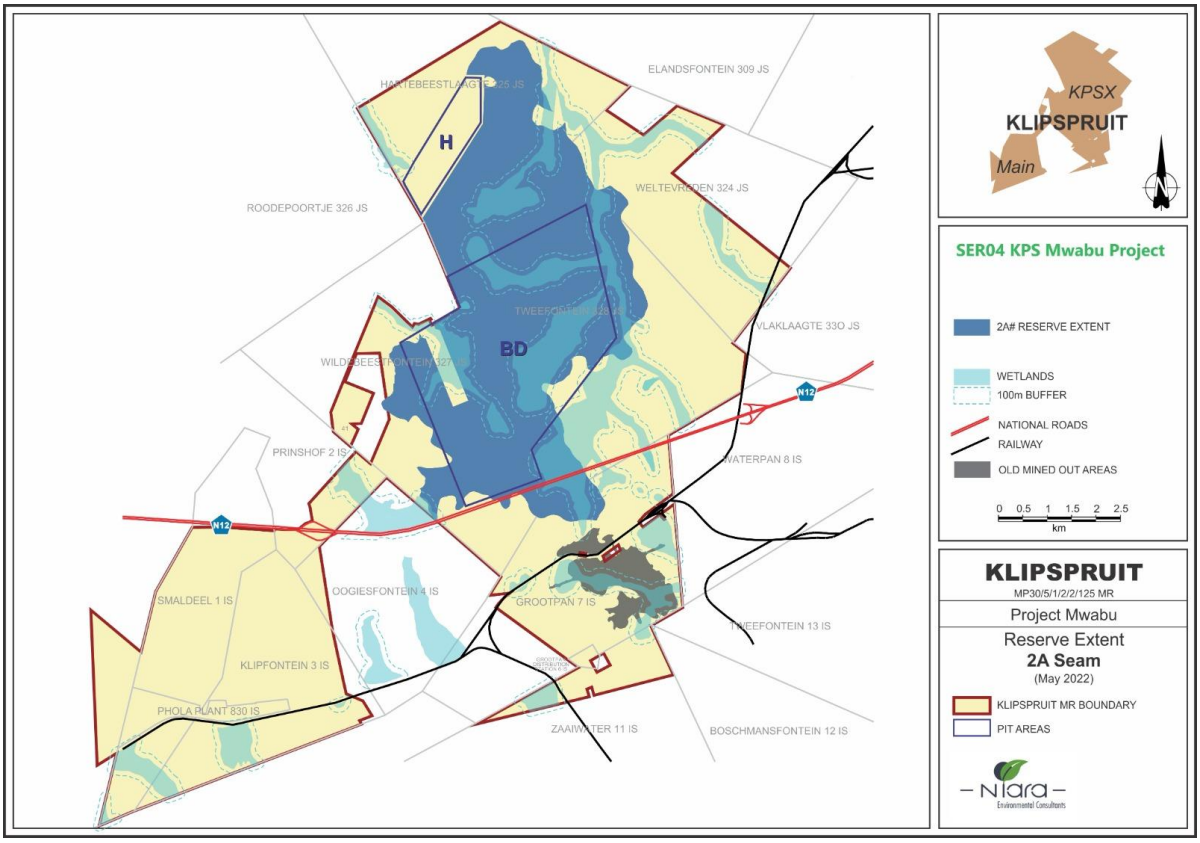


Figure 2-1: Proposed S2A mining

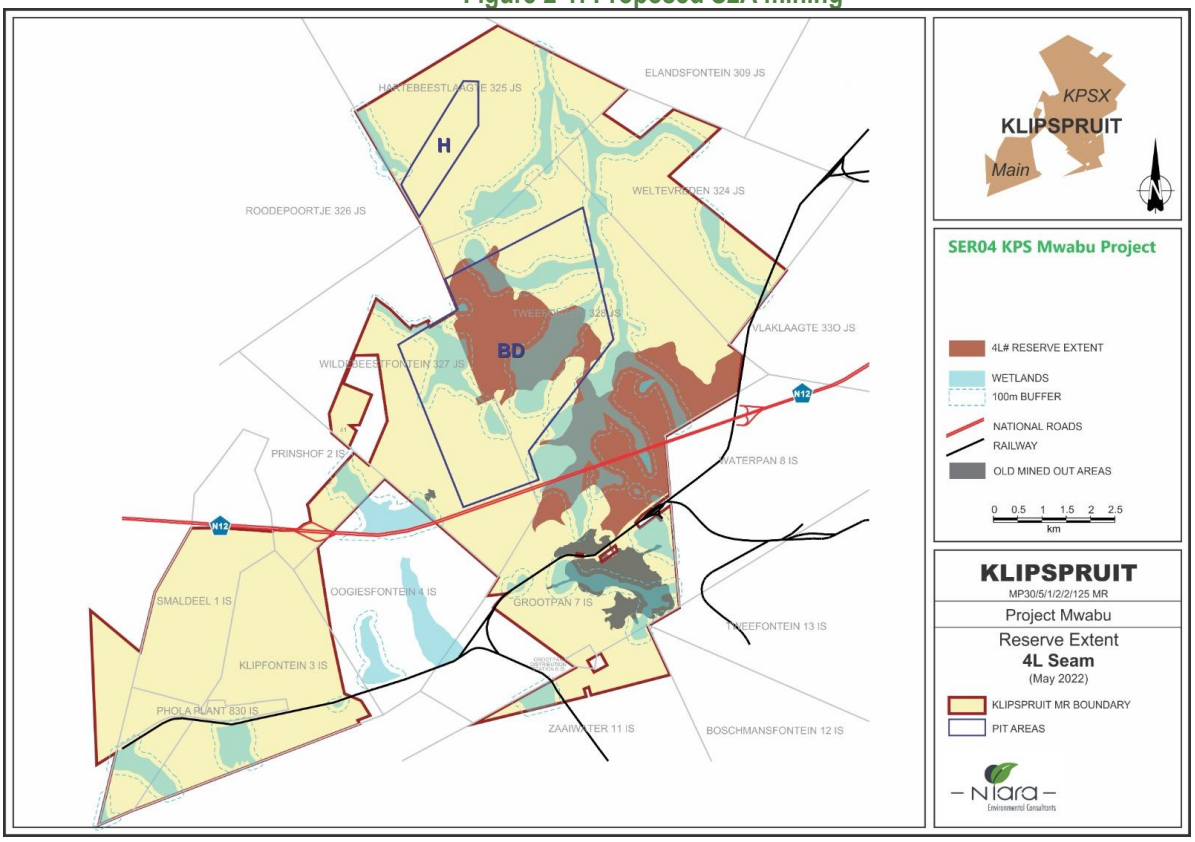


Figure 2-2: Proposed S4L Mining

The mineable coal seams at KPSS will include S5, S4U, S2 and S1.

UG mining has commenced within the Pit BD boundary and the mining method being utilised is bord and pillar mining. The inclusion of the bord and pillar mining method was to ensure optimal extraction of areas that are not profitable by OC method due to high strip ratio (Seriti Power, 2022). An adit has been developed from the pit BD highwall which provides access to the UG workings. The mining will advance towards the North, East, West and Southern directions from the Pit BD boxcut area. The proposed UG mining for both KPSS and KPSX is depicted in Figure 2-3 below. The proposed UG mining will extend mining to 2042. The UG workings designs are based on the following principles for both KPSS and KPSX (Seriti Power, 2022):

- UG workings are expected to be located approximately 25m below the ground surface with a mining height cut-off at 1.5m.
- A safety factor of not less than 1.3 will be applied on all workings with a pillar survival estimated at >99% for >500 years.
- No superimposition of the pillar between S4L and S2A and superimposition of the pillar between S2A and S1 as recommended by the geotechnical study.

UG mining using bord and pillar method will be conducted using a Continuous Miner ("CM") with parallel roadways in the direction of the advance. Perpendicular roads called splits will be developed at predetermined intervals to parallel roads. These road interlinks are the ones that create the pillars. The following activities form part of the board and pillar mining method (Seriti Power, 2022):

- Coal cutting and loading: The CM uses the rotating drum to cutting head, equipped with cutting picks to cut the coal face. The loading mechanism collects the broken coal and delivers it onto the gathering arm, which loads the coal on the CM's chain conveyor. The CM's conveyor transports the broken coal from the front to the rear of the CM. The CM's chain conveyor's capability of horizontal and vertical movements allows for coal loading into the shuttle car.
- Coal hauling and tipping: The loaded shuttle car is used to haul the coal to the section feeder breaker that crushes the coal and feeds it into the conveyor belt system.
- Roof support: A roof bolt machine installs the roof bolts once the CM has finished the development face and roof support is installed on a systematic basis. Roof bolts enhance the stability of the overlying roof. The spacing between roof bolts and the length of the roof bolts is determined during geotechnical studies.
- Coal transportation: The coal is transported using a conveyor belt system from the mining sections to the coal stockpile, linked with the overland conveyor on surface via the UG adit.

The strategy for the mining of the KPSS UG reserve will follow the same methodology as the one depicted above for KPSX and the UG resource will be accessed by using an adit which will be developed on the KPSS OC highwall.

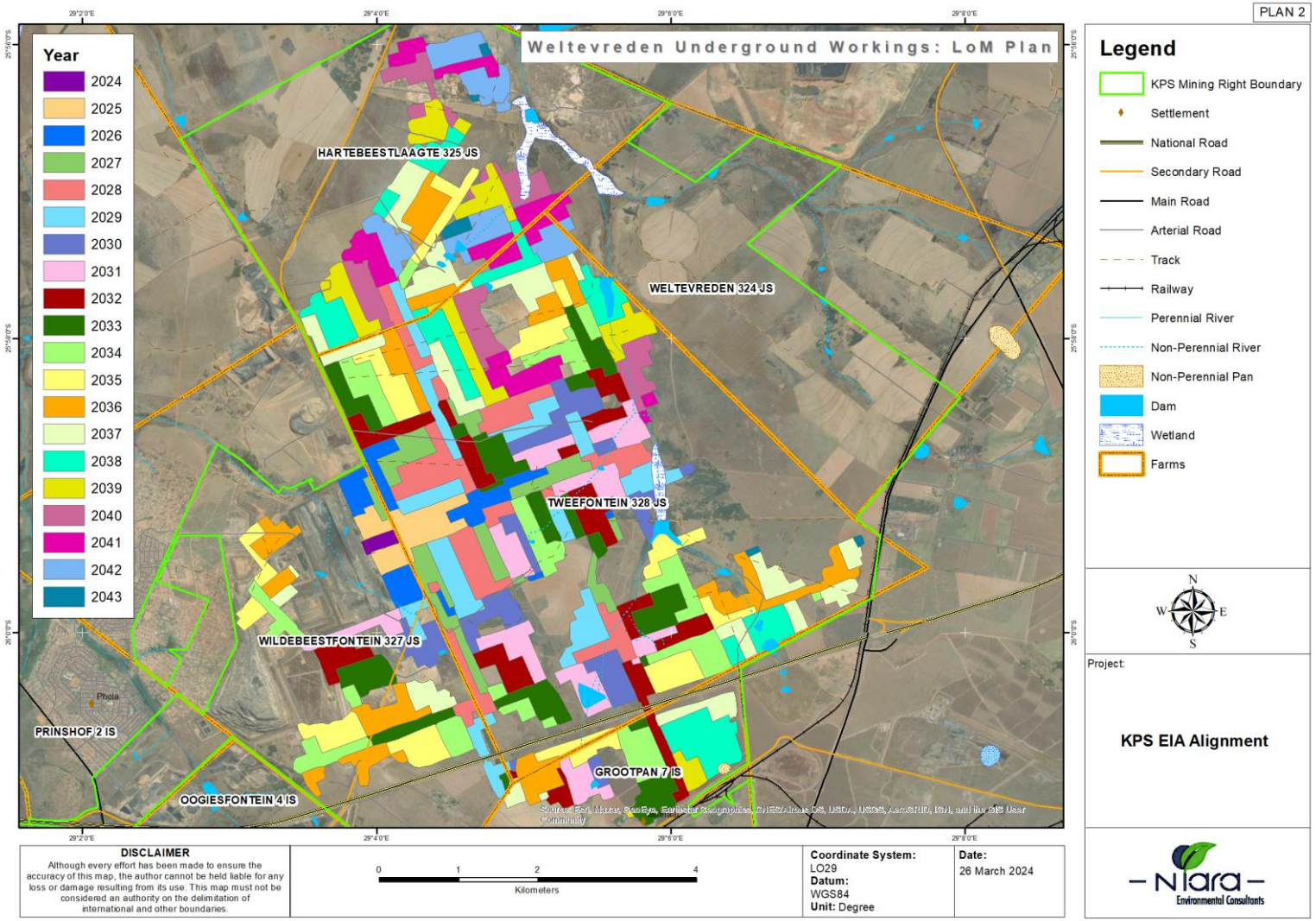


Figure 2-3: Life of Mine plan for the proposed KPSX UG mining

2.1.2 Processing

Once the coal is mined from the UG workings, it will be transported via a network of conveyors to the Phola Processing Plant ("PCPP") which is located adjacent to the KPS operation. The coal is beneficiated here resulting in various grades of quality produced. Following beneficiation at the PCPP, the coal will be transported via rail to the Richards Bay Coal Terminal for export, with a small component being retained for domestic use. Coal discard will be stored at the existing discard dump at the KPS and will be used as additional backfill material in the mining voids as part of the rehabilitation of the KPS.

2.1.3 Waste Management

All waste generated on site will be managed accordingly as per KPS' existing waste management procedures.

2.1.4 Summary of the Infrastructure Requirements

An adit has already been developed to support the UG mining at KPSX together with the supporting UG conveyors. An adit with the supporting UG conveyors will be constructed to support the UG mining at KPSS. This will be constructed on the existing KPSS OC highwall. Further, additional ventilation shafts and rescue boreholes will be constructed in strategic areas as the mining advances for both KPSX and KPSS. To manage additional dewatering activities from the UG workings, pipelines will be constructed which will link up with existing pipelines on surface and discharge in existing pollution control dams ("PCDs"). Should there be a need in future, a storage dam might also be constructed underground. Potable water supply to the UG workings will be delivered by pipelines which will link up with the existing potable water supply from the eMalahleni Water Treatment Plant. All other existing infrastructure will be utilised to support the proposed UG mining development including PCDs, power supply, haul roads, workshops, pipelines and water supply. The layout for the infrastructure at KPSX is depicted in **Figure 2-4**.

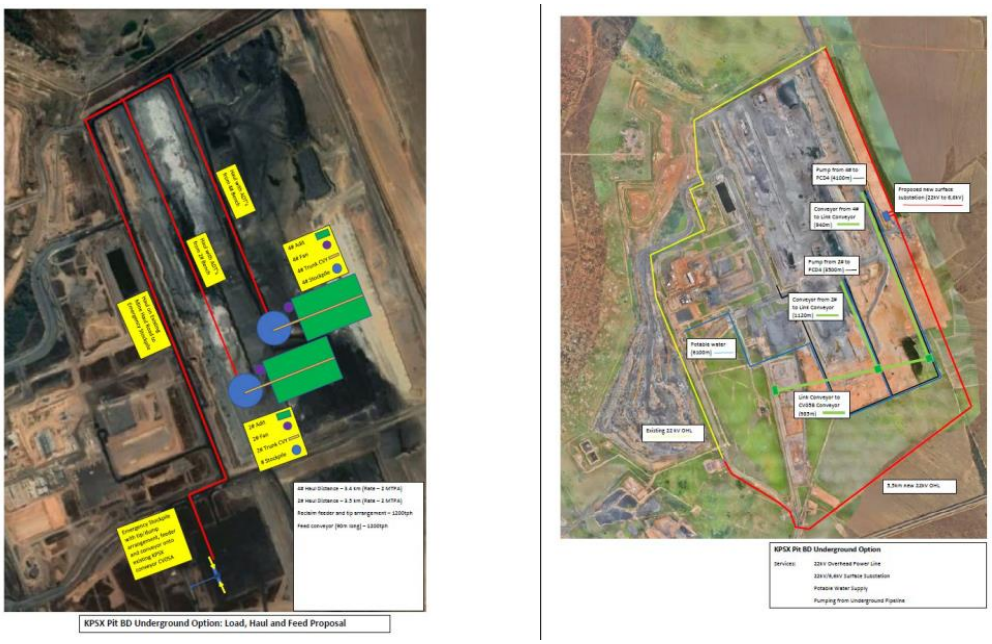


Figure 2-4: Layout for KPSX UG haul roads, pipelines, conveyor, load-haul and feed infrastructure

3 Legislative and Policy Framework

This section is dedicated to the institutional and legislative framework relevant to the assessment and management of socio-economic impacts related to the Project. It commences with a discussion of international best practice regarding social sustainability. This is followed by an overview of national legislation and policies that has bearing on the assessment and management of socio-economic impacts that are usually associated with mining projects.

There is no legislation in South Africa specific to Socio-economic Impact Assessments. There is however legislation, in the form of the National Management Act, 1998 (NEMA) (Act No. 107 of 1998) detailing the type, extent and timeframes for public participation or stakeholder engagement during the EIA phase of a project. Similarly, NEMA states that social aspects of projects must be considered at the EIA phase (outlined below). There is also a number of other important South African legislation which informs the social content in which SIA's are compiled and which are outlined below.

The Social Impact Assessment has been completed in terms of NEMA Environmental Impact Assessment (EIA) Regulations, 2014 (as amended) Appendix 6: Specialist Reports. Where applicable, the Report uses references from the International Finance Corporation's (IFC) Performance Standards.

3.1 The South African Constitution

The Constitution mostly speaks of human rights with the intention of establishing "a society based on democratic values, social justice and fundamental human rights", which is achieved through the promotion of human dignity, equality and the advancement of human rights and freedoms. Some of the human rights that are explicitly stated in the Constitution are a person's right to equality, freedom of expression and association, political and property rights, housing, healthcare, education, access to information, and access to courts.

Section 24 of the Constitution stipulates that everyone has the right to an environment that is not harmful to their health or wellbeing. It also stipulates measures to be implemented to ensure that the environment is protected for both current and future generations.

Other relevant sections of the Constitution include Section 25 that refers to expropriation of property is permissible to effect land redistribution, or in order to achieve some other public purpose or for the public interest. However, Section 25 prohibits arbitrary deprivation of property as well as the expropriation of property without payment of just and equitable compensation, which has either been agreed upon or which has been decided by a court of law.

3.2 National Environmental Management Act, 1998 (NEMA)

This Act provides that sustainable development requires the integration of social, economic and environmental factors in the planning, implementation and evaluation of decisions so as to ensure that development serves present and future generations. The Act further sets out the process for public participation.

3.3 Mineral and Petroleum Resources Development Act, 2002 (MPRDA)

One of the aims expressed in section 2(h) of the Mineral and Petroleum Resources Development Act (Act 28 of 2002) (MPRDA) is to promote social and economic development.

The mineral wealth of the country belongs to the people of South Africa and the State is the custodian thereof. As a consequence of this custodianship, the Minister has the duty to administer the mineral dispensation with a social conscience. She is expressly tasked by section 3(3) of the MPRDA to ensure that there is sustainable development of the country's mineral resources while promoting economic and social development (Werksmans Attorneys, 2011).

"In line with this aim, section 100 of the MPRDA provides that the Minister must ensure that a broad-based socio-economic empowerment charter is developed which will set the framework for entry of historically disadvantaged South Africans into the mining industry as well as to give effect to the Government's objectives of redressing social inequalities. It is expressly provided that the Charter must set out how the objectives expressed in section 2 of the MPRDA will be achieved… Two of the most prominent social aims of the Charter are mine community development and housing and living conditions of mine workers" (Werksmans Attorneys, 2011).

Upon the acceptance of an application for a mining right, the applicant is required to prepare an Environmental Management Programme (EMP) in accordance with requirements of the MPRDA, to mitigate both bio-physical and social impacts of the Project. The MPRDA states that "any mining operation must be conducted in accordance with generally accepted principles of sustainable development by integrating social, economic and environmental factors into planning and implementation". The MPRDA also identifies the timeframes and manner, in which the public should be consulted (refer to the PPP report, 2009). The MPRDA states that mining or prospecting must be conducted in accordance with general accepted principles of sustainable development by integrating social, economic and environmental factors into the planning and implementation of prospecting and mining projects.

The MPRDA furthermore requires that mining companies assess the social impacts of their activities from start to closure and beyond. Companies must also develop and implement a comprehensive Social and Labour Plan (SLP) to promote socio-economic development in their host communities and to prevent or lessen negative social impacts.

3.4 South African Mining Charter

The Act focuses on sustainable transformation of the mining industry. The Mining Charter seeks to achieve the following objectives:

(a) To promote equitable access to the nation's mineral resources to all the people of South Africa;

(b) To substantially and meaningfully expand opportunities for HDSA to enter the mining and minerals industry and to benefit from the exploitation of the nation's mineral resources;

(c) To utilise and expand the existing skills base for the empowerment of HDSA and to serve the community;

(d) To promote employment and advance the social and economic welfare of mine communities and major labour sending areas;

(e) To promote beneficiation of South Africa's mineral commodities; and

(f) Promote sustainable development and growth of the mining industry.

Social management and mitigation measures, to be developed as part of the SIA, will be aligned to the Mining Charter.

3.5 Comprehensive Rural Development Programme ("CRDP"), 2009

The CRDP aims at being an effective response to poverty alleviation and food security by maximising the use and management of natural resources to create "vibrant, equitable and sustainable rural communities". The vision of the CRDP is to be achieved through a three-prolonged strategy. The second strategy, Rural Development, pertains to this project in that it aims to:

- Promote access to community and social infrastructure;
- Focuses on the development of new and the rehabilitation of existing infrastructure;
- Improves and develop infrastructure conducive to economic development – e.g., distribution and transportation infrastructure, water and electricity infrastructure, and telecommunications infrastructure; and
- Improves and develop infrastructure conducive to social development – e.g., sanitation infrastructure, health infrastructure, sports and recreation infrastructure, and educational infrastructure (especially ABET).

The CRDP objectives are a critical yardstick against through which the interventions in the rural areas of the Emalahleni Local Municipality must be measured.

3.6 National Strategy for Sustainable Development and Action Plan (2011)

The National Strategy for Sustainable Development and Action Plan ("NSSD", 2011) is a proactive strategy that regards sustainable development as a long-term commitment, which combines environmental protection, social equity and economic efficiency with the vision and values of the country. It is a milestone in an ongoing process of developing support, and initiating and up-scaling actions to achieve sustainable development in South Africa (DEA, 2011) and has outlined the following strategic objectives:

- Enhance systems for integrated planning and implementation;
- Sustain ecosystems and use natural resources efficiently;
- Move towards a green economy;
- Build sustainable communities; and

- Respond effectively to climate change.

3.7 White Paper on Local Government (1998)

This White Paper sets the framework for a developmental local government system that is committed to working with citizens, groups and communities to create sustainable human settlements, which provide for a decent quality of life and meet the social, economic and material needs of communities in a holistic fashion.

3.8 Municipal Systems Act (Act No. 32 of 2000)

The Municipal Systems Act provides for the principles, mechanisms and processes that are necessary to enable municipalities to move progressively towards the social and economic upliftment of local communities, and to ensure universal access to essential services that are affordable to all.

3.9 Extension of Security of Tenure Act (ESTA) (Act No. 62 of 1997)

This Act confers certain rights to non-landowning residents of a property, where such rights are linked to the period of time in which persons have been resident on the land. The Act applies to all rural areas in South Africa, regardless of whether the land is used for farming or mining purposes. No occupier can be evicted unless the provisions of ESTA have been strictly followed and a Court Order has been obtained.

3.10 Interim Protection of Informal Land Rights Act 31 Of 1996

This Act aims to provide for the temporary protection of certain rights to and interests in land which are not otherwise adequately protected by law; and to provide for matters connected therewith.

Although mining is one of the major contributors to the South African economy, it goes without saying that the granting and execution of a mining right represents an invasion of a landowner's right of use and enjoyment of the surface. The provisions of s5(3) of the Mineral and Petroleum Resources Development Act (MPRDA) echo two fundamental common law principles that foster the co-existence of the mining right holder to access the land to which the mining right relates and the right holder's obligation to cause the least possible inconvenience to the landowner. Although South African law tries to reconcile, as far as possible, these competing rights, a situation may arise where the conflict of the rights is insoluble. For instance, when the landowner and the mining right holder are unable to enjoy their respective rights without clashing interests, there is no room for the simultaneous exercise of the rights of both parties. In short, IPILRA makes it clear that customary communities like the Applicants have a right to decide whether or not development occurs on their land. The MPRDA requires that the community is consulted before the Minister awards a mining right. But it does not expressly require that they consent.

The two statutes must be read to work together, not to conflict. The only way to do that is to hold that both IPILRA and the MPRDA apply. The community must be consulted under the MPRDA, and must consent in terms of IPILRA. This is not only

the best way to interpret the statutes in light of their purpose, it is the only interpretation that is consistent with international law and that promotes constitutional rights.

3.11 The Department of Mineral Resources Consultation Guidelines

The above Guidelines were compiled for use by applicants for prospecting and mining rights. It provides that Interested and Affected Parties include, amongst others, host (or receiving) communities, land owners, traditional authorities, land claimants; lawful occupiers, any other person whose socio-economic conditions may be directly affected by proposed prospecting or mining activities.

The required authorisation processes for the Project Environmental Authorisation Application include the following: In terms of the National Environmental Management Act (NEMA) EIA Regulations, published in Government Notice Regulation (GN R543) and promulgated on 2 August 2010, the activities requiring authorisation, and triggered by the Project, are those described in GN R544 (Listing Notice 1) and GN R545 (Listing Notice 2).

3.12 Overarching International Standards and Policies

3.12.1 Basic Human Rights

Basic human rights can be defined as universal moral principles or norms that describe certain standards of human behaviour. Each human being is entitled to these fundamental rights, simply because he or she is a human being, regardless of nationality, language, religion, locality, ethnic origin or any other status.

A foundational principle of basic human rights is that States must protect against human rights abuse within their territory and/or jurisdiction, including abuses caused by business enterprises. States should thus exercise adequate oversight in order to meet their international human rights obligations when they contract with, or legislate for, business enterprises to provide services that may negatively impact upon human rights.

In 2011 the UN's Human Rights Council endorsed the "Guiding Principles on Business & Human Rights" and stated the following: "As the basis for embedding their responsibility to respect human rights, business enterprises should express their commitment to meet this responsibility through a statement of policy". The operational principles of corporate responsibility to respect human rights are briefly summarized below. Enterprises should:

- Comply with all applicable laws and respect internationally recognized human rights, wherever they operate;
- Formulate and implement policies to meet their responsibility to respect human rights;
- Carry out human rights due diligence to identify, prevent, mitigate and account for how they address their impacts on human rights. Due diligence should be ongoing, recognizing that the human rights risks may change over time as the business enterprise's operations and operating context evolve;

- Identify and assess actual or potential adverse human rights impacts as a result of their own activities or due to their business relationships;
- Involve meaningful consultation with potentially affected groups and other relevant stakeholders;
- Take appropriate action within the organisation through internal decision-making, budget allocations and oversight processes;
- Track the effectiveness of responses to verify whether adverse human rights impacts are being addresses, based on qualitative and quantitative indicators, and feedback from internal and external sources and stakeholders; and
- Provide for or co-operate in their remediation through legitimate processes, where business enterprises identify that they have caused or contributed to adverse impacts.

3.12.2 DBSA Environmental and Social Safeguards Standards

The DBSA is a development finance institution involved in delivering developmental infrastructure in Southern Africa and the Southern African Development Community (SADC). It aims to advance development that improves the quality of life of people and support economic growth and regional integration. The DBSA has developed the Environmental and Social Safeguards Standards as an extension of its Environmental Appraisal Framework and the Social and Institutional Appraisal Guidelines. It has developed these to synchronise with the environmental and social standards of other Development Finance Institutions such as the Global Environmental Fund (GEF) Minimum Environmental and Social Safeguards Standards, the World Bank Group EHS Guidelines, the IFC Performance Standards and the African Development Bank AfDB Safeguards (DBSA, 2015).

3.12.3 Global Environmental Fund (GEF) Minimum Standards

The GEF unites 183 countries in partnership with international institutions, civil society organisations and the private sector to address global environmental issues while supporting national sustainable development initiatives (DBSA, 2015). It is the largest public funder of projects providing grants for projects related to biodiversity, climate change, international waters, land degradation, the ozone layer, and persistent organic pollutants.

3.12.4 Equator Principles

The Equator Principles are a set of principles for determining, assessing and managing social and environmental risk in project financing. The Equator Principles were developed by private-sector banks and were launched in June 2003. Equator Principles Financial Institutions (EPFI) can voluntarily agree to adhere to Equator Principles, and by doing so, agree to apply them to all new project financings. The aim is that EPFIs only finance projects which are developed in an environmentally and socially sound manner. The Equator Principles incorporate, by reference, the IFC Performance Standards and the World Bank Group EHS Guidelines. The importance of climate change, biodiversity and human rights are recognised in

these principles and negative impacts on project-affected ecosystems, communities and the climate should be avoided where possible.

3.12.5 IFC Policy on Environmental and Social Sustainability

The IFC is an international financial institution that offers investment, advisory, and asset management services to encourage private sector development in developing countries. The IFC's Performance Standards offer a framework for understanding and managing environmental and social risks for high profile, complex, international or potentially high impact projects. They define clients' responsibilities for managing their environmental and social risks and are regarded as an international benchmark which have been adopted by many organisations as a key component of their environmental and social risk management (IFC, 2012). The Performance Standards provide guidance on how to identify risks and impacts and are designed to help avoid, mitigate, and manage risks and impacts as a way of doing business in a sustainable manner, including stakeholder engagement and disclosure obligations of the client in relation to project-level activities.

3.12.6 Environmental, Health, and Safety (EHS) Guidelines

The World Bank Group EHS Guidelines are referred to in Performance Standards 1 as the technical reference documents with general and industry-specific examples of good international industry practice, to be used as a technical source of information during project appraisal. The EHS Guidelines contain the performance levels and measures that are normally acceptable to the World Bank, the IFC and the DBSA, and that are generally considered to be achievable in new facilities at reasonable cost using existing technology. For the above, the EHS Guidelines establish performance indicators that should be achieved as a minimum. The EHS Guidelines provide performance levels and measures to be achieved in new facilities by existing technology at reasonable costs. The EHS Guidelines should be tailored to each project based on the outcomes of an environmental assessment. The requirements of these guidelines have to be accomplished during the different implementation phases of the project. If the host country has more stringent performance indicators, then these must be guaranteed.

4 Approach and Methodology

Social impacts are those impacts that affect the level of social and socio-economic activities in a region either positively or negatively. For instance, they directly affect the socio-economic well-being of residents in an area by changing employment levels, education and skills levels, household size and income levels. A socio-economic impact assessment traces demographic and livelihood developments in the local economy. It then measures the cumulative effects of those developments and patterns. The impact region is determined by the nature of the proposal and can include the entire country, province, an individual municipality or a combination of municipalities. In this case, the impact will mostly be projected for Emalahleni Local Municipality and the Mpumalanga Province.

The SIA evaluates the human behaviour within a particular social context and how these are likely to impact on the Project. The South African society is shaped by a variety of cultures, traditions, political and religious beliefs which creates a rather

complicated context within which the economy must operate. The specific historical context of South Africa also develops the perceptions of people which are often formed based on preconceived ideas rather than accurate information. Estimating the socio-economic impact of a project or development is very helpful in understanding the potential benefits of various forms of growth and changes made in the built environment.

4.1 Definition

In order to define Socio-economic Impact Assessment, it is important to understand the difference between Social Impact Assessment and Socio-economic Impact Assessment. Internationally, Social Impact Assessment (SIA) is seen as an overarching framework that embodies the evaluation of all impacts on humans and on all the ways in which people and their communities interact with their socio-cultural, economic and bio-physical environment. SIA has strong links with a wide range of specialist sub-fields involved in the assessment of areas such as: aesthetic impacts, archaeological and heritage impacts, community impacts, cultural impacts, demographic impacts, development impacts, economic and fiscal impacts, gender assessment, health impacts, indigenous rights, infrastructural impacts, institutional impacts, political impacts, poverty assessment, psychological impacts, resource issues, tourism impacts and other impacts on societies (Vanclay, 2003: 7). Social Impact Assessment variables include the economic environment (compare Vanclay, 2003: 85-89; Burdge, 2004:101; Taylor, Bryan & Goodrich, 2004: 75). Social Impact Assessments and Economic Impact Assessments are often undertaken separately, but they are complementary and sometimes overlap. The social and economic environment cannot be separated, as these environments are closely entwined.

The current practice in South Africa is similar to the international practice as described in the previous paragraph, and Social Impact Assessments generally include social as well as economic impacts. The terms Social Impact Assessment and Socio-economic Impact Assessment are often confused and refer to the same assessment in many instances. The University of Wisconsin defines Socio-economic Impact Assessment as an examination of how a proposed development will change the lives of current and future residents of a community. The Australian Government Department of the Environment and Heritage (2005:5) states that Socio-economic Impact Assessment is a useful tool to help understand the potential range of impacts of a proposed change, and the likely responses of those impacted on if the change occurs. The International Association for Impact Assessment (2003) defines Social Impact Assessment as including the process of analysing, monitoring and managing the intended and unintended social consequences, both positive and negative, of planned interventions (policies, programmes, plans, projects) and any social change processes invoked by these interventions. The primary purpose of SIA is to bring about a more sustainable and equitable biophysical and human environment.

From an international perspective, Socio-economic Impact Assessment falls under the umbrella of Social Impact Assessment. A Social Impact Assessment will look at the social environment in more depth than a Socio-economic Impact Assessment. For South African purposes, the two terms are generally used as one and the same. Social and economic impacts should be integrated in order to provide a comprehensive and cost-effective outcome and avoid duplication. For the purpose of this Report the term Socio-economic Impact Assessment will be used.

4.2 Purpose of the SIA Report

The primary purpose of a SIA is to determine and analyse the likely impacts of a proposed development or event on a specific group of people or a community's way of life, character and social cohesion. This is done by assessing and analysing the probable socio-economic impacts before the development takes place. The aim is for the developer or proponent to realize and optimize the project's benefits and implement mitigation measures that would minimize the possible negative socio-economic impacts of the proposed development.

The purpose of the SIA study is to:

- Assess the social impacts of the Project including any impacts on local infrastructure and services;
- Recommend mitigation measures to minimise adverse impacts and maximise benefits of the Project; and
- Facilitate the consideration of alternatives.

4.3 Benefits of SIA

Considering potential social impacts of proposed developments have numerous benefits. The benefits of assessing social impacts are (Bezuidenhout, 2013):

- It enriches the decision-making process by potentially resulting in a different, better-informed decision than the one that would otherwise have been made.
- Decision-making criteria are applied consistently.
- A more holistic view of developments and their impacts are obtained.
- Provision of mitigation measures for negative social impacts, which are included as conditions for issuing an authorisation, and thereby ultimately enforced.
- Enhancement of positive social impacts that a development may have.
- Promotion of transparency and accountability in all applications for new developments.
- Social learning by developers, planners, decision-makers and the community, resulting in successful implementation of projects.
- Contributing to sustainability because development is more successful and sustainable if it has the "buy-in" of the communities that are affected by it –a "social licence to operate".

4.4 Approach

Socio-economic Impact Assessments are directly related to decision-making (Branch et al., 1984:6). Probable undesirable social and economic effects of development need to be identified before they occur in order to make recommendations for

mitigation (Interorganizational committee, 2004: 94). According to Henry (1990:93) SEIA intends to minimise negative impacts due to mismatches between people and projects by indicating the social and economic impact of projects prior to implementation, by facilitating project modification and mitigation through public input or by incorporating social values and priorities such as social equity. SEIA that involves the community minimizes local resistance to projects and therefore reduce disruption; they increase project success, and they prevent major planning disasters and associated costs (Burdge, 2004:248).

4.5 Methodology

The SIA used both quantitative and qualitative data collection techniques. In terms of the quantitative data, data from Statistics SA was used to understand the local social circumstances of the area. In terms of the qualitative method interviews were conducted to understand the affected communities' perceptions, how they view themselves and the environment around them.

4.5.1 Definition of the Study Area

According to the IFC (2003), the study area for an impact assessment can be defined as the area that is likely to experience impacts arising from or exert influence on, the project or activity being assessed. Defining the study area is used to determine a project's area of influence and responsibilities. It also provides guidance on the area to be monitored, and managed, and assists with defining stakeholders, and the tools needed to gather data for identifying project impacts.

Socio-economic impacts can usually be divided into three broad categories, namely:

- Physical intrusion, which refers to Project infrastructure and Project-related activities' material presence in an area. These could lead to changes in, for example, land ownership, noise, dust, and changes in the visual landscape. Such changes typically extend to land uses within a few kilometres from the Project site;
- Economic pull occurs when a Project exerts changes and impacts on job creation, in-migration of workers and job-seekers, multiplier effects in the local and regional economy – all of which can lead to an increased risk of social pathologies and community conflict. These impacts can typically be expected in settlements and towns closest to the Project; and
- Indirect or induced impacts that are by-products or ripple-effects of the impacts in the foregoing two categories. These include increased pressure on local services and resources (as a result of population influx), multiplier effects in the local and regional economy (as a result of the creation of new jobs, and Project-related expenditure), macro-economic benefits of the Project as well as benefits derived from corporate social investment by the Project proponent.

Accordingly, three concentric study areas were defined for the purposes of this study, which correspond to the three categories of impacts listed above. The definition of the zones of influence was also, to some extent, influenced by what socio-economic data is available – these being at national, provincial, district, local municipal and ward level.

The three zones of influence are as follows:

- Primary Zone of Influence (also referred to as the site-specific study area): The area likely to experience social impacts associated with the physical intrusion by Project infrastructure and Project-related activities. This study area is defined as the extent of the farm portions on which the Project footprint is located, the immediately adjacent farm portions and the communities adjacent to the current project area;
- The Secondary Zone of Influence (also referred to as local study area): The area likely to experience impacts related to the "economic pull" exerted by the Project. The secondary study area was defined as the Emalahleni Local Municipality, Nkangala District Municipality, which encompasses the primary study area. This area is defined as the affected local municipality in which the Project is located.
- The Tertiary Zone of Influence (also referred to as the regional study area): The area likely to experience indirect or induced impacts of the Project. The tertiary zone area was defined as the district municipality of Nkanagala District followed by the Mpumalanga Province, which encompass both the primary and secondary study areas.

Three study areas were defined: The primary study area, the secondary study area and the regional study area. The primary study area was defined as the properties that fall within the Mining Right boundary.

The methodology followed in undertaking the study included the following:

4.5.2 Approach and Data Collection Methods

Two research approaches can be distinguished, namely a quantitative approach and a qualitative approach. A combination of these two methods can also be followed. DEAT (2006) uses the example of having to obtain information on the number and availability of community facilities.

The use of statistical data to obtain insight about the number and availability of community facilities was used (quantitative approach). It was explored further by obtaining the views and perceptions of the people on the effectiveness and accessibility of these facilities (qualitative approach). "By using both qualitative and quantitative methodology more comprehensive data will be obtained, and a more holistic product would result, without excluding important areas of assessment" (DEAT, 2006).

The approach taken to data collection – and to the SIA in general – was to capitalise as much as possible on collaboration with other members of the Niara involved in the EIA and supporting specialist studies. Instances of such collaboration included the following:

- Investigative site visit was undertaken in April 2024;
- Statistics South Africa data;
- A literature review of the Integrated Development Plan, Spatial Development Framework;

- Scan and analysis of the Draft Scoping Report, KSP SLP documents, Comments and Responses Report and various specialist studies;
- Information obtained from the EIA and EMP Scoping phase of KPSX (e.g. during meetings with local government officials and other local and regional stakeholders) was used to inform the social baseline and impact assessment; and
- The findings of other specialist studies were reviewed to identify cross-disciplinary linkages, i.e. impacts assessed by one specialist discipline that could give rise to indirect or induced impacts relevant to another discipline. As an example, project induced changes in groundwater quality and quantity could cause social impacts by altering the availability and/or quality of water for domestic consumption. Specific data collection activities undertaken during this study are outlined below

4.5.3 Quantitative Technique: Desktop Review

Quantitative research can be described as an inquiry into a social or human problem, based on a theory composed of variables, measured with numbers, and analysed with statistical procedures, in order to determine whether the predictive generalisations of the theory hold true (Sogunro, 2001).

The most common source of quantitative data in SIA is census data, which is used to produce historic and demographic profiles. It can also be used to provide extensive baseline information. Other official statistics, like crime statistics, are also useful and credible (Taylor et al, 2004).

A desktop review of available documents to obtain relevant socio-economic baseline information on the defined study areas. The desktop study consisted of a review of the relevant local and district municipal documentation, which was incorporated into the baseline profile where relevant. This included the Integrated Development Plans (IDP) for the Emalahleni Local Municipality and the Nkangala District Municipality (both for the years 2017-2022).

Documents reviewed include:

- Provincial reports, district and local municipal IDPs and Local Economic Development (LED) Plans.
- Secondary data from Census 2022 and Community Survey 2016 was obtained from Wazimap (www.wazimap.co.za), an online open source census data management database that manipulated census data to conform to the new municipal ward boundaries established in 2016. Data obtained from Wazimap was processed in MS Excel and compared on various levels to determine socio-economic trends in the area. This data, together with the information obtained from the IDPs, were used to compile the baseline socio-economic profile.
- Previous studies and reports concerning the proposed opencast Project, specifically the Environmental and Socio-Economic Scoping report and SLP compiled for the KPSX Project.
- Available maps and satellite imagery

Available public documents were reviewed to obtain relevant information on current and planned Project activities, on baseline socio-economic conditions. In order to determine the social impacts, a base profile of the study area was compiled by utilising relevant secondary data sources. Information was largely accessed from interrogation of maps, aerial photographs, technical discussions, existing secondary documents, and a site visit. Appropriate information was extracted from the relevant data sets to present information in terms of the social profile of the area.

- In addition to governmental literature, project and development-based literature was reviewed, such as:
- Previous social and environmental assessment reports for mining-related projects;
- National and regional research reports, South African Mining Policy Gap report on community engagement, concerns and impacts, and the Socio-Economic Review & Outlook of Mpumalanga presentation on socio-economic challenges in Mpumalanga; and Web-based publications and journal articles based on the effects of mining on the social environment

4.5.4 Primary

This impact assessment was informed by the primary data collected by Niara during site visits for the following:

- Community members within the ZOI;
- Ward Councillors from Wards 17 and 30 of the ELM

Information obtained from directly and indirectly affected landowners as part of the EIA for the Project will be considered and reviewed to identify potential bio-physical impacts that might have significant, although indirect, socio-economic implications.

4.5.5 Qualitative Techniques

Qualitative research can be described as an inquiry process of understanding a social or human problem, based on building a complex, holistic picture, formed with words, reporting detailed views of informants and conducted in a natural setting (Sogunro, 2001).

Qualitative techniques are used extensively in SIA, using a number of research methods, including:

- Ethnographic research, which entails in-depth interviews and detailed observation aimed at developing an insider perspective and is not intended to be statistically representative.
- Focus group interviews, which are concentrated in-depth group interviews with selected participants.
- Casual and unplanned contacts can also be valuable sources of information.
- Participatory rural appraisal is aimed at empowerment rather than simply data collection and the information gathered is owned, analysed and used by local people rather than by outsiders. It is a good method to use in

developing countries and informal communities, especially where there is a high rate of illiteracy and few sources of secondary data

- Experts or key informants are persons from both the public and private sectors having knowledge of the community under study. The assessor selects them because they have broad knowledge of the community, its services and its history.
- A community forum is based on one or more public meetings to which people are invited to express their opinions about a proposed opencast Project.
- Workshops entail working with groups and learning how the group mind develops during dialogue. (DEAT, 2006).

A visit to the project site was undertaken in May 2024 by Niara's social scientist, to gain an appreciation of the socio-economic characteristics of the area. During the site visit, informal one on one discussions were carried out with a number of key stakeholders and informants. The aims of these interviews were:

- To verify and augment data on local socio-economic conditions obtained from secondary sources.
- To gain insight into local experiences, perceptions and feelings about the Project.
- Familiarise themselves with the project area and surrounding environments and to collect primary data. Semi-structured interviews were set up with Government and Community Stakeholders and the community centres were visited. The consultant also wanted to obtain an overview of the social characteristics of the study area and visit farms within the vicinity of the KPSX Project area.

Telephonic interviews and face to face interviews. The main objective of the intended meeting with adjacently affected land owners and farm dwellers was to understand the feelings of local landowners towards mining. Challenges faced by landowners in day to day living.

The main objective of the intended meeting with Local municipal representatives (authorities)/ ward councillor was to understand the role of local municipality in the municipality, including the influence mining has played in economic growth, development and the provision of services. Previous experience within the municipal region was also used to inform the study.

4.5.6 Literature Review, Baseline Data Review and Analysis

The review of existing data assisted the consultant in confirming the social setting and characteristics of the study area, as well as the key economic activities. Data studied included information from the Provincial, District and Local Municipalities Strategic Planning Documents such as their Provincial Growth and Development Strategy (PGDS), Integrated Development Plan (IDP) for GSDM and other Sector Plans. Articles pertaining to mining and tourism within the South African context were also considered.

The secondary data was derived from a number of sources. Socio-economic indicators for the households and populations within the primary and secondary study areas, located within Ward 30, were derived from official Statistics South Africa (StatsSA) data sources. These sources included the Census 2022 and Community Survey 2016 statistics, accessed through Wazimap[1]. It is acknowledged that the official statistics cited in the report may not reflect the current socio-economic status of households and populations within eMalahleni Local Municipality.

4.5.7 Compilation of a Socio-Economic Baseline Profile

Information from the public consultation process, including minutes of meetings and the Comments and response Report, will be reviewed. This should provide the social specialist with important information regarding the prevalent concerns, attitudes and perceptions relating to the existing KPSX Project.

In order to obtain social data from the surrounding landowners that will be affected by the project, a questionnaire was prepared (refer to Appendix B). The landowners were afforded the opportunity to either be interviewed or to have the questionnaire emailed to them. On the basis of the information collected through the desktop review, engagement with and information from other specialist studies, a socio-economic baseline profile was compiled for the respective study areas defined in Section 8. Topics considered as part of this profile include (but are not limited to) the following:

- Demographics, including population size and density as well as population distribution in terms of age and gender;
- Education levels;
- Employment status and income profiles;
- Economic sectors;
- Infrastructure and services (housing, energy, water and sanitation); and
- Community needs and development.

Based on information gathered through the desktop review and limited primary data a baseline profile was compiled and has been categorised as follows:

- Baseline conditions within the regional and secondary study areas
- Economic and livelihood activities
- Labour force and employment
- Household characteristics
- Household access to public services and infrastructure

Baseline conditions within the primary study area:

- EMahlaleni Ward 30
- Nkangala District Municipality (NDM)

4.5.8 Social Sensitivity Map

Satellite imagery from Google Earth were used to identify preliminary social sensitive areas, the sensitivity is assessed within 10km radius. These areas were then marked according to their sensitivity, i.e., low, medium or high. It is generally accepted that the social sensitivity of certain activities will decrease the further away these activities are located from the Project site.

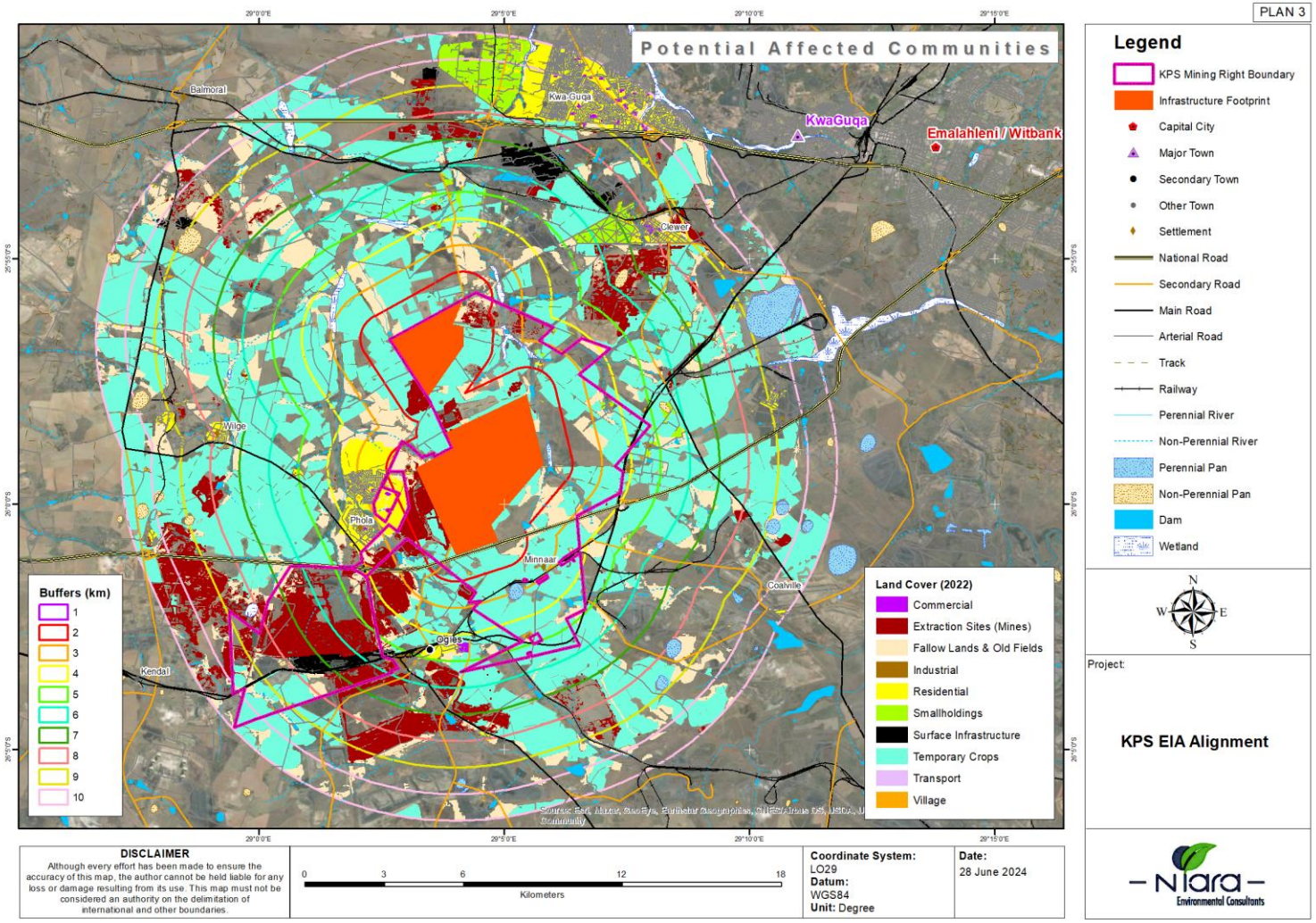


Figure 4-1: Social Sensitivity – 10km Buffer

The following criteria was applied to determine preliminary (desktop based) social sensitive receptors:

Table 4-1: Sensitivity Description

Sensitivity	Description
High	Any of the following socio-economic activities within a 2 km radius from the Project area: • Any form of human settlement, such as formal housing, informal housing, scattered houses, small villages, grouped houses, etc.; • Heavy industrial and/or commercial with high economic value in terms of employment; and • Areas with high agricultural potential. It is expected that there would be a marginal to no buffer between these activities and the Project.
Medium	Any of the following socio-economic activities within a 5 km radius from the Project area: • Any form of human settlement, such as formal housing, informal housing, scattered houses, small villages, grouped houses, etc.; • Heavy industrial and/or commercial with high economic value in terms of employment; and • Areas with high agricultural potential. It is expected that most activities within the 5 km radius would be buffered somewhat by activities taking place within the 2 km radius.
Low	Any of the following socio-economic activities within a 10 km radius from the Project aea: • "Greenfields" areas (areas not currently occupied by any infrastructure); • Any form of human settlement, such as formal housing, informal housing, scattered houses, small villages, grouped houses, etc.; • Heavy industrial and/or commercial with high economic value in terms of employment; and • Areas with low agricultural potential. It is expected that these activities would be buffered by activities taking place in both the 5 km and 2 km radius.

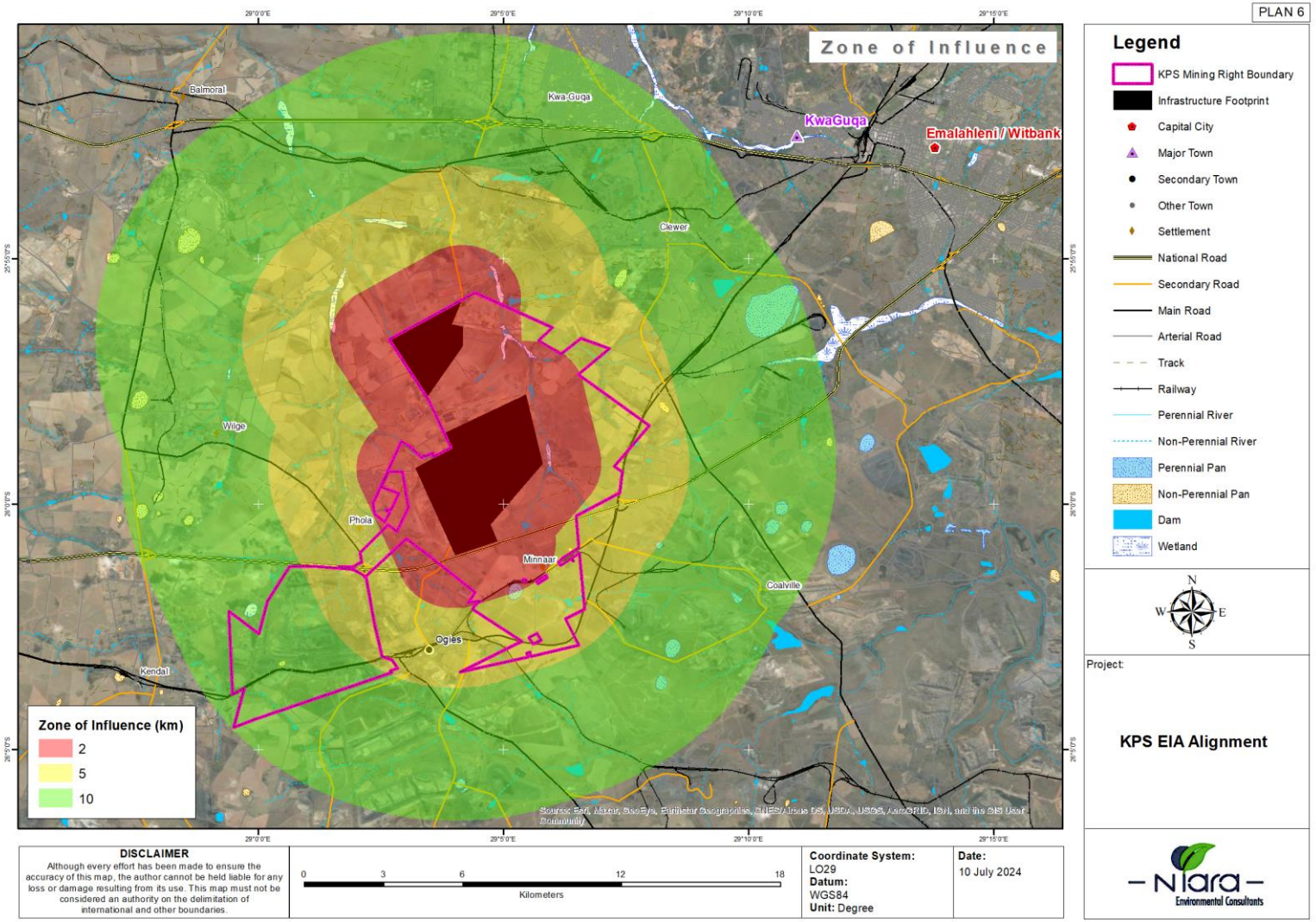


Figure 4-2: Zones of Influence

4.5.9 Ethics

Human beings are the objects of study in the social sciences brings unique ethical problems to the fore. Every individual has the right to privacy which is their individual right to decide when, where, to whom, and to what extent his or her attitudes, beliefs and behaviour will be revealed (Strydom, 2002). Every person interviewed for the purposes of this study/ Report has been assured that although the information disclosed will be used to inform the study, their names and credentials will not be disclosed without their permission. Therefore, to protect those consulted and to maintain confidentiality, the people interviewed for this report will not be named in the report. Records of the interviews have been kept. This is in line with international as well as national research practices such as the ESOMAR and SAMRA codes of conduct.

4.5.10 Information from the Public Consultation Process

Stakeholder consultation was undertaken for obtain comments, questions and concerns related to the social aspects of the Project. In addition, comments received from Interested and Affected Parties (I&APs) during the public participation process that were pertinent to the SIA appear in the EIA Comments and Responses Report. Stakeholder comments have been considered in the assessment of impacts and the development of mitigation measures. The relevance of this data lies in the fact that the public participation process serves as a stage where stakeholders air their concerns and perceptions about the Project. This allows for the early identification and confirmation and assessment of social impacts. The Comment and Response Report (CRR) compiled as part of the public consultation process will be reviewed as part of the data collection process. Since public consultation is an on-going process, this Report will be updated after Draft EIA phase, to include and capture any social related concerns.

5 Impact Assessment Methodology

The impact significance rating process serves two purposes: firstly, it helps to highlight the critical impacts requiring The methodology used to evaluate and quantify the potential environmental impacts of the proposed Projects has been presented below.

Table 5-1: Impact Rating Methodology

Probability: This describes the likelihood of the impact actually occurring.		**Weight**
Improbable	The possibility of the impact occurring is very low, due to the circumstances, design or experience.	1
Probable	There is a probability that the impact will occur to the extent that provision must be made therefore.	2
Highly Probable	It is most likely that the impact will occur at some stage of the development.	4
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.	5
Duration: The lifetime of the impact		**Weight**

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.	1
Medium term	The impact will last up to the end of the phases, where after it will be negated.	3
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.	4
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.	5
Scale: The physical and spatial size of the impact		**Weight**
Local	The impacted area extends only as far as the activity, e.g. footprint	1
Site	The impact could affect the whole, or a measurable portion of the above-mentioned properties.	2
Regional	The impact could affect the area including the neighbouring residential areas.	3
Magnitude/ Severity: Does the impact destroy the environment, or alter its function.		**Weight**
Low	The impact alters the affected environment in such a way that natural processes are not affected.	2
Medium	The affected environment is altered, but functions and processes continue in a modified way.	6
High	Function or process of the affected environment is disturbed to the extent where it temporarily or permanently ceases.	8
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.		**Weight**
Negligible	The impact is non-existent or unsubstantial and is of no or little importance to any stakeholder and can be ignored.	</=20
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.	</=40
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.	</=60
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.	>60
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.	

6 Impact Assessment

A recapitulation of the Impact Rating Methodology has been provided in the table below:

Table 6-1: Recapitulation of Impact Rating Matric

Magnitude	Weight
Very Low	1
Low	2
Medium	3
High	4
Very High	5

Extent	Weight
Footprint	1
Site	2
Regional	3
National	4
International	5

Reversibility	Weight
Reversible	1
Recoverable	3
Irreversible	5

Duration	Weight
Short term	1
Short-Medium term	2
Medium term	3
Long term	4
Permanent	5

Probability	Weight
Improbable	1
Possible	2
Likely	3
Highly Likely	4
Definite	5

Significance	Weight
Negligible	</=20
Low	</=40
Moderate	</=60
High	>60

6.1 Direct versus Indirect and Cumulative Effects

The following are usually assessed within a SIA:

- Population impacts, including population change (ethnic composition, size, etc.); inflow or outflow of temporary workers; presence of seasonal residents; and relocation of individuals and families.
- Socio-economic impacts, including job creation, enhanced economic equity; change in employment equity; impacts on women and possible economic and social vulnerabilities as a result of the Project; and changes in the industrial/commercial focus of the community.
- Individual and family level impacts, including disruption in daily living and movement patterns; disruption in social networks; introduction of new social classes and tourism and leisure impacts.
- Community/institutional arrangements, such as attitude formation; interest group activity; and alteration in size and structure of local government.
- Public health, safety and security impacts.
- Community infrastructure, including changes in community infrastructure; land acquisition and disposal; and effects on known cultural, historical and archaeological sites.
- Intrusion impacts, including noise pollution, light pollution, visual pollution, air pollution and malodour pollution.

Only impacts relevant to this proposed Project have been analysed and additional impacts that emerge during the PPP and consultation phases will be included.

6.2 Limitations and Assumptions

When conducting a SIA, it is critical to recognize both the assumptions made and the limitations of the assessment.

- It was assumed that the motivation for, and the ensuing planning and feasibility studies of the Project were done with integrity, and that the information provided to date by the independent EAP was accurate. This Report and assessment are dependent on the accuracy of the publicly available secondary information; such as Statistics South Africa (StatsSA, 2011 and community survey, 2016). Where possible, the information was verified during a site visit. The data was considered sufficient for the purpose of this study;
- The study is based on data obtained from the community survey, 2016, which may not reflect accurate information;
- It should be noted that the social environment is a dynamic, constantly changing entity. It is therefore not always possible to predict all social impacts to a very high level of accuracy. Care has been taken to identify the most likely and significant impacts in the most appropriate way for the current local context; Social impacts can be experienced by affected communities on an actual or a perceptual level. It is therefore not always possible to quantify social impacts properly;

- It should be noted that predictions concerning the characteristics of the receiving socio-economic environment at the time of decommissioning are subject to a large margin of error, thus significantly reducing the accuracy of impact assessment- the specialist has attempted to assess (where possible) the impact during the decommissioning phase;
- Individuals view possible social impacts differently due to their association with the anticipated impact. Impacts could therefore be perceived and rated differently than those contained in the community Health Assessment Report. Further public participation can be used to refine findings; and Socio-economic impacts associated with the eventual decommissioning of the project activity at the end of its life are briefly discussed but are not subject to detailed assessment. This omission is motivated by the fact that predictions concerning the characteristics of the receiving socio-economic environment at the time of decommissioning (26 years in the future) are subject to a large margin of error, thus significantly reducing the accuracy of impact assessment

Listed below is a breakdown of generalised SIA related assumptions and limitations:

6.2.1 Assumptions

The assumptions made for this SIA include:

- Causality: SIAs often assume a causal relationship between the proposed project or intervention and its potential social impacts. This assumption implies that changes observed in social conditions are directly attributable to the project and not solely influenced by other factors.
- Stakeholder Engagement: SIAs typically assume active stakeholder engagement throughout the assessment process. This includes assumptions about the willingness of stakeholders to participate, their ability to provide accurate information, and the effectiveness of engagement methods in capturing diverse perspectives.
- Data Availability: SIAs rely on the availability of relevant and reliable data to assess social conditions, identify potential impacts, and develop mitigation measures. Assumptions are made about the adequacy and accuracy of existing data sources, including census data, surveys, interviews, and secondary sources.
- Mitigation Effectiveness: SIAs may assume that proposed mitigation measures will effectively address identified social impacts and prevent negative consequences. This assumption requires careful consideration of the feasibility, implementation, and monitoring of mitigation strategies.

6.2.2 Limitations

Limitations associated with an SIA include:

- Data Gaps: SIAs may encounter limitations due to data gaps, inconsistencies, or inaccuracies in available information. This can affect the reliability and comprehensiveness of the assessment, particularly in areas with limited data availability or poor data quality.

- Complexity of Social Systems: Social systems are complex and dynamic, making it challenging to predict and quantify all potential social impacts accurately. SIAs may struggle to capture the full range of interactions, feedback loops, and unintended consequences within social systems.
- Subjectivity: SIAs involve subjective judgments and interpretations of social conditions, priorities, and values. Different stakeholders may have conflicting perspectives on the significance of certain impacts or the appropriateness of mitigation measures, leading to uncertainty and disagreement.
- Temporal Dynamics: Social impacts may unfold over extended time frames, with effects manifesting differently across various stages of project development and operation. SIAs may overlook long-term or delayed impacts and fail to adequately account for temporal dynamics in social change.
- Context Sensitivity: SIAs must be sensitive to the contextual factors that shape social conditions, including cultural norms, historical legacies, institutional frameworks, and power dynamics. Failure to consider these contextual factors can result in incomplete or biased assessments of social impacts.
- Interdisciplinary Challenges: SIAs require collaboration across diverse disciplines, including sociology, anthropology, economics, and environmental studies. Interdisciplinary challenges, such as differences in terminology, methodologies, and epistemological frameworks, can complicate the integration of social and environmental considerations.
- Uncertainty and Risk: SIAs inherently involve uncertainty and risk, particularly regarding the prediction of future social impacts and the effectiveness of mitigation measures. It's essential to acknowledge and communicate these uncertainties transparently to decision-makers and stakeholders.

Recognising these assumptions and limitations is critical for conducting robust and rigorous social impact assessments that inform decision-making, promote social justice, and mitigate adverse effects on affected communities. Transparency, stakeholder engagement, and ongoing reflection are key to addressing these challenges and improving the quality and effectiveness of SIAs over time.

7 Assessment of Alternatives

In accordance with the requirements outlined in Appendix 2 of the EIA Regulations 2014, as amended, a consideration of reasonable and feasible alternatives, including site and technology alternatives and the “do-nothing” alternative must be undertaken. Each alternative is to be accompanied by a description and comparative assessment of the advantages and disadvantages that such development and activities will pose on the environment and socio-economy. When no feasible and/or reasonable alternatives can be identified and investigated in terms of a comparative assessment during the Scoping Phase, the EIA Report will then not contain a section with alternatives.

The EIA Regulations 2014, as amended, define alternatives as the different means of meeting the general purpose and requirements of the activity, which may include alternatives to:

- The property on which or location where it is proposed to undertake the activity;
- The type of activity to be undertaken;
- The design or layout of the activity;
- The technology to be used in the activity;
- The operational aspects of the activity; and
- The option of not implementing the activity.

Limited alternatives may exist for the project may exist for the Proposed Project.

The Department of Environmental Affairs (DEA) EIA guidelines necessitate the consideration of various development alternatives as part of the EIA process. The consideration of project alternatives is a key requirement of an EIA as it provides a basis for choice for the competent authority and I&APs. In the NEMA EIA Regulations, alternatives in relation to a proposed activity are defined as "different means of meeting the general purpose and requirements of the activity, which may include alternatives to the –

property on which or location where it is proposed to undertake the activity;

- type of activity to be undertaken;
- design or layout of the activity;
- technology to be used in the activity; and
- operational aspects of the activity.

Alternatives that are considered must be reasonable and feasible and should have the potential to reduce negative impacts that may occur due to the proposed Project. Alternatives are considered as a means of reaching the same need and purpose as the proposed Project in a way that minimises the impacts and maximises the benefits. The anticipated environmental impacts which these alternatives may pose have been discussed below.

The following alternatives were considered for the mining of the Nwabu Project:

- Mining method alternatives;
- Mining footprint;
- No-go option.

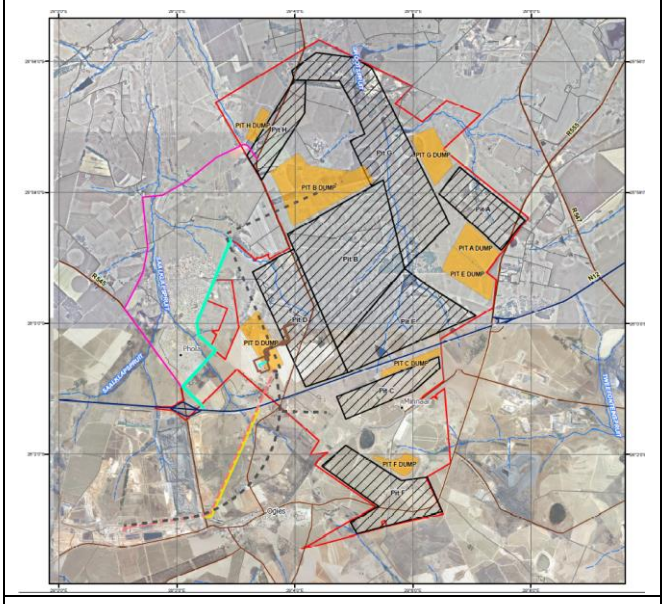
7.1 Mining Method Alternatives

An array of underground and surface mining techniques exists; however, technical and economic feasibility studies are required to determine which process/method is best. These studies are based on the regional geologic conditions, including characteristics of the site; seam continuity; thickness; structure; quality; and depth and strength.

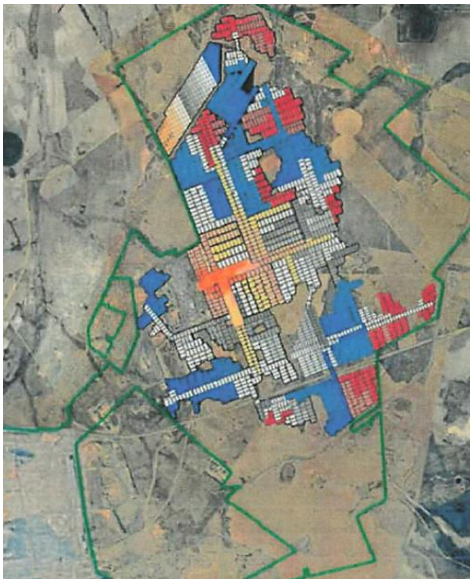
Both the OC mining method and the UG method were considered, where the UG mining was found to be the preferred mining strategy going forward due to the following reasons:

- The proposed area of mining has a significant number of wetlands which will be destroyed when using OC method;
- The destruction of wetlands requires rehabilitation compensation measures in other wetlands within the catchment which require significant financial resources;
- Most of the areas to be mined at KPSX had significantly higher strip ratios which would increase the mining expenses and waste management costs.

The OC mining considered and the UG preferred option are illustrated in **Figure 7-1** below.



OC Mining Alternative



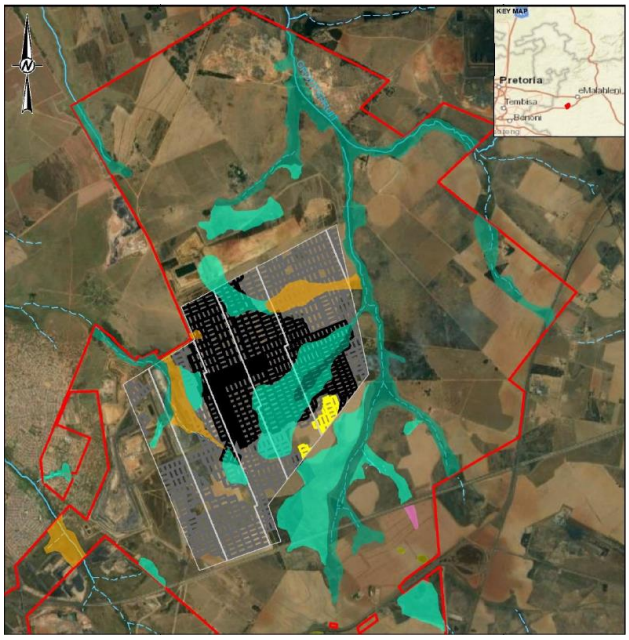
UG Mining (Preferred Option)

Figure 7-1: Mining Method Alternatives

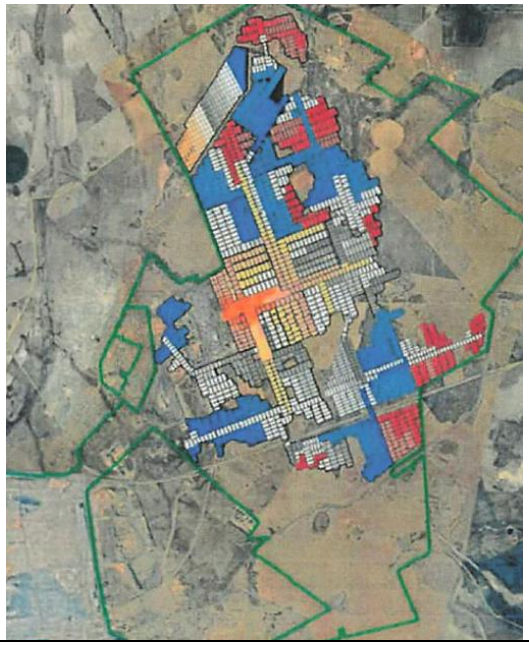
7.2 Mining Footprint

As Pit BD mining has already been approved in 2017 for OC mining, KPS did consider only converting this pit to UG mining initially, as it was assumed that the authorisation process for the amendment would be quicker. However, the economic

viability of the project was not adequate to sustain the project, hence the preferred alternative was to mine the economically viable reserves remaining at KPSX. The considered alternatives are illustrated in Figure 7-2 below.



UG Mining Alternative- Only Pit BD



UG Mining _Whole Extent (Preferred Option)

Figure 7-2: Mining Footprint Alternatives

7.3 No-go Option

The No-go alternative was deemed non-viable as this would mean the current KPS OC pits would be depleted in 2039, resulting in the closure of the facility whilst the reserves are still available. This "premature" closure would also result in a shortage of coal to both Eskom and the Export market and impact negatively on the country's GDP. The ongoing capital investment planned for KPS for the development of UG and OC mining is estimated at R1.7 billion and will not be invested if the project does not continue.

8 Socio-Economic Baseline

8.1 Mpumalanga Province

The Project area is located in the Mpumalanga Province. Mpumalanga means "place where the sun rises". It is the second-smallest province in South Africa and located in the north-eastern part of the country, bordering Swaziland and Mozambique. The province covers a geographical area of 76 544.3 km^2 or 1.4% of the total surface area of South Africa. Mpumalanga is the second-smallest province in South Africa after Gauteng and is located in the north-eastern part of the country bordering Swaziland and Mozambique to the east.

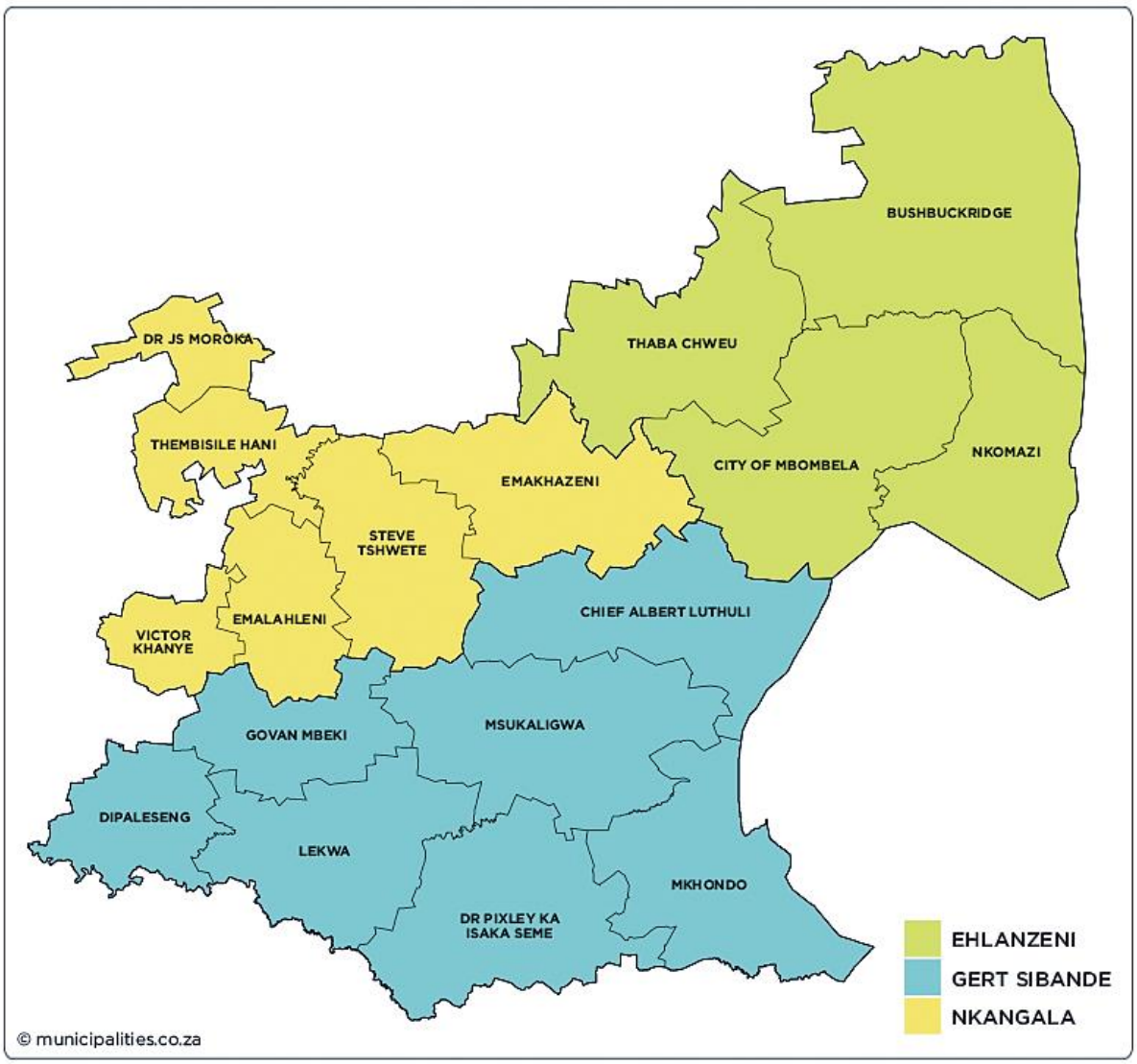


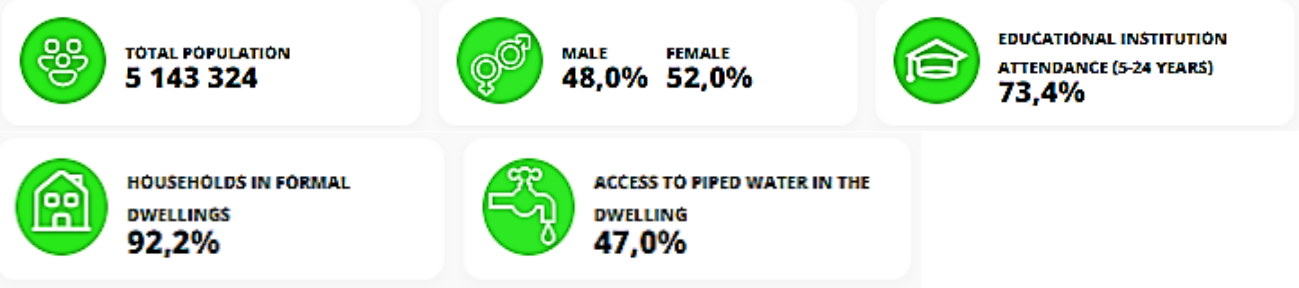
Figure 8-1: Map of Mpumalanga, showing its DMs and LMs

The Mpumalanga Province is subjected to high levels of immigration (both legal and illegal) from adjoining countries - especially Mozambique. The close proximity of Swaziland and the strong cultural ties between it and the Swazi's semi-independent homeland of KaNgwane (now absorbed into Mpumalanga) creates extensive opportunities for double counting during census surveys, as these people might be counted as part of the Mpumalanga population and Swazi immigrants. Labour migration on a weekly and monthly basis is prevalent between the province and neighbouring Gauteng.

Administratively Mpumalanga is divided into three district municipalities (See figure below), which are further subdivided into 17 local municipalities. The City of Mbombela is the capital of the province and the administrative and business centre of the lowveld. Other major cities and towns in Mpumalanga include eMalahleni (previously Witbank), Middelburg Standerton, eMkhondo (previously Piet Retief), Malalane, Ermelo, Barberton and Sabie.

Table 7-8-1: Mpumalanga Province Key Statistics

Mpumalanga Key Statistics		
Name	**2022**	**2011**
Total population	5,143,324	4,039,939
Young children (0-14 years)	28,4%	31,2%
Working age population (15-64 years)	66,4%	64,1%
Elderly (65+ years)	5,2%	4,7%
Dependency ratio	50,6	56,0
Sex ratio	92,4	95,6
No schooling (20+ years)	11,7%	14,0%
Higher education (20+ years)	7,3%	9,1%
Number of households	1,421,721	1,075,466
Average household size	3,6	3,8
Formal dwellings	92,2%	83,8%
Flush toilets connected to sewerage	54,9%	43,8%
Weekly refuse disposal service	51,1%	42,4%
Access to piped water in the dwelling	47,0%	35,7%
Electricity for lighting	93,7%	86,4%



8.1.1 Demographic Profile

Mpumalanga has a total of 5 143 324. The majority of the population consists of Black African (95.3%) (Census, 2022). There are slightly more females (51%) than males. According to the Census 2022, the majority of the province's residents are of South African nationality (97.9%) and 85% are native to Mpumalanga. The most spoken languages are isiZulu (24.1%) and siSwati (27.7%).

The major economic sectors include mining, manufacturing, energy and agriculture while tourism and agri-processing are potential growth sectors. The Mpumalanga Vision 2030 is the direct implementation response to the National Development Plan (NDP) (Vision 2030). It is the province's approach to realising the objectives of the NDP in the provincial context. It builds on and informs past & existing sectorial and related planning interventions in Mpumalanga (MP). It further sets high level provincial targets, facilitate decision making and prioritisation and inform choices and trade-offs.

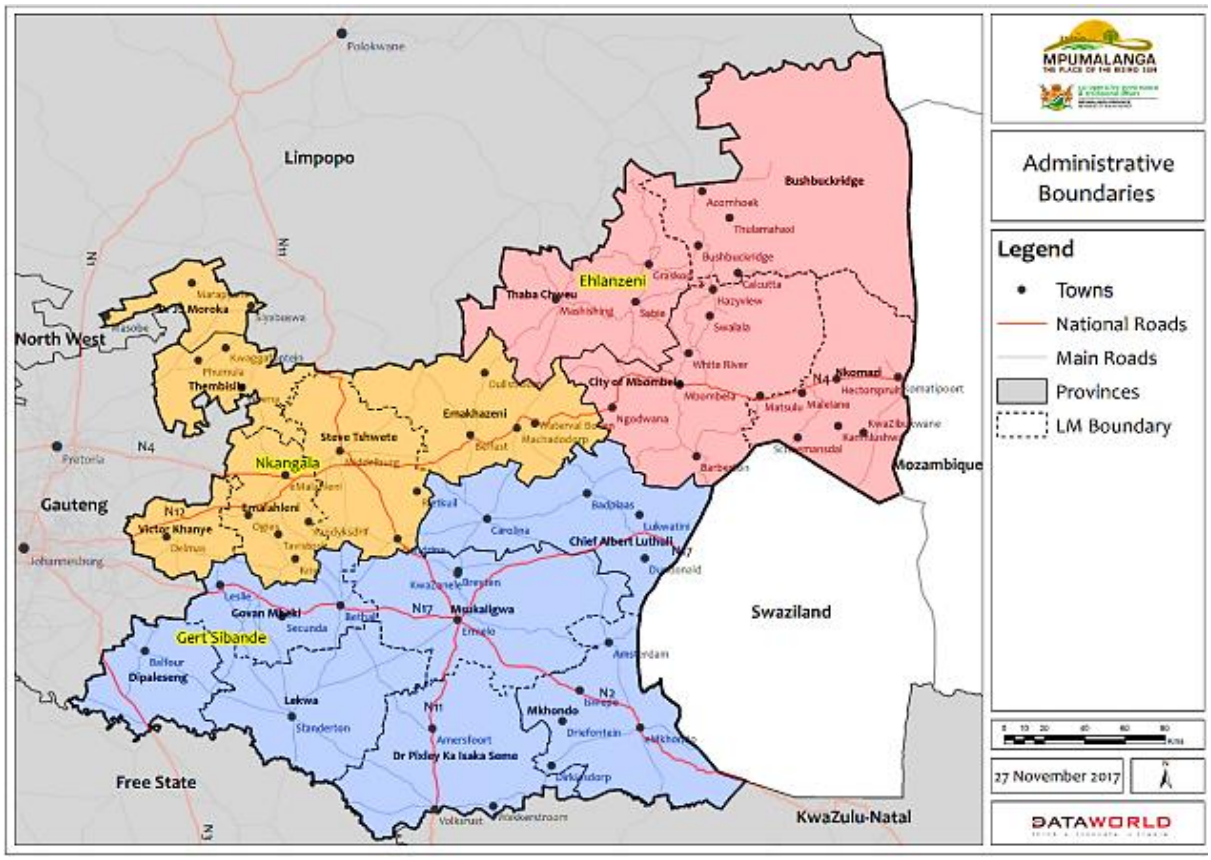


Figure 8-2: Administrative boundaries within Mpumalanga Province

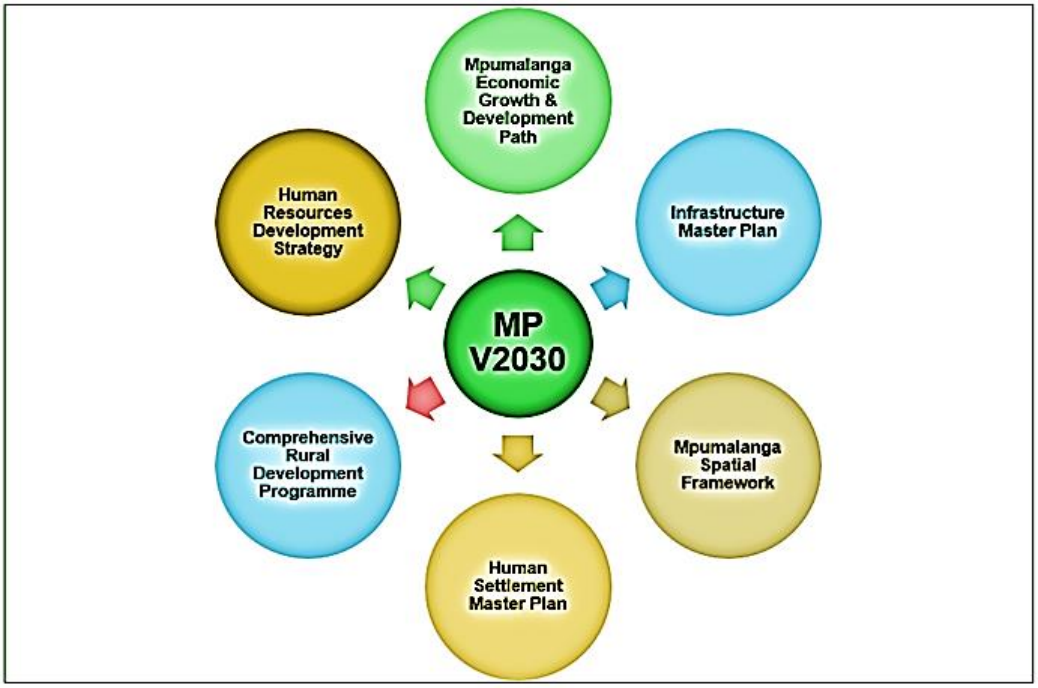


Figure 8-3: Provincial planning landscape and linkages

In line with the principles of the NDP, V2030 highlights the following socio-economic outcomes as priorities:

- Employment & Economic Growth;
- Education and Training;
- Health care for all; and
- Social Protection.

These priorities do not imply that the "normal business of government" should be deferred, but rather aim to focus the activities and decisions of the province on key areas leveraging high impact for improved and sustainable long-term socio-economic development in Mpumalanga.

8.1.2 Economic Profile

Mpumalanga is the second-smallest province in South Africa after Gauteng and is located in the north-eastern part of the country bordering Swaziland and Mozambique to the east. It covers an area of 79 490 km^2 and has a population of approximately 4 million, representing 7.8% of the South African population. The best performing sectors in the province include mining, manufacturing and services, while tourism and agri-processing are potential growth sectors.

Mpumalanga is rich in coal reserves and home to South Africa's major coal-fired power stations. The province is divided into three district municipalities, which are further subdivided into 18 local municipalities. As mentioned above, regionally, the Project falls within the Nkangala DM and locally falling into the Emalahleni Local Municipality. Mpumalanga is the biggest coal producers in Africa, with the Government recognising the Waterberg Coalfields (in Limpopo) as a future growth point within the coal mining arena.

Mpumalanga's real economy is mainly driven by the mining industry, followed by manufacturing. The petroleum, metals, and food and beverage industries are the largest manufacturing industries in the province. COVID-19 has had a devastating impact on employment in Mpumalanga. Between Q1 2020 and Q1 2022, the manufacturing sector lost 30% of jobs, followed by construction with 21%. In contrast, mining and agriculture saw employment growth of 13% and 10%, respectively, over the same period. Mpumalanga has a similar level of unemployment to the national average, and 45% of its population lives in non-urban areas. The province has no metro but four secondary cities that account for 37% of the province's population.

In 2021, Mpumalanga had 4.6 million residents, making up 7.9% of the national population. Mpumalanga is among the provinces with the fastest growing population, with the provincial population growing at an annual average of 1.7% compared to the national average of 1.4%. In terms of economic structure, Mpumalanga accounted for 7.7% of national production in 2021, up from 7.3% in 2020. In addition, Mpumalanga's share of the national GDP has moderately increased over the past decade, from 7.1% in 2010 to 7.7% in 2021.

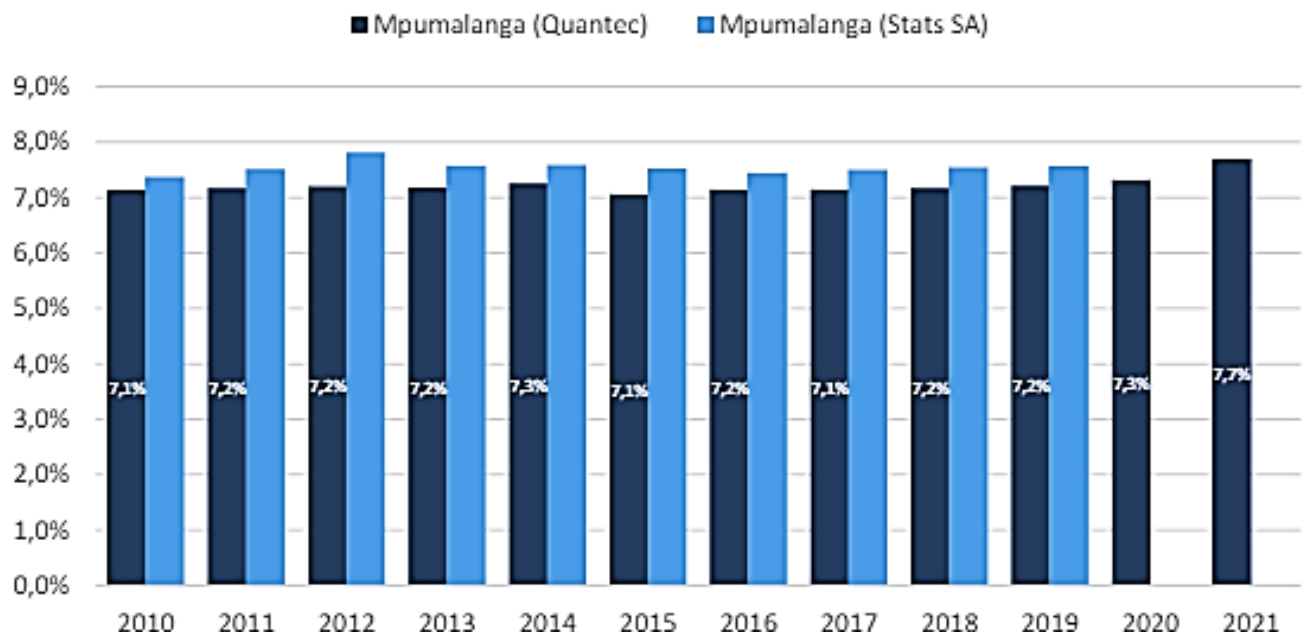


Figure 8-4: Mpumalanga share of national GDP, 2010-2021 (a) (Statistics South Africa and Quantec. Note (a): % of national GDP is calculated at GVA basic prices at constant 2021 prices.)

As mentioned in the preceding section, the contribution of mining and quarrying to provincial GVA relative to the sector's contribution to provincial employment is indicative of its capital-intensive nature. As such, the shutdown of the coal power stations may have economic ramifications in terms of a possible decline in capital investments and may contribute negatively to the province's economic outlook. The finance, insurance, real estate and business services sector was the second largest contributor to provincial GVA in 2020 (13.7%). It was followed by the wholesale and retail trade, catering and accommodation (13.1%) and community, social and personal services (12.7%) sectors.

At 12.3% of GVA, the manufacturing industry also contributed a sizeable portion to the provincial economy in 2020, which is indicative of a strong manufacturing and beneficiation base. Growing Mpumalanga's manufacturing sector will contribute to improve demand for resource-based commodities locally while increasing employment (DEDT, 2020). The construction sector accounted for the smallest segment of the provincial economy (2.4%) in 2020.

It should be noted that 2020 is considered an extraordinary year in terms of the distortions to economic performance that resulted from COVID-19. As such, the contributions of the respective economic sectors during the year were influenced by the varying effects of lockdown measures on the functioning of each and the increased importance of certain sectors (such as the general government sector).

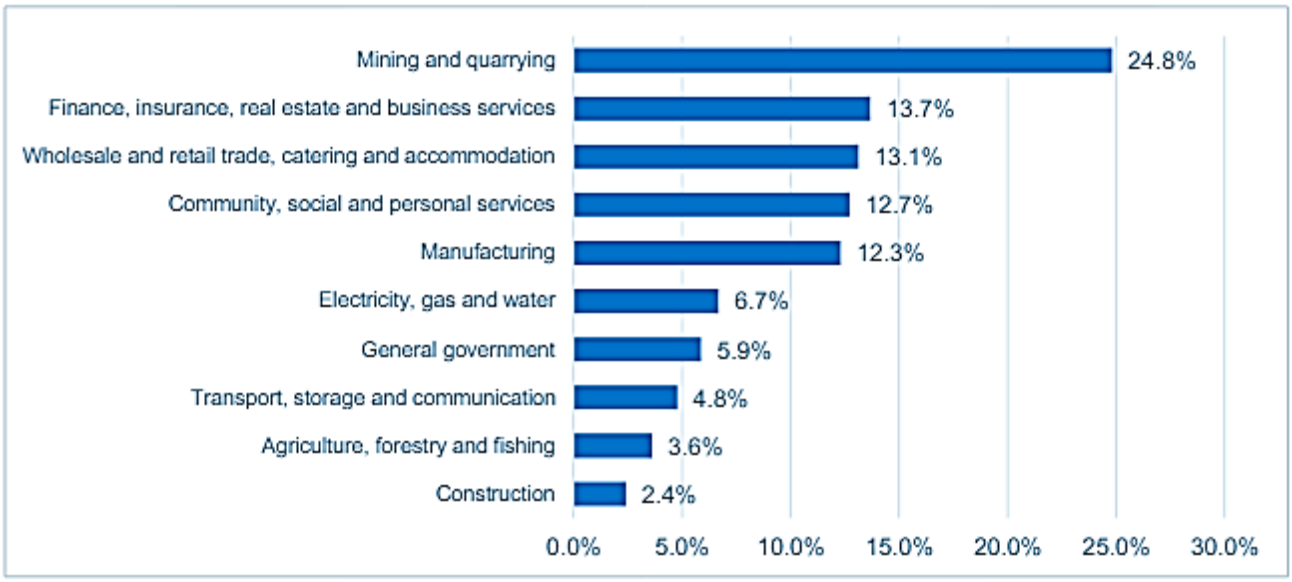


Figure 8-5: Economic contribution (GVA) per sector in Mpumalanga, 2020 (based on Quantec, 2022a)

Figure 8-6 below shows that between 2010 and 2014, mining was the fastest-growing real sector in Mpumalanga, growing at an annual average of 4.3%, followed by construction at 1.6%. However, between 2015 and 2019, agriculture became the fastest-growing sector while construction contracted. In 2020, construction and mining contracted by 18.1% and 11.2%, respectively. In contrast, agriculture and mining in Mpumalanga were resilient and experienced significant growth. In 2021, all real sectors experienced growth except for construction, which is yet to fully recover from the pandemic effects. Notably, mining experienced the most significant growth of 35.% in 2021, mainly due to the commodity boom in 2021.

Figure 8-6: Average growth rate in real economic sectors of Mpumalanga (a)

8.1.3 Economic Growth

All four of the power stations under review in this report are located in Mpumalanga Province. The Mpumalanga Province is considered the generation hub of South Africa's electricity network due to the concentration of power stations in this region and their close proximity to the large centres of loads. Currently, 11 of 13 Eskom coal-fired power stations, namely, Arnot, Camden, Duvha, Grootvlei, Hendrina, Kendal, Komati, Kriel, Matla, Majuba and Tutuka are located in the Mpumalanga Province.

In addition to the 11 coal-fired power stations, one of the two Eskom power stations that are currently under construction, namely, Kusile Power Station is located in the Mpumalanga Province (Eskom Transmission Development Plan, 2016-2025). In the mid-1990s, the Mpumalanga Province had one of the fastest growing economies in South Africa. Although it is one of the less populated and second smallest of the provinces in the country, the Mpumalanga Province has the fourth largest economy, based largely on the rich natural resources of the area. However, as with the rest of the South African economy, this growth rate has slowed down considerably (Mpumalanga Department of Economic Development, Environment and Tourism (MDEDET), 2009).

The main industrial and manufacturing activities in the Mpumalanga Province include iron, steel, stainless steel, petrochemicals and chemical products, agricultural products, mining, power generation, timber and wood products and food processing. The potential for further development in these sectors, as well as tourism, is considerable. The favourable location of the province enhances its development potential with the Maputo Corridor linking the province to Maputo in Mozambique, the close proximity to the substantial Gauteng market and the rail and road infrastructure allowing access to ports at Durban and Richards Bay (Mpumalanga Provincial Government, 2016).

The Mpumalanga Province's economy is dominated by mining, mostly coal for the Eskom power plants located in the province, although some of the coal is sold to international clients. As a result, it benefited from the commodity boom that lasted from 2003 to 2011 (Real Economy Bulletin, 2016). However, it has experienced much slower growth since then. The Mpumalanga Province also has extensive heavy industry, which forms part of the long-standing Highveld complex, and a strong commercial agricultural sector. These industries have driven its growth since 2011.

Prior to the COVID-19 outbreak, the economy of South Africa was already underperforming. Contractions for all industries in 2019, except finance & community services. During Q2 2020, the South African economy contracted by 17.1% q-on-q (seasonally adjusted) & the Mpumalanga economy by 20.0% q-on-q (seasonally adjusted). With the easing of the lockdown, the national & Mpumalanga economies expanded in Q3 2020 by 13.8% & 18.3%, respectively. In 2020, the national economy contracted by 6.3% & Mpumalanga by 7.3%. In 2021, only Q3 2021 recorded a quarterly contraction. The national economy expanded by 4.9% in 2021 & the provincial economy by around 4%. The Q1 2022 data release by Stats SA saw the national economy expand by 1.9% q-on-q and the Mpumalanga economy by 1.7%. In 2022, the national & Mpumalanga

economies are forecasted to expand by between 1.5% & 2.0%. It is expected that the national & Mpumalanga economies will expand between 2022 & 2026 by 1.9% & 1.7%, respectively.

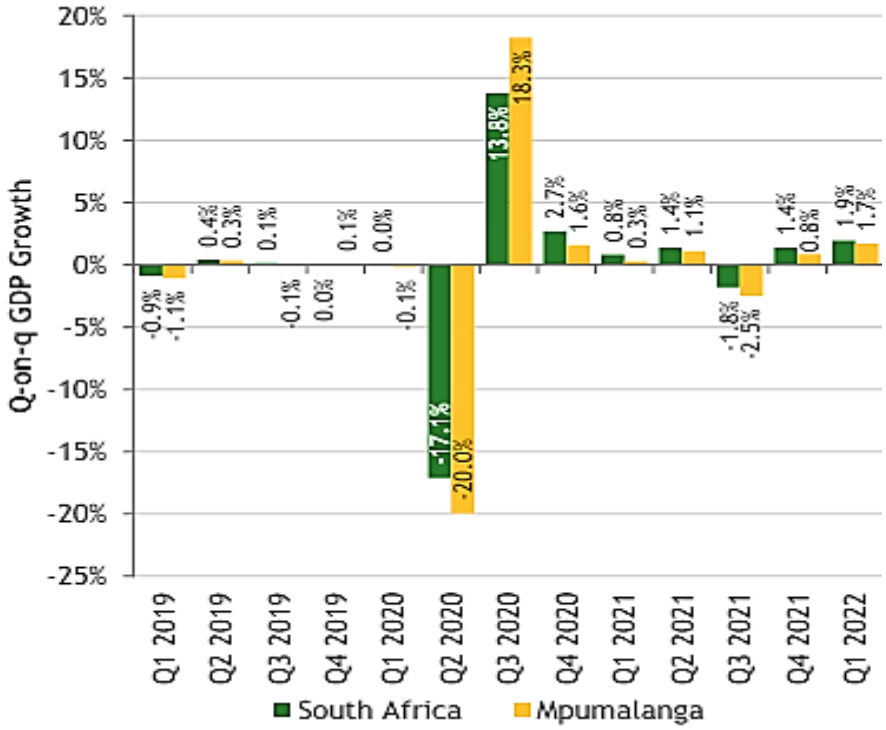


Figure 8-7: Economic Growth Impact

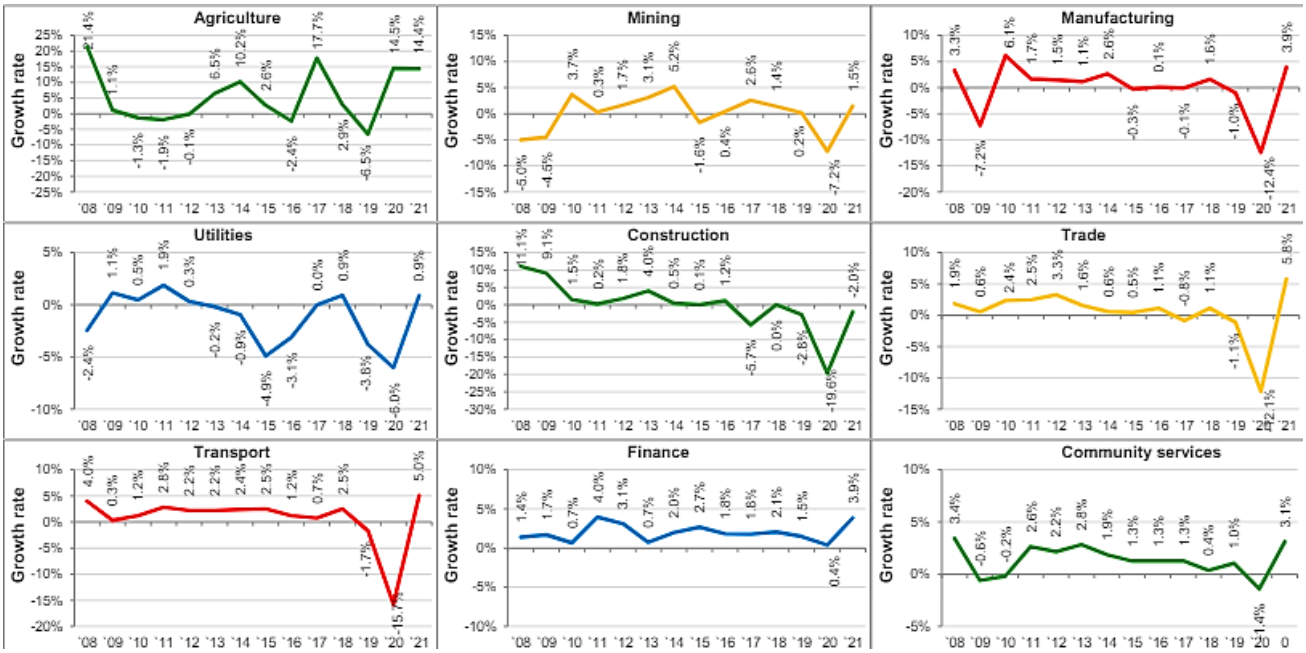


Figure 8-8: Real GDP Growth Per Industry 2008-2021

In terms of economic growth, Mpumalanga enjoyed the benefits of the early 2000s commodity boom as the provincial growth rate accelerated from 2004, reaching its peak in 2007 before the 2008/9 global financial crisis. Thereafter, Mpumalanga's growth rate fell sharply, reaching its decade-low in 2018. In addition, Mpumalanga's growth rate contracted by 2.6% in 2020 because of COVID-19. However, in 2021 Mpumalanga has experienced the most significant growth rate of 12%, which is driven by a commodity price surge in 2021.

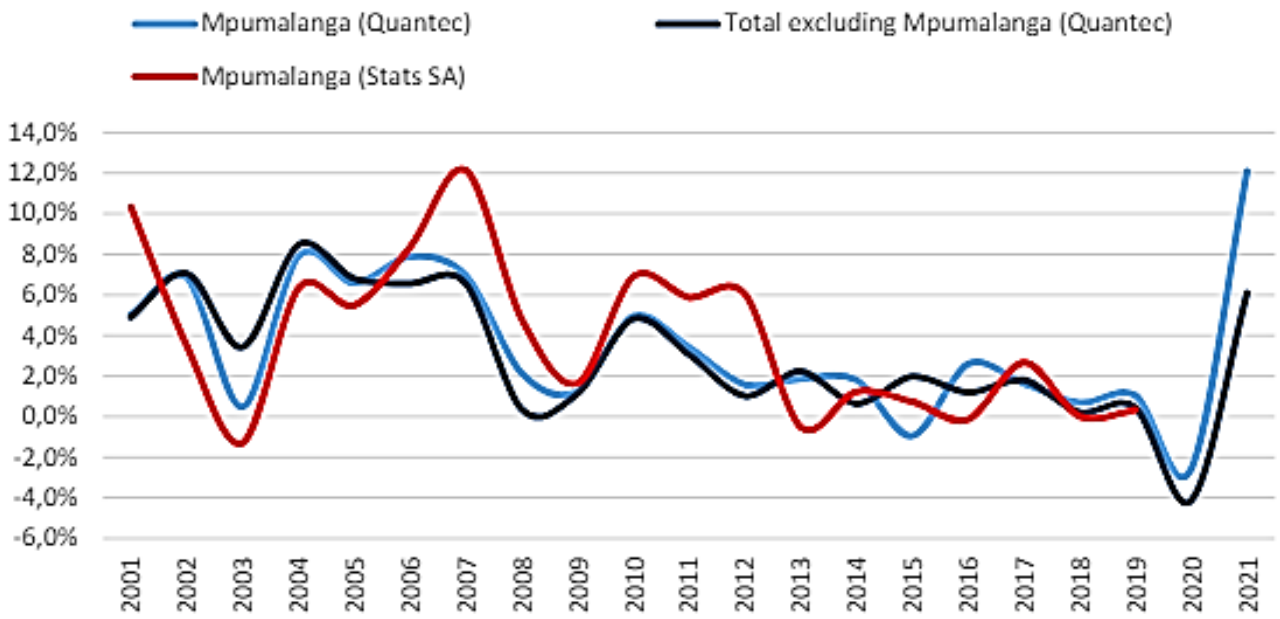


Figure 8-9: Mpumalanga economic growth compared to the rest of the economy, 2000 to 2021 (a)

Figure 7-4, below, provides an overview of the contributions by each of the respective sectors to provincial GVA in 2020. The mining and quarrying sector is considered a key driver of economic activity in the province. In 2020, the sector contributed 24.8% of provincial GVA (Quantec, 2022a).

8.1.4 Mining and Energy

Mpumalanga is rich in coal reserves and produces about 80% of the country's coal. It contributes more than 20% (current prices) to the provincial GDP, and providing employment to more than 7% of the province's employed. A significant percentage of the province's coal is exported to countries such as China, India, South Korea, and Japan. Mpumalanga is also home to South Africa's major coal-fired power stations. Of 13 coal-fired power stations that Eskom operates, 11 are in Mpumalanga. This means that 70% of Eskom's generation capacity is in Mpumalanga.

8.1.5 Labour Force Profile

In 2020, Mpumalanga's working-age population totalled just over three million individuals, while the labour force participation rate stood at 53.4% (Quantec, 2021c; 2021a). From 2010 to 2020, the province's working age population increased at an average annual rate of 1.8%, slightly higher than the 1.5% growth rate recorded nationally over the same period.

Mpumalanga's labour force absorption rate was recorded at 36.5% in 2020, which was lower than the national labour force absorption rate of 39.2% for the same year (Quantec, 2021a). In addition, the province recorded an unemployment rate of 31.7% in 2020, which was higher than the national unemployment rate of 29.2% during the same year (Quantec, 2021a). In quarter four of 2020, youth5 unemployment in South Africa at 45.3% (Quantec, 2021a). During the same quarter, Mpumalanga recorded a youth unemployment rate of 47.6% (Quantec, 2021a), which was slightly higher than the national rate.

The province's labour force participation and absorption rates are indicative that the Mpumalanga's labour market may not be conducive to the creation of employment opportunities. However, the recent performance of the provincial and broader national labour markets and their ability to absorb new entrants should be considered against the backdrop of the COVID-19 pandemic.

Figure 3.3 shows the employment contributions of the various sectors in the province in 2020. In this year, the community, social and personal services sector accounted for the largest share of employment (21.5%) in Mpumalanga. This was followed by the wholesale and retail, catering and accommodation (20.9%) and agriculture, forestry and fishing (11.7%) sectors.

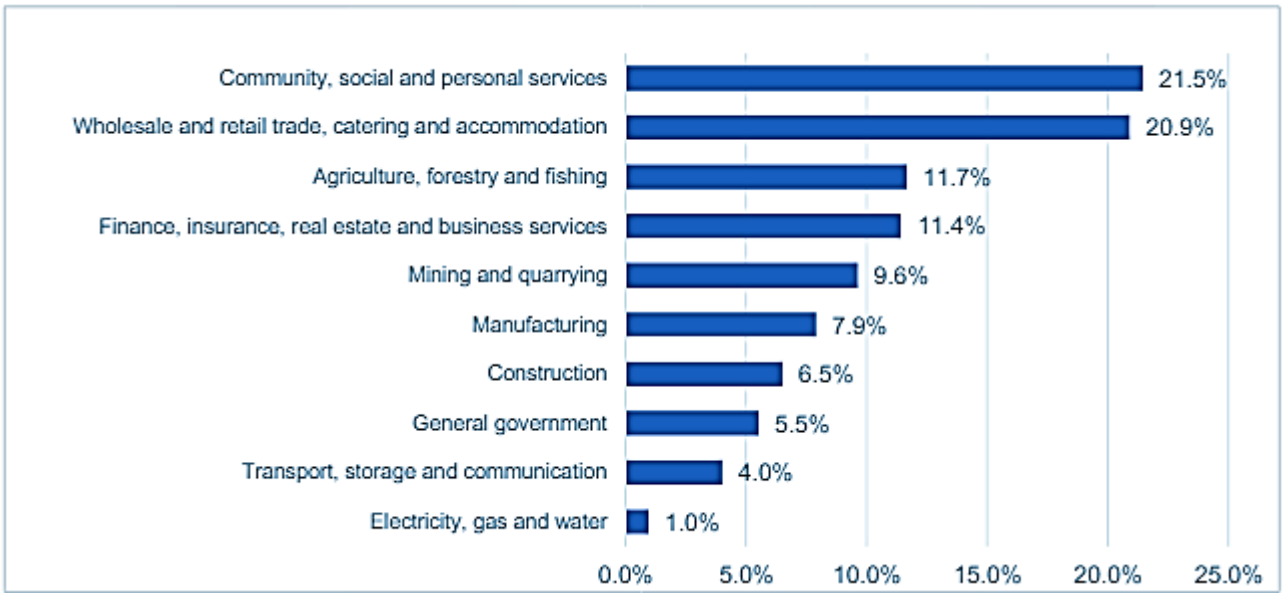


Figure 8-10: Employment contribution per sector in Mpumalanga, 2020 (based on Quantec, 2021a)

8.1.6 Employment/ Unemployment

There was an increase in both the provincial unemployment rate and poverty rate since 2015, in line with the weak economic environment and low provincial economic growth rate. Inequality also deteriorating the last couple of years if one looks at the share of income by poorest 40% of Mpumalanga households as indicator. Mpumalanga's strict unemployment rate was high at 38.6% in Q1 2022 (2nd highest ever) – 2nd highest of the 9 provinces. Strict unemployment rate was 1.1 percentage points lower than the record 39.7% in Q4 2021. Mpumalanga's expanded unemployment rate was very high at 51.6% in Q1

of 2022 – 2nd highest of the 9 provinces. Expanded unemployment rate was 0.8 percentage points lower than the record 52.4% in Q4 2021. In Q1 2022, the strict unemployment rate of males (36.5%) in the province was lower than the unemployment rate of females (41.2%). The strict unemployment rate of youth of working age (15-34 years) in Mpumalanga was 54.6%, whilst the unemployment rate of adults (35-64 years) was 25.9%. The strict unemployment rate of female youth (63.2%) was considerably higher than the unemployment rate of male youth (48.5%). The strict unemployment rate of the 18–24-year age cohort was 67.3% in Q1 2022 and the 18–24-year-old female unemployment rate was 76.0%. Graduates' unemployment rate worryingly high and higher/worse than the unemployment rate for people with a diploma according to the latest stats available.

As of Q2 2022, Mpumalanga accounted for 7% to national employment. With 345 000 people in the second quarter of 2022, Mpumalanga's real sector accounted for 30% of total employment in the province. Agriculture accounts for the largest share of employment among the real sector with 104 000 people employed in Q2 2022. It is followed by construction with 91 000, manufacturing with 80 000, and mining with 71 000.

Similar to elsewhere in the country, COVID-19 has had a devastating impact on employment in Mpumalanga. Between Q1 2020 and Q1 2022, the manufacturing sector lost 30% of jobs, followed by construction with 21%. In contrast, mining and agriculture saw employment growth of 13% and 10%, respectively over the same period.

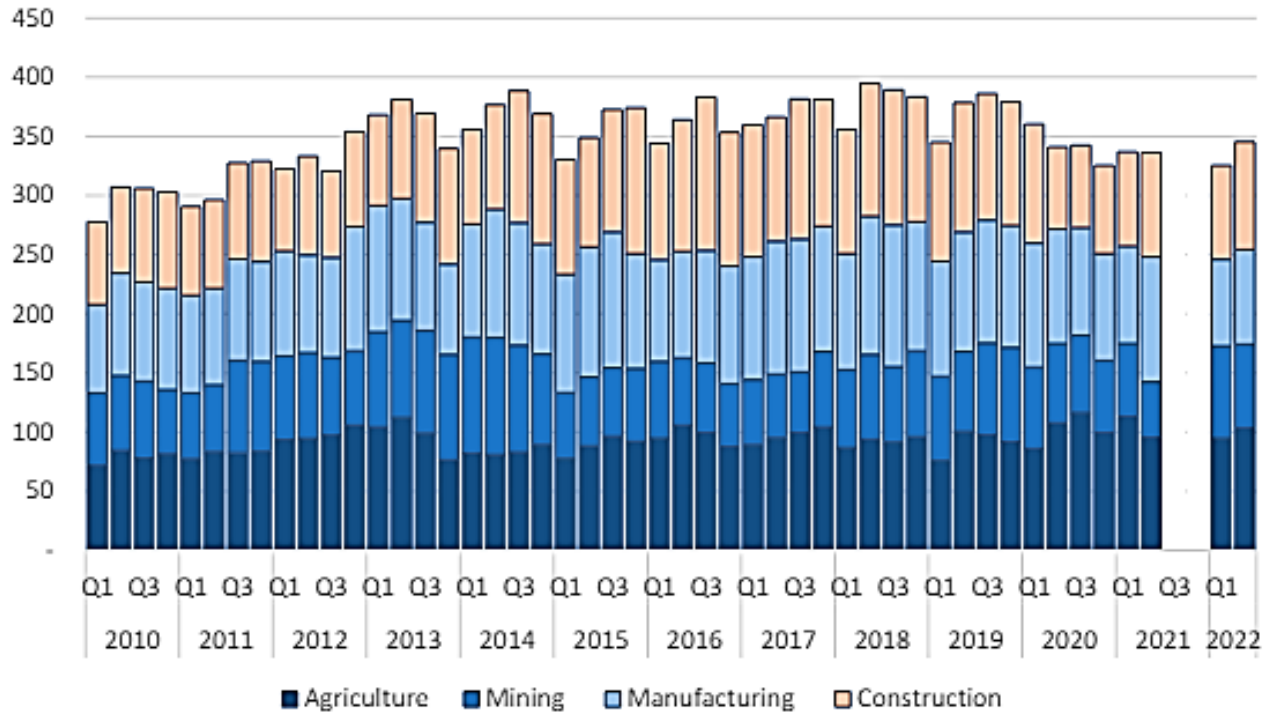


Figure 8-11: Mpumalanga quarterly employment in real economic sectors, 2010 to 2022

In terms of overall employment, Mpumalanga has a similar level of unemployment to the national average. In 2021, the absorption rate – employment to population ratio – in Mpumalanga was 36.6% compared to the national average of 37%.

Over the past decade, the level of unemployment in the province, with the absorption rate declining from 39% in 2010 to 37% 2021.

In 2020, the mining and quarrying sector was the fifth largest contributor to employment at 9.6%. Despite the size of the sector and its contribution to the provincial economy (and to some extent the national economy), the sector's employment contribution may be reflective of its capital intensity. During the same year, the electricity, gas and water sector was the smallest contributing sector to employment in the province at 1.0%. As Mpumalanga is the main supplier of coal in the country, the mining sector is key in driving economic activity and creating employment opportunities. As indicated in the figure below, South Africa's production of coal dropped significantly in 2015 and has stagnated since then. This was initially accompanied by a drop in employment opportunities in the industry.

The industry managed to increase employment to about 91 000 jobs by 2020 – the highest level in the past 20 years. However, this increase was not accompanied by a comparable rise in production and also took place during a decline in commodity prices. As a result, the productivity of the industry dropped from about 4.6 kt per job in 2022 to 2.7 kt per job in 2020, putting the industry under significant pressure. With coal mining companies such as Anglo-American beginning to transition away from coal operations to support the global transition to renewable energy sources (Stoddard, 2021), the sustainability of the coal mining industry is in jeopardy.

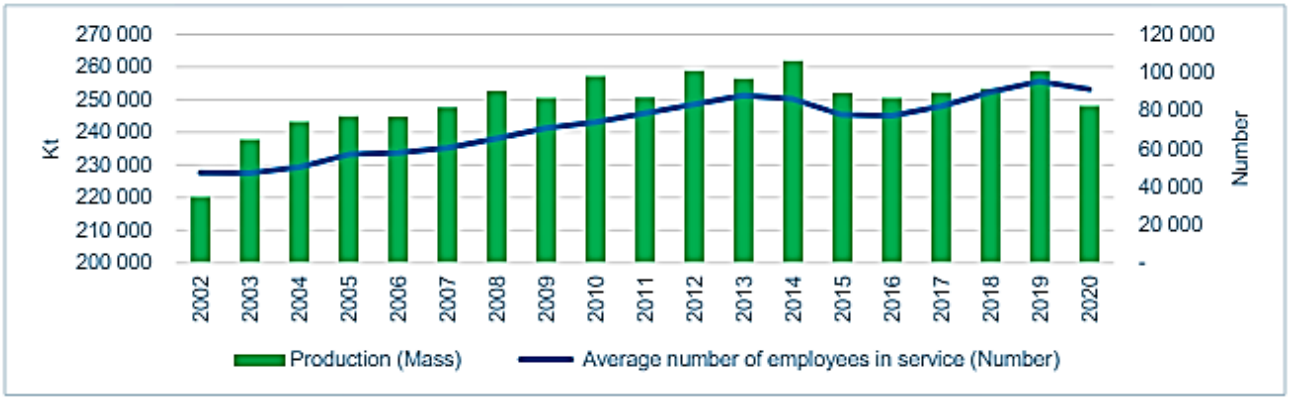


Figure 8-12: Coal production versus average employment in the sector (DMRE, 2022)

8.1.7 Socio-Economic Challenges

Mpumalanga faces several socio-economic challenges common to many regions in the country, as well as some specific to its own context:

- Unemployment: High levels of unemployment are a significant challenge, particularly among the youth. Limited job opportunities, especially in rural areas, contribute to this issue.
- Poverty: Poverty remains a pressing issue in Mpumalanga, with many households struggling to meet their basic needs. This is especially prevalent in rural areas where access to services and economic opportunities may be limited.

- Inequality: Disparities in income, access to services, and opportunities contribute to social inequality within the province. This can manifest in various forms, including unequal access to education, healthcare, and basic services.
- Healthcare: Access to quality healthcare services can be limited in certain parts of Mpumalanga, particularly in rural and remote areas. This lack of access can exacerbate health inequalities and contribute to poor health outcomes.
- Education: While efforts have been made to improve access to education, challenges such as infrastructure deficiencies, teacher shortages, and low educational attainment levels persist in Mpumalanga. This can hinder socio-economic development and perpetuate cycles of poverty.
- Infrastructure: Inadequate infrastructure, including roads, water supply, and electricity, can impede economic growth and development in Mpumalanga. Poor infrastructure also affects access to services and limits opportunities for residents.
- Environmental Degradation: Mpumalanga's economy relies heavily on natural resources, particularly mining and agriculture. However, these industries can also contribute to environmental degradation, impacting both the environment and the livelihoods of local communities.
- HIV/AIDS: Like many other regions in South Africa, Mpumalanga faces challenges related to HIV/AIDS, including high prevalence rates and the associated social stigma. This can have significant socio-economic implications, affecting healthcare systems, productivity, and household incomes.

Addressing these challenges requires coordinated efforts from government, civil society, and the private sector, focusing on strategies to promote inclusive growth, improve service delivery, and address underlying socio-economic inequalities. Efforts to diversify the economy, invest in education and healthcare infrastructure, and promote sustainable development practices can also contribute to long-term socio-economic development in Mpumalanga.

8.1.8 Health Profile

Mpumalanga Province like the rest of the country faces a quadruple burden of diseases. HIV and AIDS, Tuberculosis, high Maternal and Child Mortality, Non-Communicable Diseases and Violence and Injuries continue to take a toll on the Province's citizens. Compounding on these unfavourable conditions, are adverse socio-economic determinants such as poverty and inadequate access to essential services such as electricity, proper sanitation and access to potable water.

This quadruple burden of diseases is occurring in the face of a reasonable amount of health expenditure as a proportion of the GDP (Gross Domestic Product). Available evidence indicates that South Africa spends 8,7% of its GDP on health which is significantly more than any other country on the African continent however, the health outcomes are much worse than those of countries spending much less than South Africa. The South African health care system has been characterized as

fragmented and inequitable due to the huge disparities that exist between the public and private health sectors about the availability of financial and human resources, accessibility and delivery of health services.

There is high inequity to provision of health care services with the majority of the population relying on a public health care system, relative to the private sector serving approximately 12% of the population. The distribution of key health professionals between the two sectors is also skewed for example, the doctor/patient ratio is as high as 1:4000 in the public sector while it is 1:250 in the private sector. The poor health outcomes can be attributed to several factors but are evidenced through a decline in life expectancy in the country.

8.2 Nkangala District Municipality

Six LMs comprise the Nkangala DM, namely the Emakhazeni, Steve Tshwete, eMalahleni, Victor Khanye, Thembisile Hani and Dr JS Moroka LMs. The major economic hubs of Nkangala DM are the Steve Tshwete LM (Middelburg) and eMalahleni LM (Witbank). These economies are mainly dependent on the local steel industry and have a high reliance on the manufacturing sector, which makes the region vulnerable to economic cycles (Nkangala DM, 2019).

The Nkangala District Municipality is a Category C municipality in the Mpumalanga Province. It is the smallest district of the three in the province, making up 22% of its geographical area. The Nkangala District Municipality comprises of the Victor Khanye, eMalahleni, Steve Tshwete, Emakhazeni, Thembisile Hani, and Dr JS Moroka local municipalities. The district's headquarters are in Middelburg. Nkangala is at the economic hub of Mpumalanga, and is rich in minerals and natural resources. The Maputo Corridor and proximity to Gauteng offer opportunities to a larger market, which is of benefit to the district's agricultural and manufacturing sectors. The further potential inherent in exporting goods provides opportunities that need to be investigated.

Steve Tshwete Local Municipality is situated at the centre of Nkangala District Municipality. It is approximately 3,976 square kilometres in extent, representing 23.7% of the District land mass. To the west it is bordered by the EMalahleni and Thembisile Hani Local Municipalities; the Govan Mbeki and Msukaligwa Local Municipalities in Gert Sibande District to the south; and the Emakhazeni and Chief Albert Luthuli Local Municipalities to the east. Adjacent to the north of the Steve Tshwete Municipality is Elias Motsoaledi Municipality, which forms part of the Sekhukhune District Municipality in Limpopo Province.

Key statistics for the Nkangala DM as well as the Steve Tshwete LM, including population size, age distribution, sex ratios and household indicators such as type of dwelling, access to piped water, energy used for lighting and refuse disposal are presented on this page. The indicators are presented and can be viewed graphically for three themes; population, education and household living conditions and Nkangala is ranked according to its population size.

Coal mining within the district predominantly occurs in the southern regions and is linked to the power stations. As such, the region holds significant potential for continuous coal development. Furthermore, amongst other strengths, Nkangala DM has strong skills development, tourism and government services sectors. The adjacent province of Gauteng has become a

major source of tourism to the DM and also offers a number of export opportunities for the district. In addition, Nkangala DM's proximity to Gauteng allows for access to broader markets and a larger consumer base for its agricultural and manufacturing sectors. Moreover, land in the district is available at a low cost for the implementation of projects, including tourism and light and heavy industries (Nkangala DM, 2019).

8.2.1 Demographics

Demographic data helps identify vulnerable or marginalized groups within the population, such as children, elderly individuals, persons with disabilities, and ethnic minorities. Assessing how different demographic groups may be disproportionately affected by any project is essential for designing targeted mitigation measures and ensuring social equity. Demographic data allows for the analysis of how social impacts may vary across different population groups. Factors such as age, gender, income level, education, and employment status can influence individuals' susceptibility to certain social impacts and their ability to cope with or adapt to changes brought about by the proposed Project.

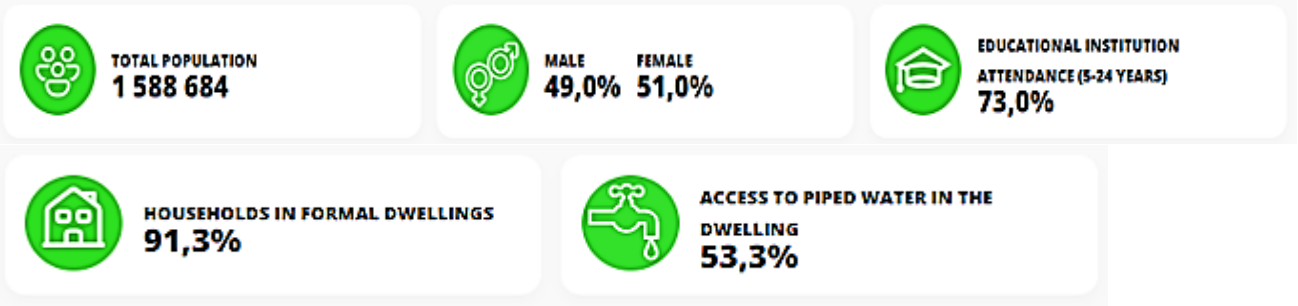
Demographic data serves as the foundation for establishing baseline conditions against which to measure changes over time. By documenting key demographic indicators such as population size, age distribution, household composition, and socioeconomic status, this SIA was able to assess how the proposed Project may impact the demographic profile of the area and identify potential demographic-related impacts.

The table below highlights the key statistics for the NDM.

Table 7-8-2: Nkangala District Municipality Key Statistics

Nkangala District Key Statistics			
Name	**2022**	**2016**	**2011**
Population	1,588,684	1,445,624	1,308,129
Age Structure			
Population under 15	26.7%	27.3%	28.5%
Population 15 to 64	67.3%	68.6%	66.5%
Population over 65	6.0%	4.1%	5.0%
Dependency Ratio			
Per 100 (15-64)	48.5	45.8	50.4
Sex Ratio			
Males per 100 females	96.2	102.2	100.7
Population Growth			
Per annum	1.89%	2.27%	n/a
Labour Market			
Unemployment rate (official)	n/a	n/a	30.0%
Youth unemployment rate (official) 15-34	n/a	n/a	39.6%
Education (aged 20 +)			
No schooling	9.4%	9.0%	11.5%
Matric	n/a	35.0%	29.4%
Higher education	7.6%	8.7%	9.4%
Household Dynamics			
Households	483,169	421,144	356,902
Average household size	3.3	3.4	3.7

Nkangala District Key Statistics			
Female headed households	n/a	35.5%	36.2%
Formal dwellings	91.3%	81.6%	82.8%
Housing owned	n/a	62.8%	58.9%
Household Services			
Flush toilet connected to sewerage	62.0%	51.5%	50.9%
Weekly refuse removal	58.5%	47.9%	48.3%
Piped water inside dwelling	53.3%	39.3%	40.6%
Electricity for lighting	91.7%	85.4%	85.7%



Nkangala is at the economic hub of Mpumalanga and is rich in minerals and natural resources. The main economic sectors include mining, manufacturing, energy and agriculture. A strength of the district is the Maputo Corridor, which brings increased potential for economic growth and tourism development. The proximity to Gauteng opens up opportunities to a larger market, which is of benefit to the district's agricultural and manufacturing sectors. The further potential inherent in exporting goods provides opportunities that need to be investigated.

The Emalahleni and Middelburg areas are home to the major economic activity concentrations in NDM. However, the main concentrations of economic activity around Emalahleni and Middelburg are starting to encroach on environmentally highly significant areas.

The south-western regions of the district are referred to as the Energy Mecca of South Africa, due to the large deposits of coal reserves and associated power stations, particularly the Emalahleni and Steve Tshwete areas. The regeneration of some of the mothballed power stations pose opportunities for the mining and energy sectors, as well as the regeneration of some of the smaller towns in the district such as Delmas, Hendrina and Arnot.

With a GDP of R 123 billion in 2015 (up from R 43.3 billion in 2005), the NDM contributed 41.16% to the Mpumalanga Province GDP of R 300 billion in 2015 increasing in the share of the Mpumalanga from 40.29% in 2005. The Nkangala District Municipality contributes 3.07% to the GDP of South Africa which had a total GDP of R 4.01 trillion in 2015 (as measured in nominal or current prices).It's contribution to the national economy stayed similar in importance from 2005 when it contributed 2.64% to South Africa, but it is lower than the peak of 3.22% in 2012.

Despite being such a large contributor to the province's economy, NDM's unemployment rate has been increasing since 2006 and was at 30% in 2011 but decreased to 26.5% in 2015 (NDM IDP, 2017-2022). In addition to the high unemployment rate especially amongst the youth, NDM acknowledge the follow issues which remain a concern within the district:

- Adverse audit outcomes in local municipalities;
- Poor revenue collection;
- Maintenance of infrastructure;
- Increased service delivery protests;
- Mushrooming of informal settlements; and
- Under expenditure in capital projects.

NDM remains committed to the development of the physical, socio-economic and institutional environment in order to alleviate poverty and promote infrastructure development coupled with job creation. The Municipality is home to a number of large industries such as Columbus Steel (therefore the strap line "the home of stainless steel"), Eskom (power generation), the Nkangala District Municipality's headquarters and various government departments.

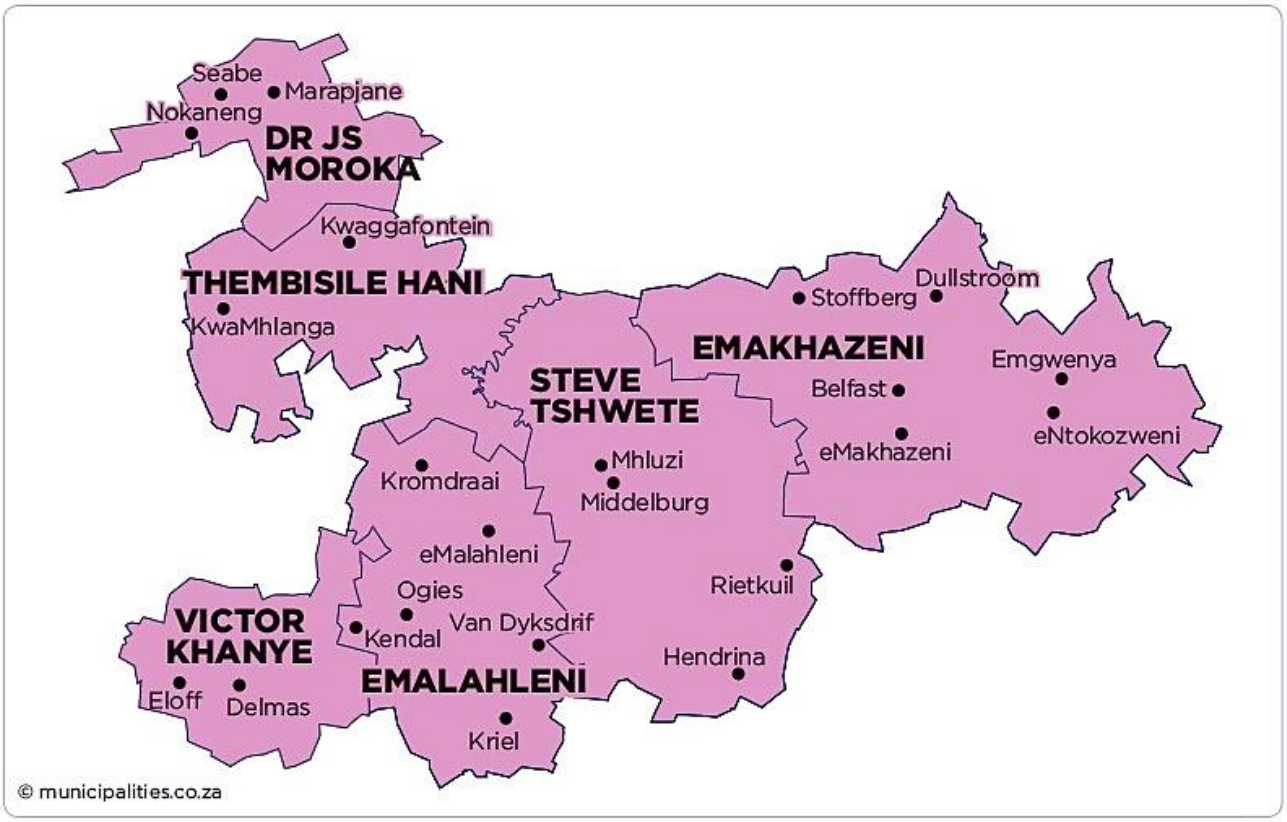


Figure 8-13: Local Municipalities within the Nkangala DM

8.2.2 Economic Profile

In 2020, the Nkangala DM economy was valued at R147.1 billion (in current prices), having grown at an average annual rate of 0.3% between 2010 and 2020. In 2019, the eMalahleni LM's economy was valued at R45 826 million (in current prices), contributing 13.4% to Mpumalanga Province's total economy's gross value added (GVA) (Quantec, 2020g).

Accounting for nearly half of this value (47%), the mining and quarrying sector was by far the biggest contributor to the municipality's economy in 2019. The sector with the highest economic growth rate, though, was the construction sector with a Compounded Annual Growth Rate (CAGR) of 4.3% between 2010 and 2019.

Table 7-8-3: Structure of economies for the Mpumalanga Province and eMalahleni LM

Industry	Mpumalanga Province			eMalahleni Local Municipality		
	GVA (R millions)	% of GVA	CAGR	GVA (R millions)	% of GVA	CAGR
	2019	2019	2010-2019	2019	2019	2010-2019
Agriculture, forestry and fishing	8 778	3%	1.4%	277	0%	2.8%
Mining and quarrying	84 044	25%	1.3%	36 983	47%	0.7%
Manufacturing	44 307	13%	0.8%	6 428	8%	-0.4%
Electricity, gas and water	26 194	8%	-0.4%	11 768	15%	-0.5%
Construction	10 180	3%	0.8%	2 060	3%	4.3%
Wholesale and retail trade, catering and accommodation	50 143	15%	1.3%	6 273	8%	1.3%
Transport, storage and communication	22 254	7%	1.6%	3 510	4%	2.6%
Finance, insurance, real estate and business services	38 914	11%	2.2%	6 211	8%	2.4%
General government	43 457	13%	1.9%	4 489	6%	2.3%
Community, social and personal services	13 459	4%	1.2%	1 496	2%	0.6%
Total	**341 732**	**100%**	**1.3%**	**45 826**	**100%**	**0.9%**

The growth of the mining industry has been essential to the Nkangala DM's economy, with mineral resources constituting coal deposits such as refractory (flint) and small deposits of gold, tin, copper, lead, manganese, uranium, nickel, cobalt, and silver (Nkangala DM, 2019). The performance of the electricity sector can be attributed to the significant presence and performance of power stations in the district.

Although the agriculture sector is the lowest contributor to the Nkangala DM economy, it remains an essential economic activity with potential in Nkangala DM, especially for the development of rural areas. Commercial crop and livestock farming predominantly occur in Nkangala DM, with limited subsistence farming occurring in the district. Therefore, it is important that

the agricultural sector is protected and promoted through the advancement of supplementary activities such as agro-processing (Nkangala DM, 2019).

The sector with the highest economic growth rate, though, was the construction sector with a Compounded Annual Growth Rate (CAGR) of 4.3% between 2010 and 2019. Over the same period, the manufacturing and electricity, water and gas sectors contracted by 0.4% and 0.5%, respectively.

8.2.3 Labour Force Profile

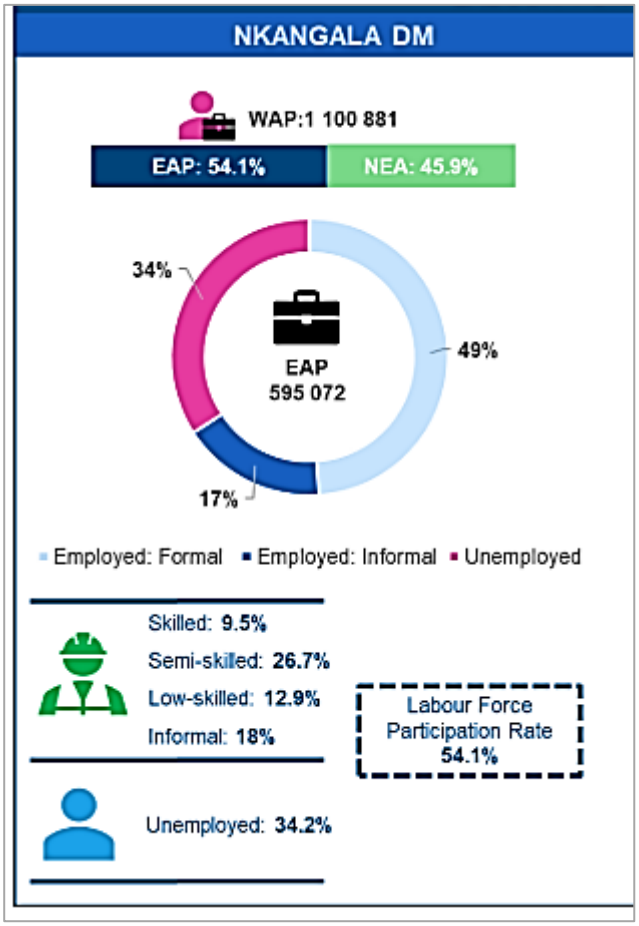
The working-age population of the Nkangala DM amounted to 1 100 881 individuals in 2020 and accounted for 68.4% of the DM's total population for that year. Of this total, 54.1% were classified as economically active. Employment is the primary means by which individuals who are of working age may earn an income that will enable them to provide for their basic needs and improve their standard of living. As such, employment and unemployment rates are important indicators of socio-economic well-being. The following paragraphs examine the study area's labour market from a number of perspectives, including the employment rate and sectoral employment patterns.

Of the total working age population in the eMalahleni LM, approximately 47.7% were employed in 2019 (Quantec, 2020c). However, as 110 264 individuals were not economically active (NEA)2, the municipality had an unemployment rate of 30.3% during the year.

Table 7-8-4: Labour profile for Mpumalanga, Nkangala and eMalahleni, 2019

Indicators	Mpumalanga	Nkangala	eMalahleni
Working age population	2 972 524	1 067 976	348 972
Non-economically active	1 249 023	438 287	110 264
Labour force	1 723 500	629 689	238 707
Employed	1 184 438	419 698	166 457
Unemployed	539 062	209 991	72 250
Unemployment rate	31.3%	33.3%	30.3%
Labour participation rate	58.0%	58.7%	68.4%

The unemployment rate in the eMalahleni LM in 2019 was slightly lower than in the Nkangala District and the Mpumalanga Province with unemployment rates of 33.3% and 31.3%, respectively. The labour participation rate of the eMalahleni LM was approximately 10 percentage points higher than that in the Nkangala DM and Mpumalanga Province during the year. These findings are in line with eMalahleni LM being the "economic hub" of the province.



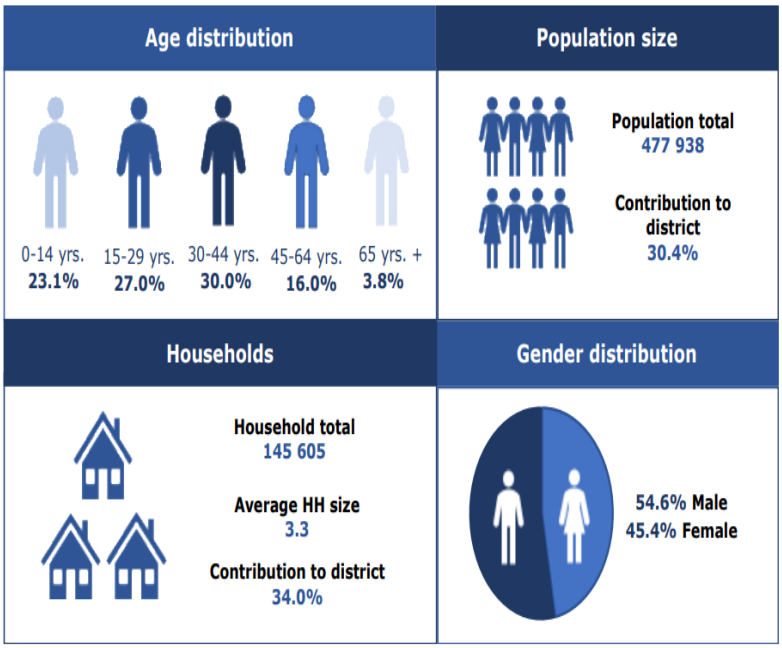


Figure 2: Population demographics of eMalahleni Local Municipality, 2019 (Quantec, 2020e; 2020f)

Figure 8-14: Labour force profile of Nkangala DM 2020 and eMalahleni LM, 2019 (based on Quantec, 2021a. 2020e , 20202f) (Urban-Econ)

8.2.4 Health Profile

The eMalahleni LM boasts a number of healthcare facilities. The municipality has six hospitals, 15 fixed clinics and three mobile clinics (eMalahleni LM, 2020). There is at least one clinic in every town. It has been suggested, however, that due to the population size in Lynnville, Kwa-Guqa and Hlalanikahle, there may be a need for the development of more clinics.

8.2.4.1 HIV/ AIDS Prevalence

According to Mpumalanga Department of Health, the HIV prevalence rate of eMalahleni was measured at 40.7% in 2013 (latest available figure). It is the 9th highest of all the municipal areas in the Province. The HIV prevalence rate remained more or less at the same level between 2012 and 2013.

The

Figure 8-15 indicates the top ten leading causes of death at eMalahleni. The influenza and pneumonia top leading causes of death and the Inflammatory Diseases of the Central Nervous System is the lowest.

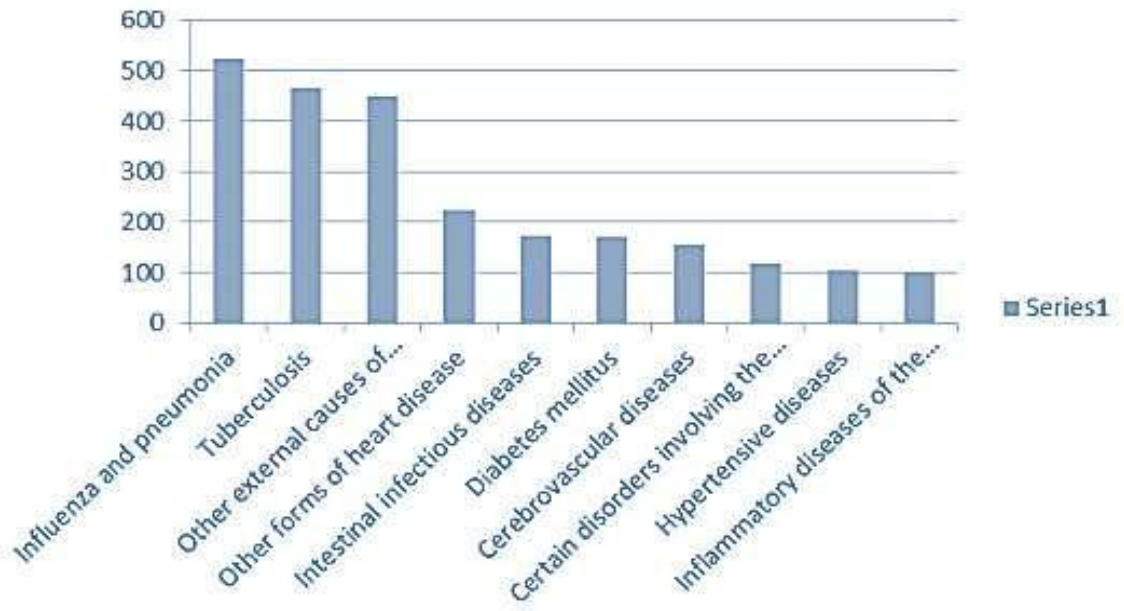


Figure 8-15: Top ten leading causes of death in eMalahleni

8.2.4.2 Lung Related Illnesses

RSA is heavily dependent on coal to produce energy its atmosphere is heavily contaminated by nitrogen dioxide. Many of the residents complain that they are inhaling dust which is largely distributed into the air during blasting and ash dumps from power stations and mines which as a result create respiratory conditions for those living nearby. Mining environments are among the unhealthiest parts of the country and a contributor to the climate crisis and local clinics are crowded with people complaining of breathing problems.

Due to blasting from mining activities, residents suffer from damaged hearing issues; TB diagnosis and other lung related illnesses. The Dept of Mineral Resources has advised surrounding mines on strengthening measures in place for the minimization of dust. Air quality reports indicate that the biggest contributors of air pollution are Eskom coal-fired power generation and mine haulage and air quality management plans should be in implemented to eradicate it.

Lung cancer, ischaemic heart disease, chronic obstructive pulmonary disease and stroke are some of the impacts of air pollution. Mining coals and power stations do not just affect air pollution, but the transportation of coal by haulage trucks and contamination of water. One in three coal mines has adopted an illness in relation to their jobs largely lung related-illnesses are identified as the number one issue and thousands die prematurely from the consequences of coal.

8.2.5 Poverty Dimensions

8.2.5.1 Distribution

The Nkangala district is located in the Mpumalanga province of South Africa. Like many regions in South Africa, poverty remains a significant issue in certain areas of Nkangala. Factors contributing to poverty in the district may include unemployment, lack of access to education and healthcare, limited infrastructure, and disparities in economic opportunities.

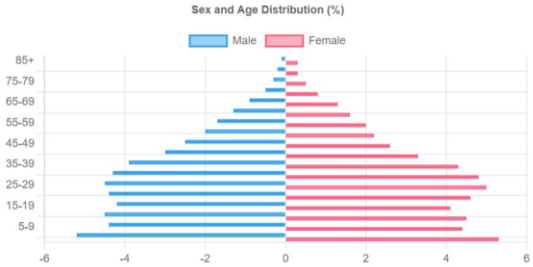
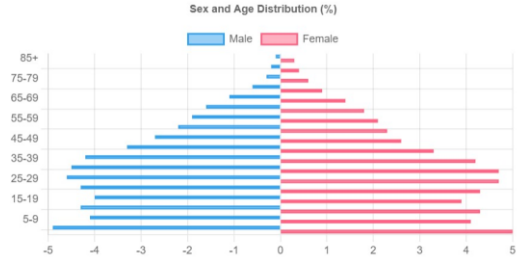
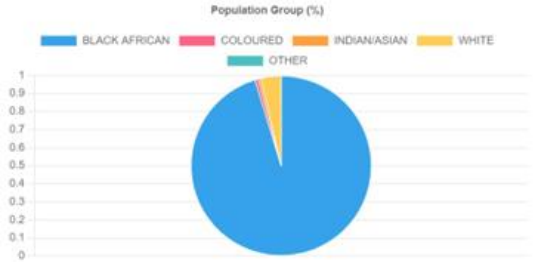
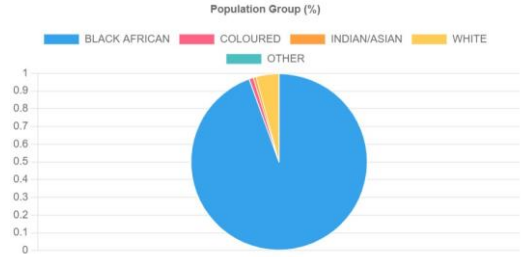
To obtain up-to-date and accurate information on poverty distribution in the Nkangala district, you would need to refer to recent reports or studies conducted by government agencies, research institutions, or non-governmental organizations working in the region. These reports often analyse poverty levels based on income, access to basic services, housing conditions, and other socio-economic indicators.

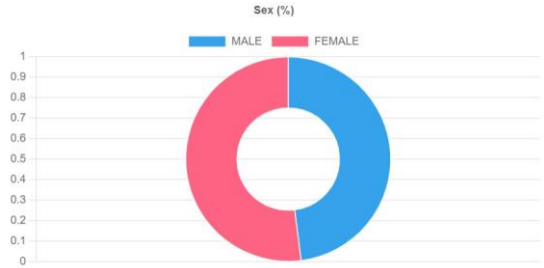
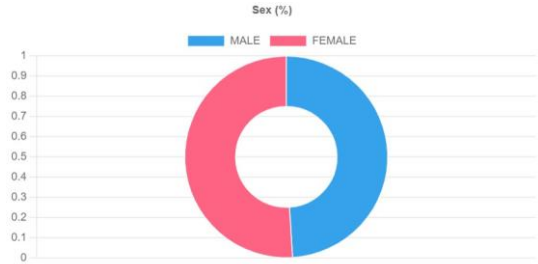
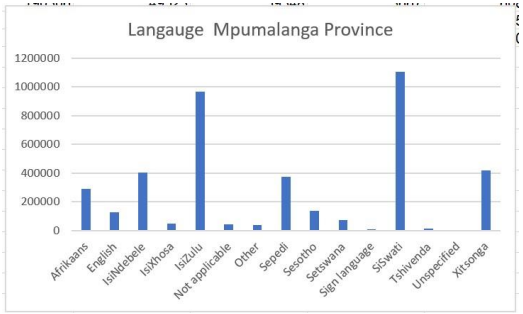
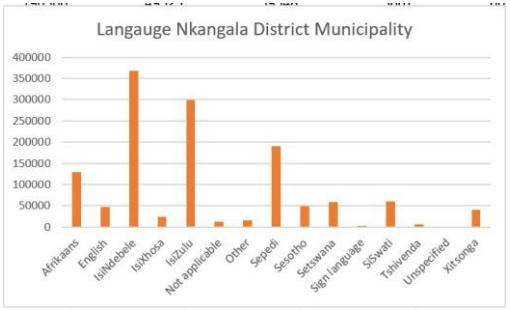
8.2.5.2 Employed /Unemployed

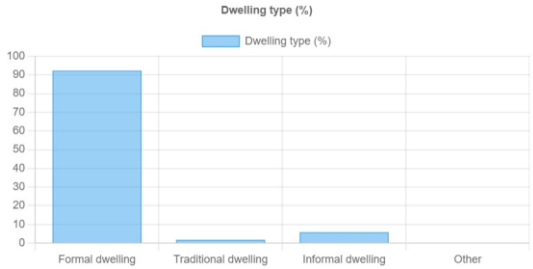
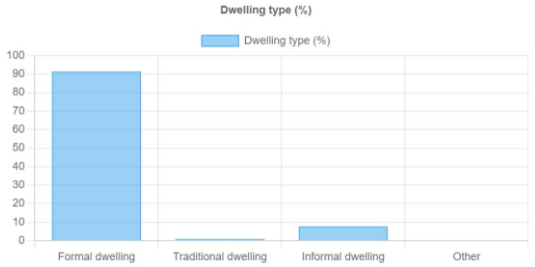
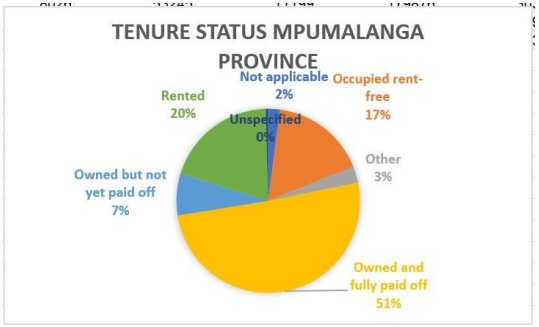
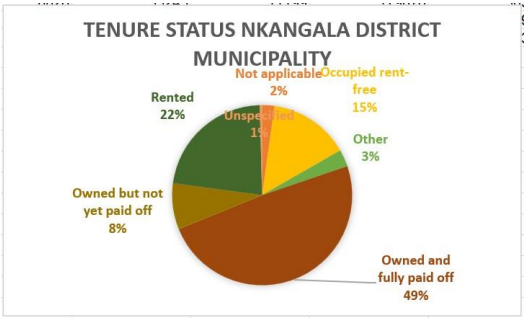
There was an increase in both the provincial unemployment rate and poverty rate since 2015, in line with the weak economic environment and low provincial economic growth rate. Inequality also deteriorating the last couple of years if one looks at the share of income by poorest 40% of Mpumalanga households as indicator. Mpumalanga's strict unemployment rate was high at 38.6% in Q1 2022 (2nd highest ever) – 2nd highest of the 9 provinces. Strict unemployment rate was 1.1 percentage points lower than the record 39.7% in Q4 2021. Mpumalanga's expanded unemployment rate was very high at 51.6% in Q1 of 2022 – 2nd highest of the 9 provinces.

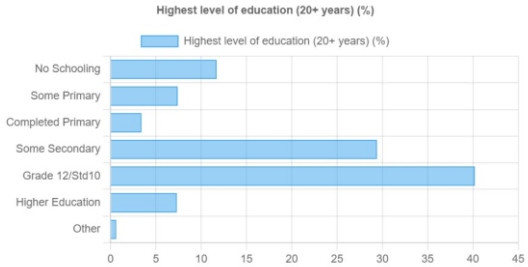
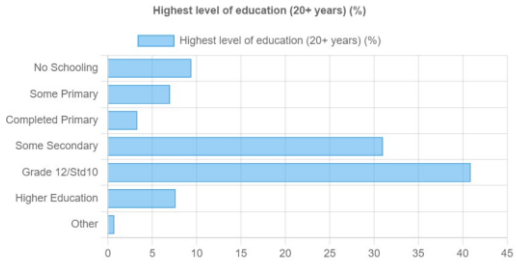
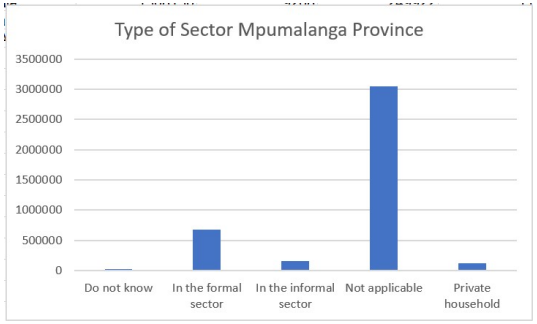
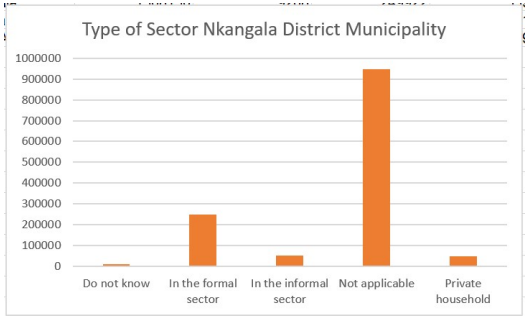
Expanded unemployment rate was 0.8 percentage points lower than the record 52.4% in Q4 2021. In Q1 2022, the strict unemployment rate of males (36.5%) in the province was lower than the unemployment rate of females (41.2%). The strict unemployment rate of youth of working age (15-34 years) in Mpumalanga was 54.6%, whilst the unemployment rate of adults (35-64 years) was 25.9%. The strict unemployment rate of female youth (63.2%) was considerably higher than the unemployment rate of male youth (48.5%). The strict unemployment rate of the 18–24-year age cohort was 67.3% in Q1 2022 and the 18–24-year-old female unemployment rate was 76.0%. Graduates' unemployment rate worryingly high and higher/worse than the unemployment rate for people with a diploma according to the latest stats available.

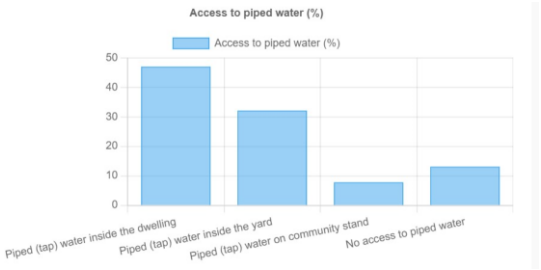
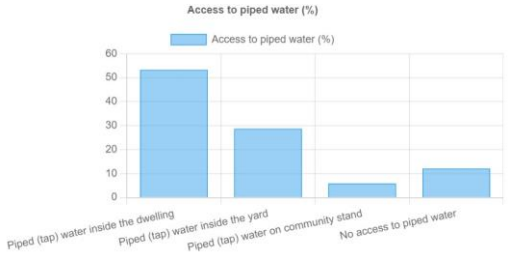
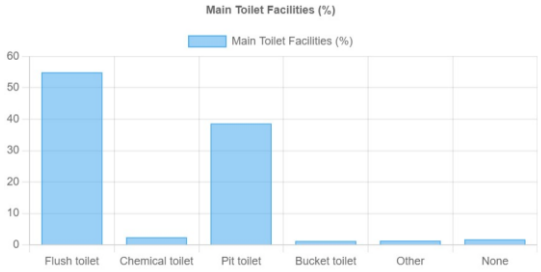
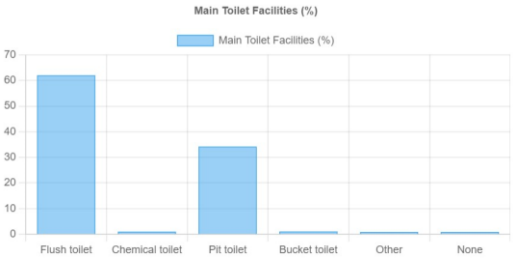
Table 8-5: Summary of Key Statistics for the Province and DM

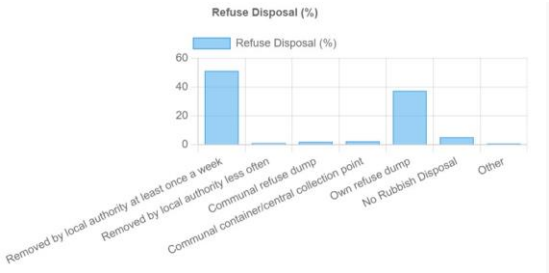
Demographic Aspect	Mpumalanga Province	Nkangala District Municipality
Age 	 The populous age group in the province is between ages 00 to 04. Followed Ages between 15 to 19.	 The populous age group in the district is between ages 00 to 04. Followed Ages between 25 to 29.
Population 	 The majority of the population consists of Black African followed by Whites.	 The majority of the population consists of Black African followed by Whites.

Demographic Aspect	Mpumalanga Province	Nkangala District Municipality
Gender 	 There are slightly more females (51%) than males (49%).	 There are equal number of female and male (50%).
Language 	 The majority of the population in the province speak Siswati (above 1 000 000), followed by isiZulu (Below 1 000 000), then Xitsonga (above 400 000).	 The majority of the population in the district speak isiNdebele (above 350 00), followed by isiZulu (300 000), then Sepedi (below 200 000).

Demographic Aspect	Mpumalanga Province	Nkangala District Municipality
Households	 Majority of the population in the province live in house or flat household.	 Majority of the population in the district live in house or flat household.
Household Ownership	 51% of the total population of the province have owned and fully paid off tenure status. While 20% have a rented status.	 49% of the total population of the district have owned and fully paid off tenure status. While 22% have a rented status.

Demographic Aspect	Mpumalanga Province	Nkangala District Municipality
Education Level 	 The population in the province have the highest education level at Grade 12. Followed by N6/NTC 6.	 The population in the district have the highest education level at Grade 12. Followed by N6/NTC 6.
Employment 	 Most of the workforce in the province are employed in the formal sector (above 500 000).	 Most of the workforce in the district are employed in the formal sector (above 200 000).

Demographic Aspect	Mpumalanga Province	Nkangala District Municipality
Water 	 Regional/local water scheme are the main source of water supply in the province followed by boreholes.	 Regional/local water scheme are the main source of water supply in the district followed by boreholes.
Toilet Facilities 	 Out of all the residents of the province, the majority of them have flush toilets that are connected to the sewerage system (below 500 000). Less than 400 000 have pit latrines without ventilation.	 Out of all the residents of the district, the majority of them have flush toilets that are connected to the sewerage system (below 200 000). Above 100 000 have pit latrines without ventilation.

Demographic Aspect	Mpumalanga Province	Nkangala District Municipality
Refuse Disposal/ Removal 	 Less than 2 million households remove their own dump followed by refuse which is collected by the local authority at least once a week.	 Above 600 000 households have their waste collected by the local authority at least once a week followed by people which dispose of their own dump.

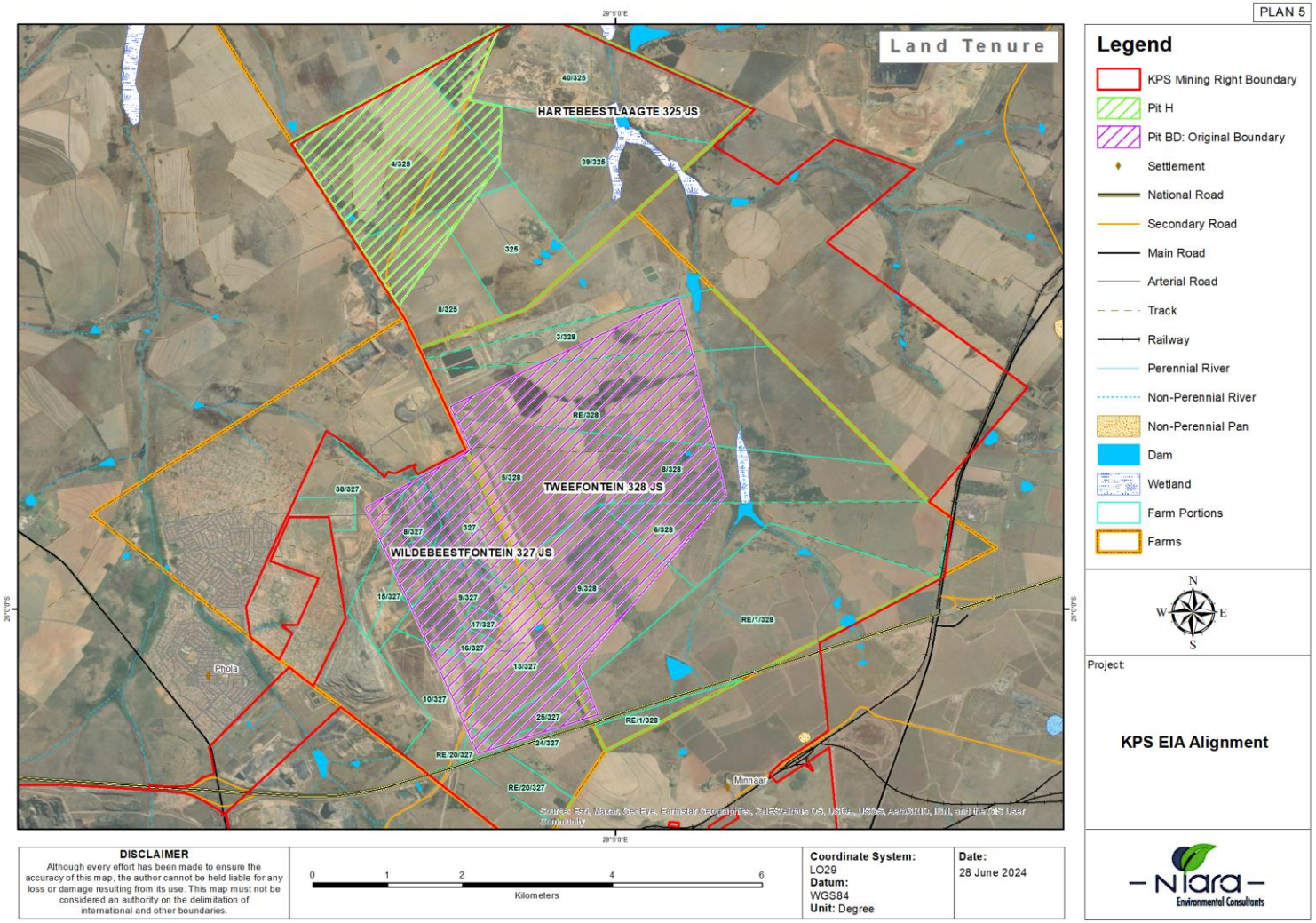


Figure 8-16: Land Tenure Plan

8.3 eMalahleni Local Municipality

The eMalahleni Local Municipality (eMalahleni meaning “place of coal”) comprises the towns of eMalahleni, Kwa-Guqa, Ga-Nala and Ogies. eMalahleni Local Municipality is located within the Mpumalanga Province and is situated in the jurisdictional area of the Nkangala District Municipality. The district is located to the North-West of the province and is the smallest district in land mass (21%) and has the second largest population concentration (35%) in the province. It covers an area of about 2677.67 km² in extent. The Nkangala District Municipality is made up of six local municipalities, namely:

- eMalahleni Local Municipality
- Emakhazeni Local Municipality,
- Steve Tshwete Local Municipality,
- Thembisile Hani Local Municipality,
- Dr JS Moroka Local Municipality, and
- Victor Khanye Local Municipality

eMalahleni is the most industrialised municipal area in Nkangala District and its landscape features mainly underground and opencast coalmines. This area has the largest concentration of coal power stations in the country.

The ELM is a category B local municipality which is situated on the Highveld of Mpumalanga. ELM is the smallest municipality in land mass (21%) and covers an area of approximately 16 899.2 km^2. It is bordered by the Gauteng Province in the east. It is one of six municipalities in the district. ELM consists of a number of towns, including Balmoral, Clewer, Coalville, Hlalanikahle, Kendal, Kriel, KwaGuqa, Lynnville, Matla, Minnaar, New Largo, Ogies, Paxton, Phola, Rietspruit, Thubelihe, Van Dyks Drif, Wilge, and Witbank. Witbank is one of the major urban concentrations in the Nkangala District Municipality and within Mpumalanga as a whole.

ELM is both an urban and rural area which consist of: large farms, dispersed urban settlements, coal mines and power stations.

8.3.1 Key Economic Sectors

8.3.1.1 Mining

Coal Mining: Emalahleni is one of the largest coal-producing areas in South Africa. The municipality houses several large-scale coal mines and power stations, contributing significantly to the local and national economy.

Other Minerals: Besides coal, the region also has deposits of other minerals, including platinum, vanadium, and magnetite.

8.3.1.2 Energy Production

Power Stations: The presence of major coal-fired power stations such as Duvha, Kendal, and Matla highlights the importance of energy production in the area. These power stations are crucial for supplying electricity to the national grid.

Renewable Energy: There is a growing interest in diversifying energy sources, including the development of renewable energy projects.

8.3.1.3 Manufacturing and Industry

Industrial Activities: The municipality has a diverse industrial base, including steel manufacturing, chemical processing, and various other heavy industries.

Employment: These industries provide significant employment opportunities to the local population, although they also pose environmental challenges.

8.3.1.4 Agriculture

Agricultural Production: Although overshadowed by mining and industrial activities, agriculture remains an important sector, with the production of crops such as maize, potatoes, and vegetables.

Livestock Farming: Livestock farming, including cattle, sheep, and poultry, also contributes to the local economy.

8.3.2 Economic Challenges

8.3.2.1 Environmental Degradation

Air and Water Pollution: Industrial activities, particularly coal mining and power generation, have led to significant air and water pollution, impacting public health and the environment.

Acid Mine Drainage (AMD): AMD from coal mining operations poses serious environmental and health risks, contaminating water sources and soil.

8.3.2.2 Infrastructure Strain

Aging Infrastructure: The rapid industrial growth has strained the local infrastructure, including roads, water supply, and waste management systems.

Maintenance and Upgrades: There is a pressing need for the maintenance and upgrading of infrastructure to support sustainable economic development.

8.3.2.3 Economic Diversification

Dependence on Mining: The local economy is heavily dependent on mining, making it vulnerable to fluctuations in commodity prices and regulatory changes.

Diversification Efforts: Efforts to diversify the economy are crucial to ensure long-term economic stability and resilience.

8.3.2.4 Unemployment and Poverty

Job Creation: Despite the presence of major industries, unemployment and poverty remain significant challenges. Creating more job opportunities, particularly for the youth, is essential for economic development.

Skills Development: Investing in education and skills development is key to improving employment prospects and supporting economic diversification.

8.3.3 Economic Opportunities

8.3.3.1 Renewable Energy Development

Solar and Wind Projects: Given the region's environmental challenges, there is a growing interest in developing renewable energy projects, such as solar and wind farms, to reduce reliance on coal and promote sustainable development.

8.3.3.2 Tourism

Natural Attractions: The municipality has potential for developing tourism, leveraging its natural attractions, cultural heritage, and proximity to major urban centres.

Ecotourism: Promoting ecotourism can help diversify the local economy while also raising awareness about environmental conservation.

8.3.3.3 Agricultural Expansion

Agro-processing: Investing in agro-processing industries can add value to local agricultural products and create new job opportunities.

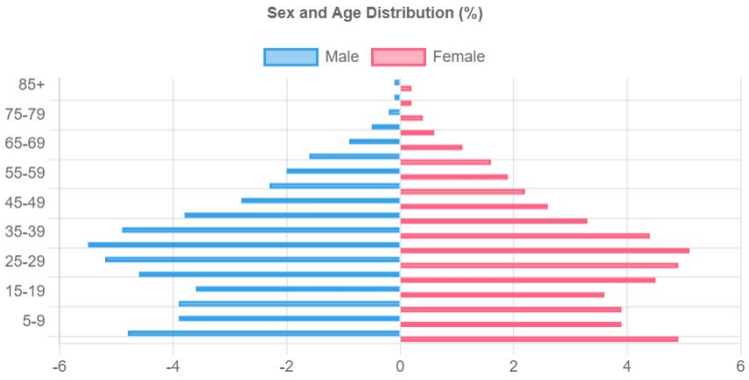
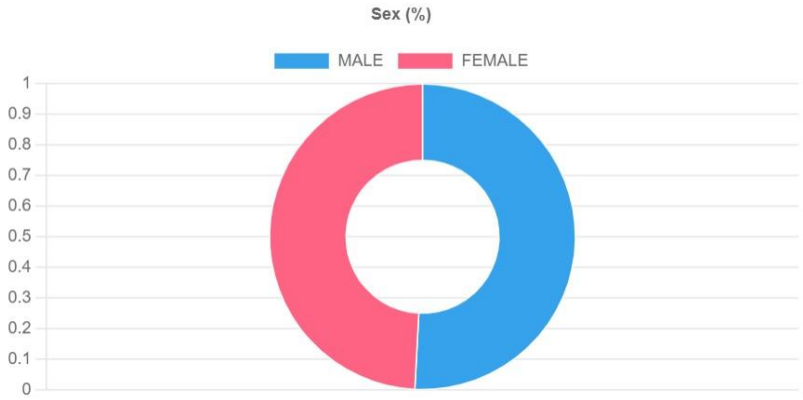
Sustainable Farming Practices: Encouraging sustainable farming practices can help mitigate environmental impacts and improve food security.

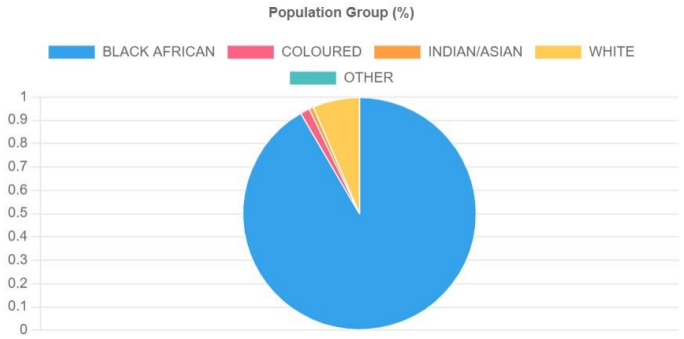
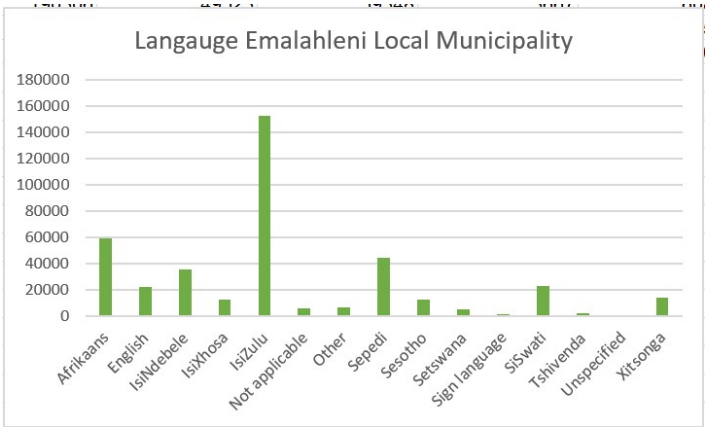
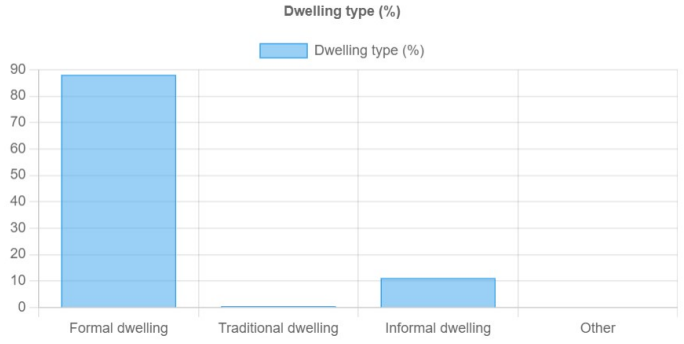
8.3.3.4 Infrastructure Development

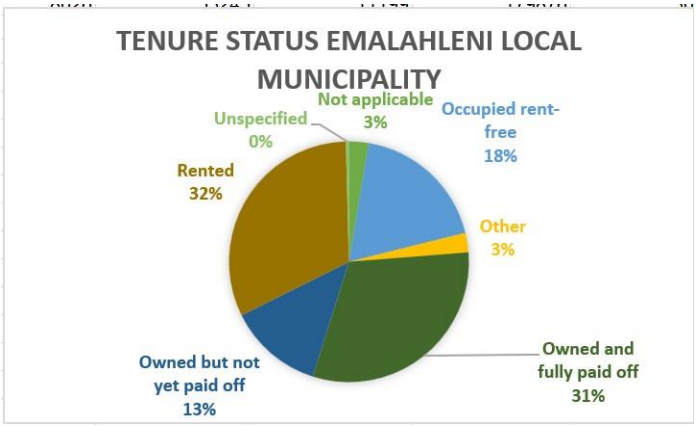
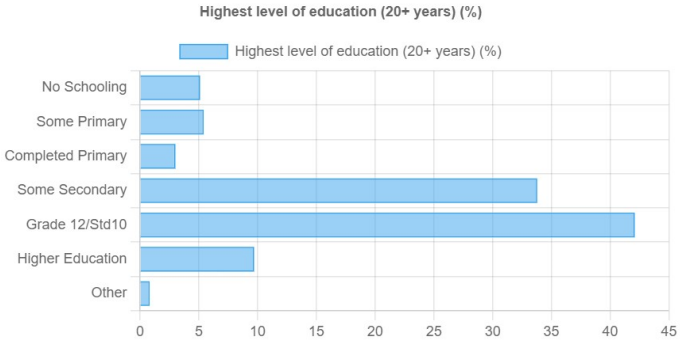
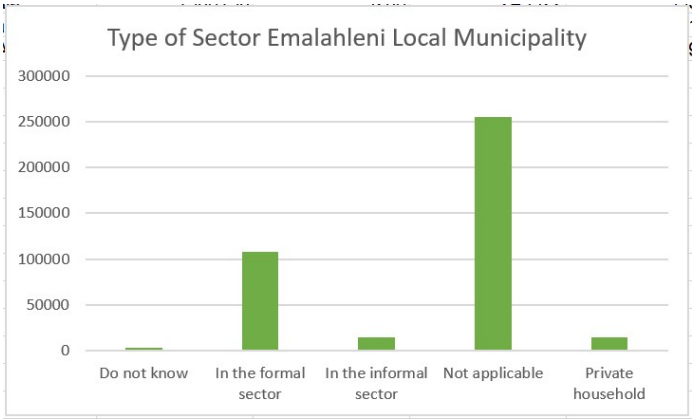
Public-Private Partnerships: Engaging in public-private partnerships can help finance and implement critical infrastructure projects, improving service delivery and supporting economic growth.

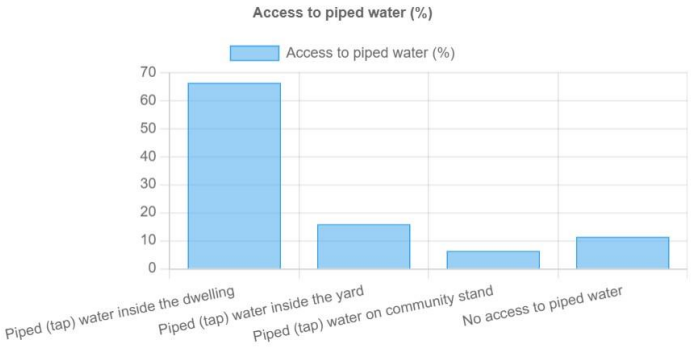
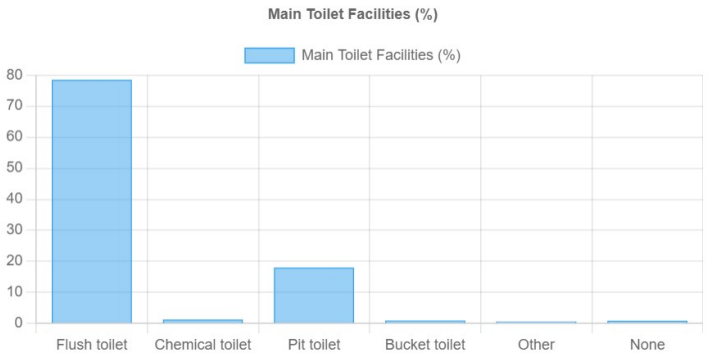
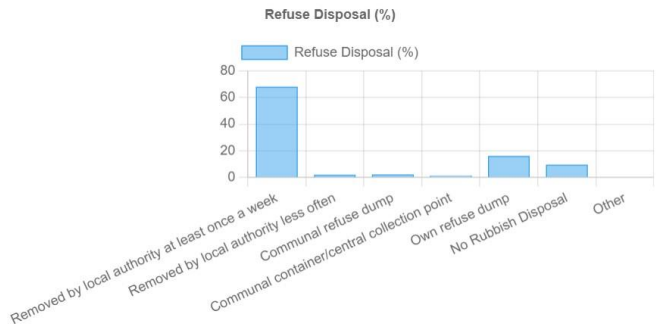
eMalahleni Local Municipality is a key economic hub in Mpumalanga Province, driven primarily by mining and industrial activities. While it faces significant challenges related to environmental degradation, infrastructure strain, and economic dependence on mining, there are opportunities for diversification and sustainable development. By investing in renewable energy, tourism, agriculture, and infrastructure, Emalahleni can build a more resilient and diversified economy that benefits all its residents.

Table 8-6: Summary of Key Statistics for the ELM

Demographic Aspect	eMalahleni Local Municipality
Age 	 The populous age group in eMalahleni is between ages 25 to 29. Followed Ages between 00 to 04.
Gender 	 There is 47% females and 53% males at eMalahleni.

Demographic Aspect	eMalahleni Local Municipality
Population 	 eMalahleni is composed of all racial groups with 391,982 Black African, which shows an increase since 2011; Coloured 5 450; Indian or Asian 3 762 and White 54 033.
Language 	 The majority of the population in eMalahleni speak isiZulu (below 160 000), followed by Afrikaans at (60 000), then Sepedi at (above 40 000).
Households 	 Majority of the population in eMalahleni live in house or flat household followed by informal dwellings.

Demographic Aspect	eMalahleni Local Municipality
Household Ownership	 31% of the total population of eMalahleni have owned and fully paid off tenure status. While 32% have a rented status.
Education Level 	 The population in ward eMalahleni of the Municipality have the highest education level at Some Secondary.
Employment 	

Demographic Aspect	eMalahleni Local Municipality
	Just over two thirds (69%) of the ELM's economically active population are employed primarily in the formal sector. Approximately 18% are unemployed and a further 5% regard themselves as discouraged work seekers.
Water 	 Regional/local water scheme are the main source of water supply in eMalahleni.
Toilet Facilities 	 Out of all the residents of eMalahleni, above 8 000 have flush toilets that are connected to the sewerage system. Only above 20 000 have pit latrines without ventilation.
Refuse Disposal/ Removal 	

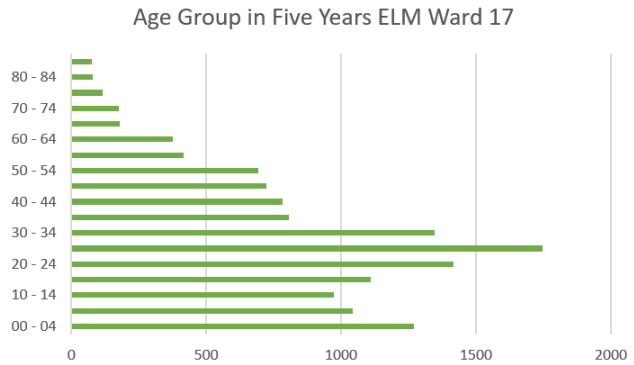
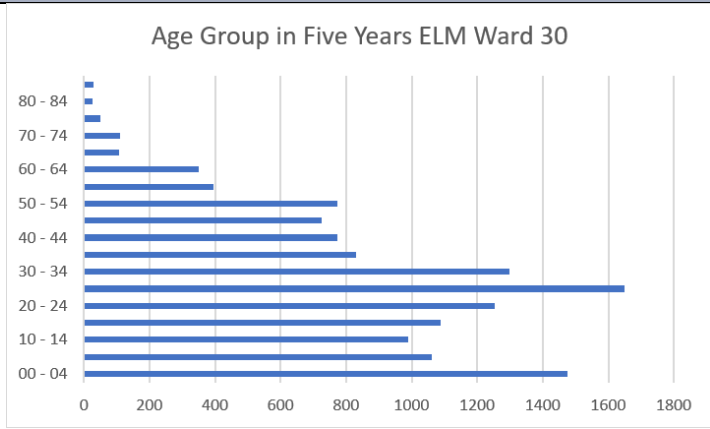
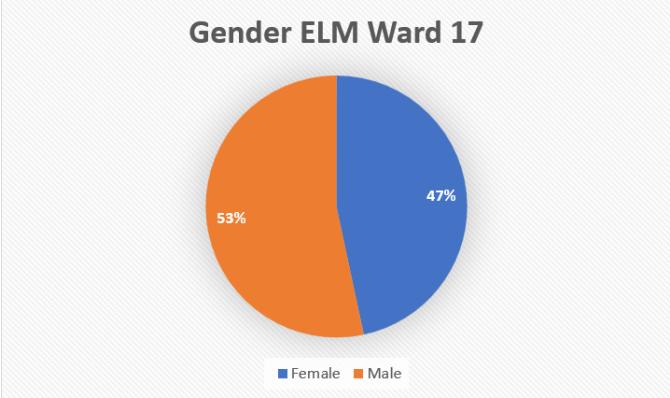
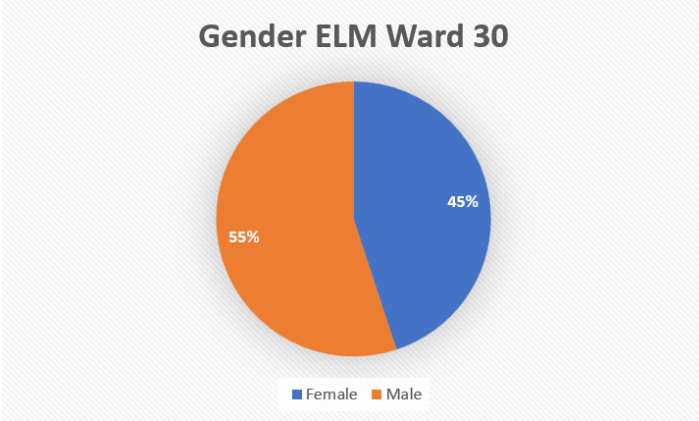
Demographic Aspect	eMalahleni Local Municipality
	Less than 300 000 of the refuse that is generated by the community of eMalahleni households is collected by the local authority at least once a week.

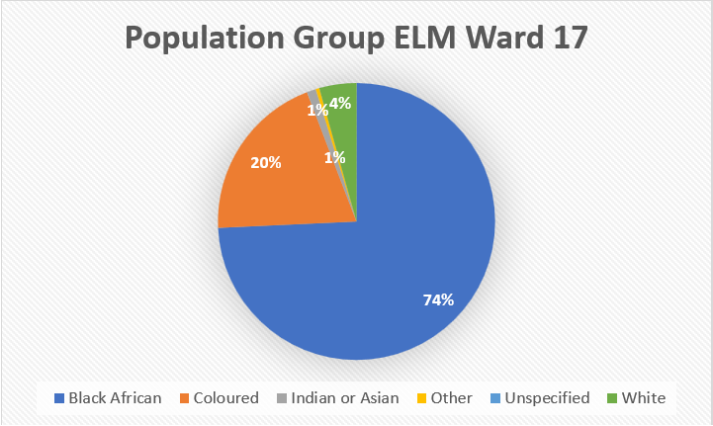
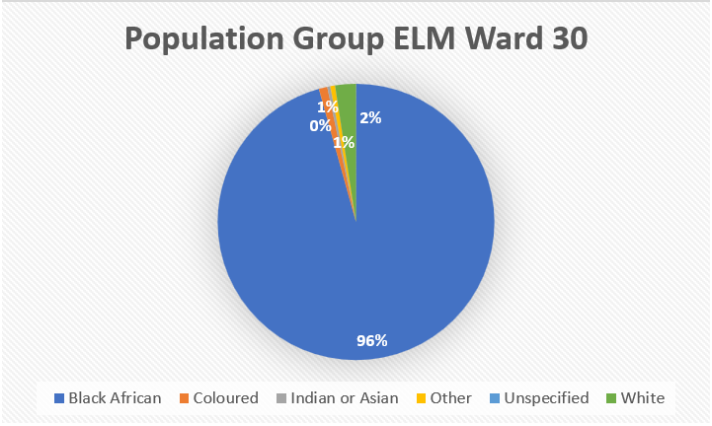
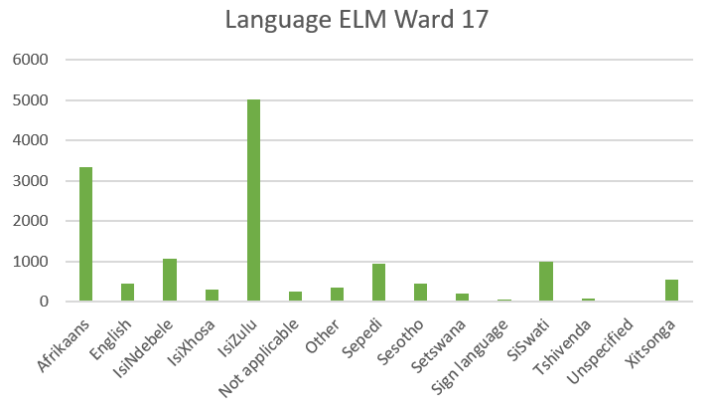
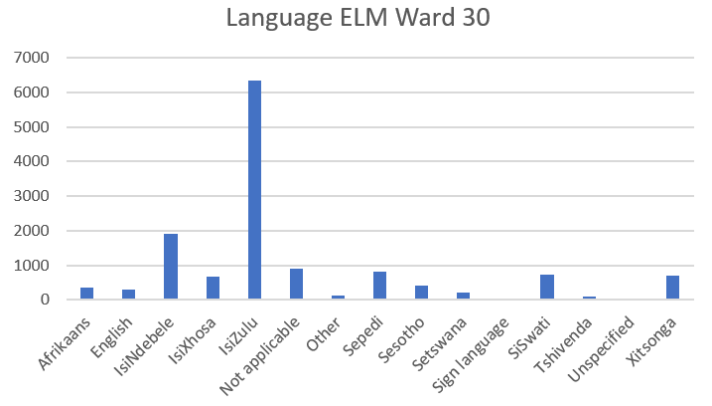
8.4 Wards: 17 and 30

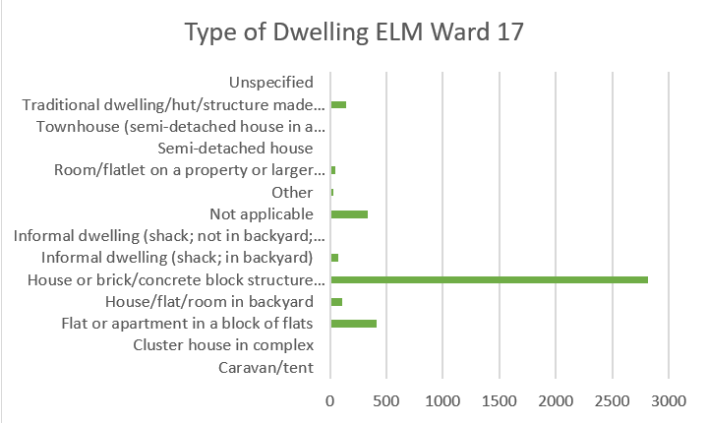
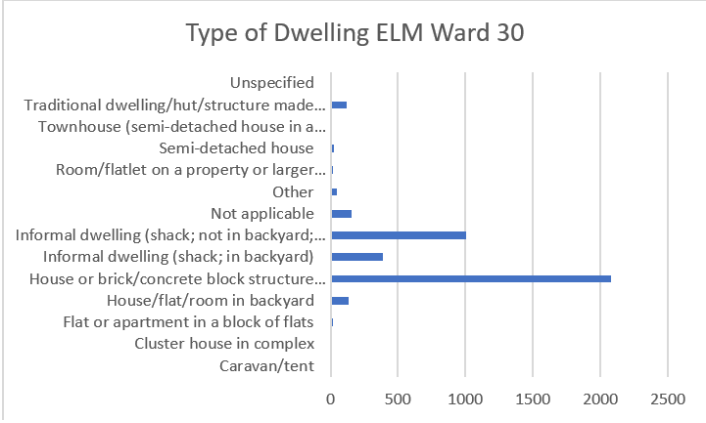
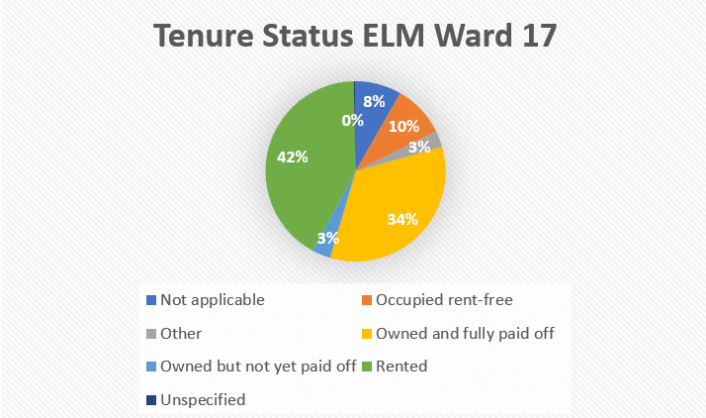
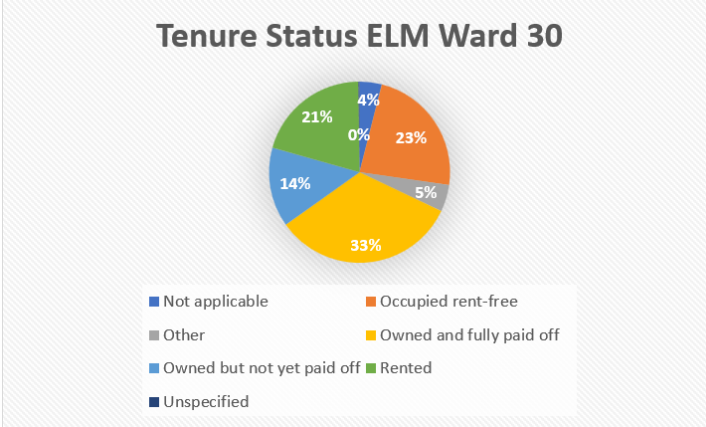
KPS is situated in Ward 30 of ELM and the closest human settlement is the town of Ogies, located along the R555, some 600 m to the east of the KPS. Ogies was originally established as a mining village. Modern-day Ogies forms part of the Richards Bay export initiative through its proximity to the southern railway line and the Ogies railway station that handles a substantial portion of the country's rail freight. Ogies is also a service centre to the surrounding farms and is home to grain silos, service industries and a co-operative. According to the SDF, the land around Ogies and Phola Township is prime agricultural land, causing some conflict between urbanisation, agriculture and mining.

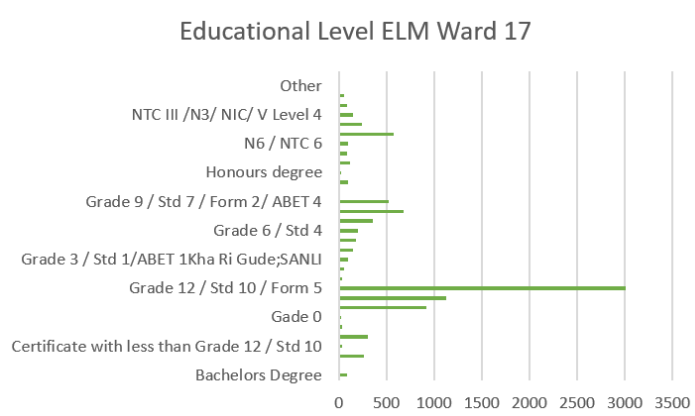
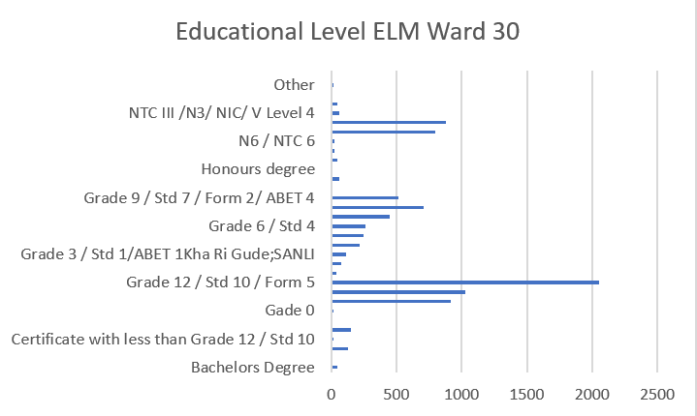
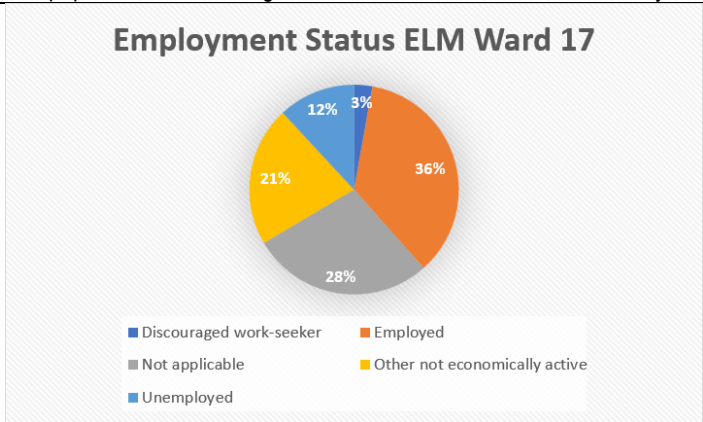
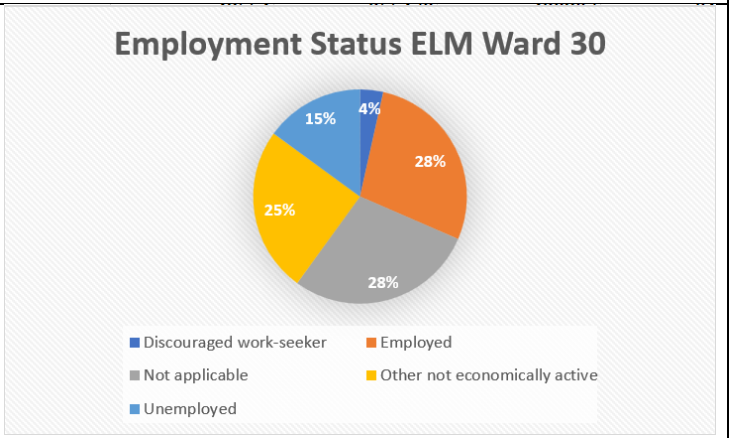
An overview of the demographic profile of both wards is presented in below.

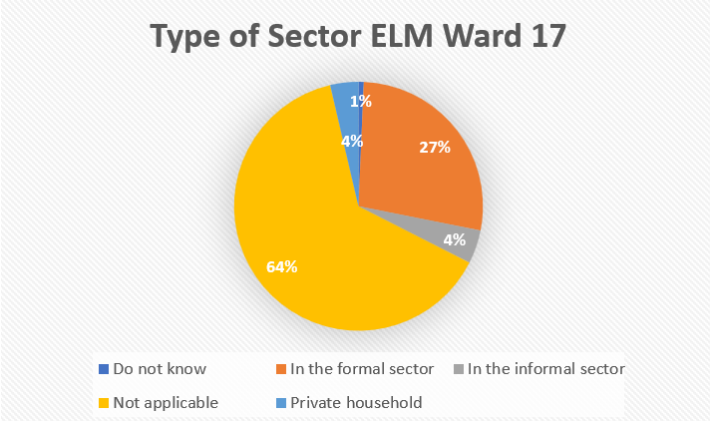
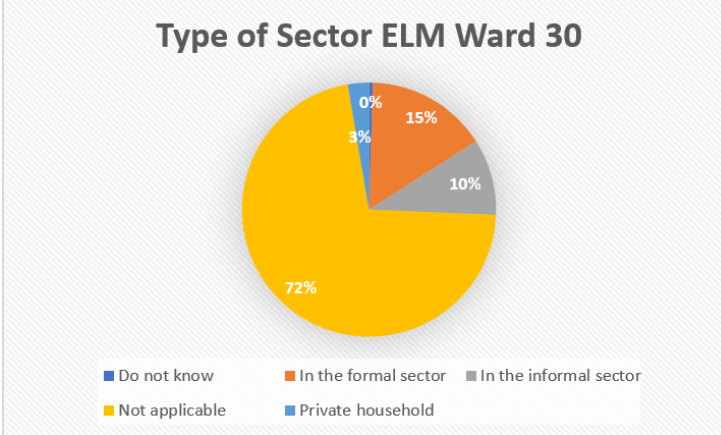
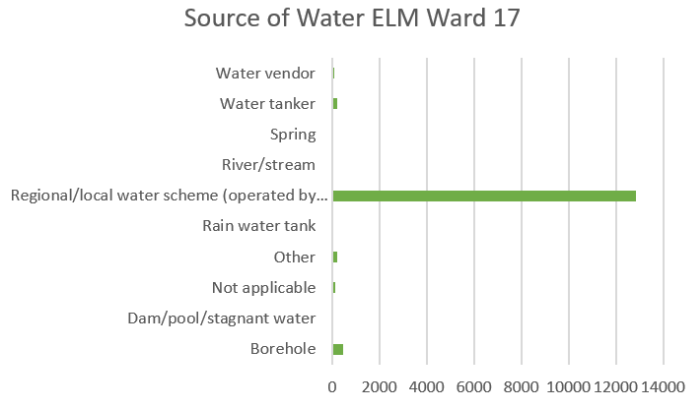
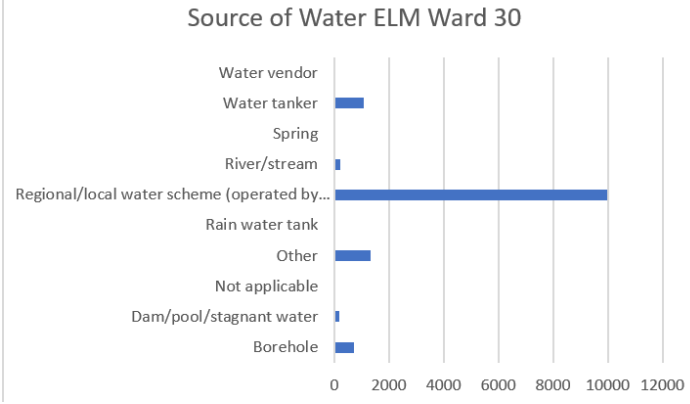
Table 8-7: Key statistics of Wards 17 and 30

Demographic Aspect	Ward 17	Ward 30
Age 	 The populous age group is between ages 25 to 29. Followed by of Ages 20 to 24.	 The populous age group is between ages 25 to 29. Followed by of Ages 00 to 04.
Gender 	 53% of the population are males and 47% are females.	 53% of the population are males and 47% are females.

Demographic Aspect	Ward 17	Ward 30
Population 	 74% of the population is Black Africans whilst 20% are Coloured. 4% are White and 1% are Indians of Asian.	 96% of the population is Black Africans whilst 2% are White and Colloured and Indians are 1% respectively.
Language 	 The majority of the population speak isiZulu, followed by Afrikaans, then isiNdebele and SiSwati.	 The majority of the population speak isiZulu, followed by isiNdebele.

Demographic Aspect	Ward 17	Ward 30
Households	 Majority of the population live in house or flat household.	 Majority of the population live in house or flat household followed by informal dwelling.
Household Ownership	 34% of the total population have an owned and fully paid off tenure status. While 42% have a rented status.	 33% of the total population have an owned and fully paid off tenure status. While 21% have a rented status.

Demographic Aspect	Ward 17	Ward 30
Education Level	 The population have the highest education level at Some Secondary.	 The population have the highest education level at Some Secondary.
Employment	 36% of the population are employed. 12% are not employed, while 21% are not economically active.	 28% of the population are employed. 15% are not employed, while 25% are not economically active.

Demographic Aspect	Ward 17	Ward 30
Employment sector	 27% are employed in the formal sector. 4% are employed in the informal sector and private household respectively.	 15% are employed in the formal sector. 10% are employed in the informal sector and 3% are employed in private household.
Water 	 Regional/local water scheme are the main source of water supply.	 Regional/local water scheme are the main source of water supply with 10 000 whilst less than 2 000 make use of borehole and water tanks respectively.

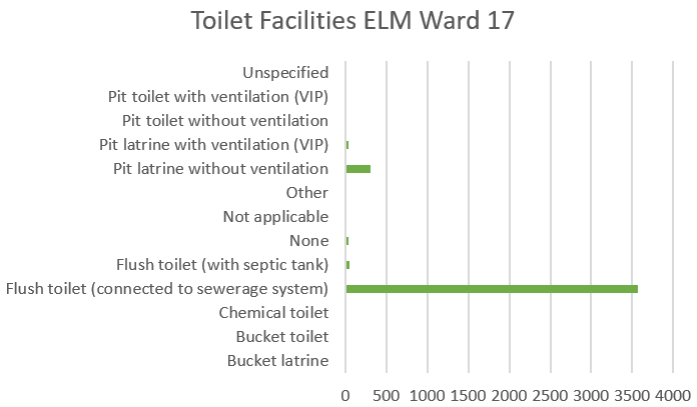
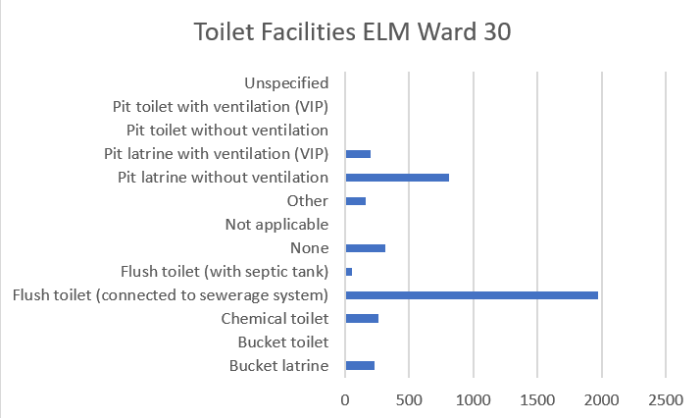
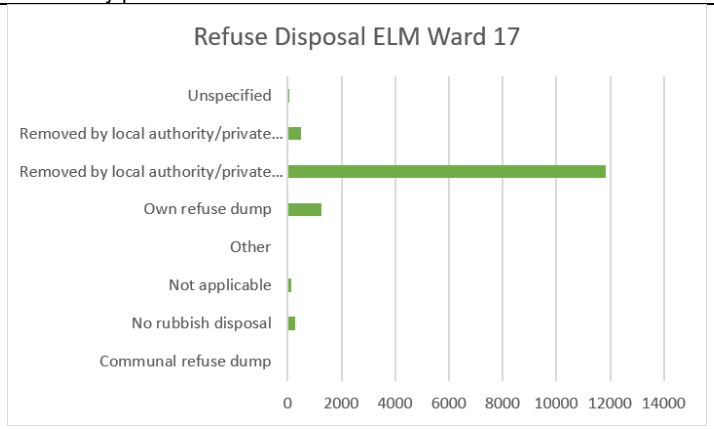
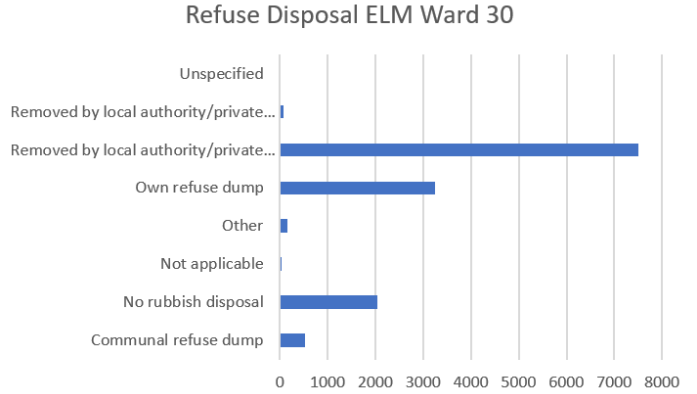
Demographic Aspect	Ward 17	Ward 30
Toilet Facilities 	 The majority have flush toilets with connected to the sewerage system. followed by pit latrine.	 The majority have flush toilets with connected to the sewerage system. followed by pit latrine the bucket latrine.
Refuse Disposal/ Removal 	 The majority of people depend on the local authority for refuse disposal followed by people who dispose of their own dump.	 The majority of people depend on the local authority for refuse disposal followed by people who dispose of their own dump then households with no rubbish disposal.

Figure 8-17 Electricity distribution lines and transformer

Refer to Figure 8-17 above. The establishment of electricity distribution lines and transformers within a community offers a wide array of socio-economic benefits. These infrastructure improvements can have profound impacts on various aspects of daily life and economic development. Some key benefits include:

- Improved Quality of Life
    - Access to Modern Amenities: Electricity provides access to modern appliances and amenities, improving comfort and convenience in homes.
    - Health and Safety: Reliable electricity reduces the need for harmful lighting sources like kerosene lamps, decreasing health risks and fire hazards.
    - Education: Improved lighting allows for extended study hours and the use of electronic learning tools, enhancing educational outcomes.
- Economic Development
    - Business Growth: Small businesses and industries benefit from reliable power, enabling them to operate efficiently and expand their operations.
    - Job Creation: The maintenance, and operation of electrical infrastructure create employment opportunities within the community.

    - Agricultural Productivity: Electricity enables the use of modern farming equipment and irrigation systems, increasing agricultural productivity and income.
- Enhanced Public Services
    - Healthcare: Medical facilities can operate essential equipment, refrigeration for vaccines, and lighting for extended operating hours.
    - Water Supply: Electric-powered pumps improve water supply systems, ensuring clean and reliable water for households and businesses.
    - Communication: Reliable electricity supports communication infrastructure, including mobile phone networks and internet services, improving connectivity.
- Social Benefits
    - Reduction in Inequality: Providing electricity to underserved areas helps bridge the gap between urban and rural communities, reducing socio-economic inequalities.

Increased Property Values

    - Real Estate: Access to reliable electricity increases property values and makes areas more attractive for residential and commercial development.
- Enhanced Security
    - Lighting: Street lighting and illuminated public spaces enhance security, reducing crime rates and increasing community safety.
    - Emergency Services: Reliable electricity ensures that emergency services, including police and fire departments, can operate effectively.
- Long-term Economic Stability
    - Investment Attraction: Electrified areas are more likely to attract investments from both local investors, contributing to long-term economic stability.

The presence of electricity distribution lines and transformers within a community brings transformative socio-economic benefits. From improving quality of life and fostering economic development to enhancing public services and environmental conservation, the advantages are extensive and multifaceted. Ensuring access to reliable electricity is a crucial step towards sustainable development and prosperity for any community.

Figure 8-18: Typical housing in Phola and water pump and supply

There are some areas where illegal dumping is taking place in the primary zone of influence -refer to the figures below. Illegal dumping, the unauthorized disposal of waste in areas not designated for such purposes, can have significant and detrimental social impacts on a community. These impacts affect the well-being, safety, and overall quality of life for residents of that particular community.

In South Africa, empirical evidence suggests that lack of support infrastructure such as containers used for shared waste collection and 150 L black bins for waste disposal at the household level, inadequate waste collection and backyard dwellers are some of the reasons behind illegal dumping of waste (Ngalo, 2023)

Illegal dumping is widespread in low-income neighbourhoods. Poor service delivery by the local municipality seems to be central to the problem of illegal dumping. Given the history of a segregated approach to urban development, it is plausible to argue that poor service delivery by the local municipalities has disproportionate impacts on the urban poor, making addressing illegal dumping a social justice issue. For poor communities, illegal dumping can have far-reaching impacts on well-being because it takes place closer to homes, in recreational facilities meant to serve these communities and on public infrastructure such as electricity substations. Since these communities often cannot afford these alternatives, the impacts of illegal dumping should be serious concern for urban authorities, planners and practitioners.

Illegal dumping also impacts communities in the following ways:

- **Health Risks**. Not only are dump zones breeding grounds for insects, but they become hot spots for animals that transmit diseases, such as rats.

- **Decreasing Property Values**. Illegal dumpsite may significantly reduce property values. Not only are trash heaps unsightly, but buyers are aware of the health and lifestyle implications of living in such a place.

Addressing the social impacts of illegal dumping requires a multi-faceted approach involving community engagement, education, law enforcement, and waste management strategies. Encouraging responsible waste disposal practices and implementing measures to prevent illegal dumping are essential for safeguarding community well-being and fostering a healthy, safe, and vibrant environment.

Figure 8-19 Refuse removal services

Figure 9-20 below is an image of a sign directing individuals to Ogies Clinic. Ogies Clinic offers a range of primary healthcare services to the local community, including but not limited to:

- General medical consultations
- Maternal and child health services
- Immunizations and vaccinations
- Chronic disease management (e.g., diabetes, hypertension)
- HIV/AIDS testing and treatment
- Tuberculosis (TB) screening and treatment
- Family planning and reproductive health services
- Minor injury treatment
- Health education and promotion

The presence of a Clinic in a community provides numerous social and community benefits, contributing to the overall well-being and resilience of the population. These include:

- Access to Healthcare Services

- Improved Health Outcomes
- Health Equity and Inclusivity (hospitals provide equitable access to healthcare services for all members of the community, regardless of socioeconomic status, race, ethnicity, or other factors. This promotes inclusivity and helps address disparities in health outcomes)
- Emergency Response and Disaster Preparedness
- Employment Opportunities
- Education and Training (often act as institutions affiliated with medical schools and training programs. They provide opportunities for medical students, residents, and other healthcare professionals to gain clinical experience, training, and mentorship, contributing to the development of the healthcare workforce).
- Social Cohesion and Support (they bring together patients, families, healthcare providers, and volunteers, creating opportunities for social interaction, mutual support, and shared experiences).
- Cultural and Social Diversity (they provide care to individuals from diverse backgrounds and promote cultural competence and sensitivity among healthcare providers).
- Community Pride and Identity

Overall, hospitals are integral institutions within communities, not only providing healthcare services but also contributing to social cohesion, economic development, and community resilience. Their presence enhances the quality of life and promotes the overall health and well-being of individuals and families within the communities they exist in and serve.

Figure 8-20 Ogies Clinic

9 Impact Assessment

Socio-economic impacts have to be identified and assessed so that it can be understood and communicated to the impacted communities and decision makers. Unlike biological and physical impacts, socio-economic impacts are to a large extent based on and responsive to people's perceptions and therefore the intensity and significance could change over time as new perceptions are formed (e.g., people might oppose a housing development during the EIA process but once the housing development is constructed and assimilated into the baseline, people don't notice it anymore and their animosity is reduced).

Determining socio-economic impacts is a challenging process because the elements that combine to form an impact are generally multi-dimensional and interrelated. The linkages between project-induced changes are also complex and mutually reinforcing, e.g., employment creation can be an important Project benefit, but at the same time it could also contribute so social conflict or excessive in-migration. Socio-economic impacts also have the potential to spread further to other (sometimes unrelated) areas, e.g., project-induced in migration could place pressure on local services (i.e., the Project itself did not create the impact but caused a by-product that caused an impact). This is what Vanclay (2002) refers to as change processes.

The assessment of socio-economic impacts was categorised as per the following change processes:

- Demographic processes: changes and impacts related to the composition of local communities;
- Economic processes: changes and impacts on the way in which the local people make a living and the economic activities in the society;
- Geographical processes: changes and impacts on land use patterns;
- Institutional and Legal processes: changes and impacts that affect the efficiency and effectiveness of local authorities; and
- Socio-cultural processes: changes and impacts that affect the culture of the local society, i.e., the way that people live together.

The discussion of each impact is structured as follows:

- Description of the expected change(s) to the baseline profile and resultant impact(s);
- Description of mitigation or augmentation measures to minimise or avoid negative impacts and enhance positive ones; and
- A table presenting the rating of an impact, summarising the recommended mitigation/augmentation measures, repeating the rating exercise after the application of mitigation/augmentation to determine the effectiveness thereof.

Where findings from other specialist studies are applicable, these have been included, particularly where such findings may contribute to the identified social impacts.

It is expected that the Project will result in social changes which may positively and negatively affect communities within the study area. In terms of the social changes that have been assessed, the following social impacts have been identified:

- Employment opportunities;
- Multiplier impacts on the local economy
- Community development and Social Upliftment through LED Projects Economic process
- Effects from population influx
- Increased social pathologies linked to influx of workers and job seekers-Demographic change
- Dependency on the mine for sustaining local economy

Report that will be accessible to a non-specialist audience and meet the requirements of the proponent, as well as international best practice. For this reason, predicted impacts have been categorised within the project phase (construction, operation and decommissioning) it is likely to originate, recognising that many impacts will span over more than one project phase.

A recapitulation of the Impact Rating Methodology has been provided in the table below:

Table 9-1: Recapitulation of Impact Rating Matric

Magnitude	Weight
Very Low	1
Low	2
Medium	3
High	4
Very High	5

Extent	Weight
Footprint	1
Site	2
Regional	3
National	4
International	5

Reversibility	Weight
Reversible	1
Recoverable	3
Irreversible	5

Duration	Weight
Short term	1
Short-Medium term	2

Medium term	3
Long term	4
Permanent	5

Probability	Weight
Improbable	1
Possible	2
Likely	3
Highly Likely	4
Definite	5

Significance	Weight
Negligible	</=20
Low	</=40
Moderate	</=60
High	>60

9.1 Employment opportunities- Economic Process

9.1.1 Construction Impact

	Impact Rating Without Mitigation	Impact Rating With Mitigation
Extent (Local, Regional, International)	Municipal Area (4)	Municipal Area (4)
Duration (Short term, Medium term, Long term)	Medium term (3)	Medium term (3)
Magnitude (Major, Moderate, Minor)	Moderately high (4)	High – (5)
Probability (Definite, Possible, Unlikely)	Likely (5)	Highly probable (6)
Calculated Significance Rating (Low, Medium, High)	**Medium (42)**	**High (64)**
Impact Status: (positive or negative)	Positive	Positive
Reversibility: (Reversible or Irreversible)	Not applicable	
Irreplaceable loss of resources: (Yes or No)	No	
Can impacts be enhanced: (Yes or No)	Yes	
Residual impacts • Developed local economy; and • The residual impacts associated with the creation of employment and business opportunities and training during the construction phase is that the workers can improve their skills by gaining more experience		
Mitigation measures • Ensure that local communities understand the Project's procurement and employment requirements in terms of skills and type of contracts and employment. This will be achieved using existing stakeholder communication channels at Straffontein; • Where reasonable and practical the contractors appointed by the proponent should appoint local contractors and implement a 'locals first' policy, especially for semi and low - skilled job categories. However, due to the low skills levels in the area, most skilled posts are likely to be filled by people from outside the area;		

	Impact Rating Without Mitigation	Impact Rating With Mitigation
• Opportunities for training of workers should be maximised; • Ways to enhance local community benefits with a focus on broad based BEE need to be explored; Local construction companies should be used whenever possible, especially for subcontracting work; • Local suppliers should be used as far as possible; • Establish targets for the employment and training; • Adopt recruitment strategies that ensure local people are given employment preference; Effective implementation of training and skills development initiatives; • The recruitment process has to be transparent and equitable; Prevent nepotism/corruption in local recruitment structures; • Maximise local employment to minimise the need for housing of temporary workers which could lead to social problems of integration with the local community; • Construction workers should wear name tags and clothing to ensure that they can be readily identified as belonging to the construction workforce. This should be applicable to all construction workers, including those locally recruited; • Workers should be made aware of property owners' concerns regarding construction work on their properties so that they are familiar with the sensitive issues; • A specific contact person should be identified to allow community members and property owners to easily direct their queries and concerns and obtain general information regarding the construction process; • Promote employment of women and youth; • Women must be provided with access to types of work traditionally seen as male; • Formulate a labour recruitment strategy that would minimise impact on other sectors (e.g., do not recruit unskilled labour at wage levels above the wages paid in the agricultural sector); and • Establish a liaison point with the adjacent farmers and nearby communities/ residents to monitor the impact on their local labour force.		

9.1.2 Operational Impact

	Impact Rating Without Mitigation	Impact Rating With Mitigation
Extent (Local, Regional, International)	Municipal Area (4)	Municipal Area (4)
Duration (Short term, Medium term, Long term)	Project Life (5)	Project Life (5)
Magnitude (Major, Moderate, Minor)	Moderate (3)	Moderately high (4)
Probability (Definite, Possible, Unlikely)	Likely (5)	Highly probable (6)
Calculated Significance Rating (Low, Medium, High)	**Medium (42)**	**High (64)**
Impact Status: (positive or negative)	Positive	Positive
Reversibility: (Reversible or Irreversible)	Not applicable	

	Impact Rating Without Mitigation	**Impact Rating With Mitigation**
Irreplaceable loss of resources: (Yes or No)	No	
Can impacts be enhanced: (Yes or No)	Yes	
Residual impacts • The residual impacts associated with the creation of employment and business opportunities and training during the operational phase is that it benefits the local economy; • Acquired transferable skills that could potentially be used with other businesses		
Mitigation measures • If possible, a training and skills development programme for the local workers should be initiated prior to the operational phase. • Effective implementation of training and skills development initiatives; • Recruitment should be formalised and co-ordinated through the Department of Labour- avoid appointments at the gate of the mining operation. • Prevent nepotism/corruption in local recruitment structures Promote employment of women and youth • Collaborate with Department of Labour and local business entities to develop/share skills database/registers • Prioritise local labour in the recruitment process – this will also limit project-induced in- migration to some extent. • Unskilled workers are recruited from the local villages and should be developed (up-skilled) during operations. • Medium skilled workers should where possible be recruited from the local communities and • Locals should also be allowed an opportunity to be included in a list of possible local suppliers and service providers for e.g. security services.		

9.1.3 Decommissioning Impact

The nature of the project does not involve decommissioning or any impacts thereof.

The effects of economic opportunities lost will not be felt for a long time, especially if those affected cannot secure economic opportunities elsewhere.

9.2 Multiplier Impacts on the Local Economy- Economic Process

9.2.1 Construction Impact

	Impact Rating Without Mitigation	**Impact Rating With Mitigation**
Extent (Local, Regional, International)	Municipal Area (4)	Municipal Area (4)
Duration (Short term, Medium term, Long term)	Project Life (5)	Project Life (5)

	Impact Rating Without Mitigation	**Impact Rating With Mitigation**
Magnitude (Major, Moderate, Minor)	Moderate (3)	Moderately high (4)
Probability (Definite, Possible, Unlikely)	Likely (5)	Highly probable (6)
Calculated Significance Rating (Low, Medium, High)	**Medium (42)**	**High (64)**
Impact Status: (positive or negative)	Positive	Positive
Reversibility: (Reversible or Irreversible)	Not applicable	
Irreplaceable loss of resources: (Yes or No)	No	
Can impacts be enhanced: (Yes or No)	Yes	
Residual impacts • Develop local economy		
Mitigation measures • Development of a register of local SMMEs; • Linkages with skills development/ Small, Medium and Micro Enterprises (SMME) development institutions and other mining operations; • SMME skills development as part of mine commitments • Create synergies with other mining/electricity enterprises LED/CSR projects • Preference should be given to capable subcontractors who based within the local municipal area; Align skills development to build capacity of SMMEs; Monitoring of sub-contractor's procurement; • Development of a register of local SMME; and • Local procurement targets should be formalised in National Treasure's procurement policy		

9.2.2 Operational Impact

	Impact Rating Without Mitigation	**Impact Rating With Mitigation**
Extent (Local, Regional, International)	Municipal Area (4)	Municipal Area (4)
Duration (Short term, Medium term, Long term)	Project Life (5)	Project Life (5)
Magnitude (Major, Moderate, Minor)	Moderate (3)	Moderately high (4)
Probability (Definite, Possible, Unlikely)	Likely (5)	Highly probable (6)
Calculated Significance Rating (Low, Medium, High)	**Medium (42)**	**High (64)**
Impact Status: (positive or negative)	Positive	Positive
Reversibility: (Reversible or Irreversible)	Not applicable	
Irreplaceable loss of resources: (Yes or No)	No	
Can impacts be enhanced: (Yes or No)	Yes	
Residual impacts		

	Impact Rating Without Mitigation	**Impact Rating With Mitigation**
• Local suppliers will have gained experience and exposure to meeting standards of quality and scale that could be transferrable to business opportunities		
Mitigation measures • Preference should be given to capable subcontractors who based within the local municipal area; and • Measures recommended to maximise benefits from local employment, skills and economic development.		

9.2.3 Decommissioning Impact

Closure will result in the termination of procurement contracts associated with operations. This may have significant implications for businesses that have become dependent on the Collieries. It is expected that there will be a moderate negative impact on the affected population during closure –provided that the LED projects under the SLP will kick off to ameliorate this.

9.3 Community Development and Social Upliftment through LED Projects Economic Process

9.3.1 Construction Impact

	Impact Rating Without Mitigation	**Impact Rating With Mitigation**
Extent (Local, Regional, International)	National (4)	National (4)
Duration (Short term, Medium term, Long term)	Long Term (4)	Long Term (4)
Magnitude (Major, Moderate, Minor)	Moderate – (6)	High – (8)
Probability (Definite, Possible, Unlikely)	Medium (3)	High (4)
Calculated Significance Rating (Low, Medium, High)	**Medium (42)**	**High (64)**
Impact Status: (positive or negative)	Positive	Positive
Reversibility: (Reversible or Irreversible)	Not applicable	
Irreplaceable loss of resources: (Yes or No)	Not applicable	
Can impacts be enhanced: (Yes or No)	Yes	
Residual impacts • Improved economic development; • Increased capacity to develop and maintain livelihood strategies		
Mitigation measures • Ensure that there is stakeholder buy-in; • Aligning LED projects with those of other development role-players;		

	Impact Rating Without Mitigation	Impact Rating With Mitigation
• Liaison with beneficiaries to ensure needs are met; • Collaboration with other developmental role players (e.g. local and district municipalities, neighbouring mines and NGOs) during implementation of envisaged projects, and where possible aligning envisaged development projects with existing ones; • Expanding its skills development and capacity building programmes for non-employees Monitoring system to regulate Historically Disadvantaged South African procurement • Tap into the ELM's existing structures and the existing database of SMMEs to identify needs and requirements such as training and equipment; • Make training and capacity building initiatives compulsory; • Set up support initiatives to enhance procurement and small business opportunities wherever feasible; • Where feasible, training should be NQF Accredited; and • A record of training courses completed per individual should be kept.		

9.3.2 Operational Impact

	Impact Rating Without Mitigation	Impact Rating With Mitigation
Extent (Local, Regional, International)	Local (2)	National (4)
Duration (Short term, Medium term, Long term)	Long Term (4)	Long Term (4)
Magnitude (Major, Moderate, Minor)	Low – (4)	High – (8)
Probability (Definite, Possible, Unlikely)	Medium (3)	High (4)
Calculated Significance Rating (Low, Medium, High)	**Low (30)**	**High (64)**
Impact Status: (positive or negative)	Positive	Positive
Reversibility: (Reversible or Irreversible)	Not applicable	
Irreplaceable loss of resources: (Yes or No)	Not applicable	
Can impacts be enhanced: (Yes or No)	Yes	
Residual impacts • Developed local economy; • Increased capacity to develop and maintain livelihood strategies		
Mitigation measures • Maximise benefits from local employment, skills and economic development		

9.3.3 Decommissioning Impact

Closure of the Project is expected to significantly reduce economic development and diversification. Some people will have increased capacity to continue to develop and maintain livelihood strategies while others may struggle with the transition. As such, it is expected that there will be a moderate to major negative impact on the affected population during closure.

9.4 Increased social pathologies linked to influx of workers and job seekers- Demographic Change/Socio-cultural Wellbeing Process

9.4.1 Construction Impact

	Impact Rating Without Mitigation	**Impact Rating With Mitigation**
Extent (Local, Regional, International)	National (4)	National (4)
Duration (Short term, Medium term, Long term)	Long Term (4)	Long Term (4)
Magnitude (Major, Moderate, Minor)	High – (8)	Moderate – (6)
Probability (Definite, Possible, Unlikely)	Medium (3)	Medium (3)
Calculated Significance Rating (Low, Medium, High)	Medium (48)	Medium (42)
Impact Status: (positive or negative)	Negative	Negative
Reversibility: (Reversible or Irreversible)	Partly reversible	
Irreplaceable loss of resources: (Yes or No)	This impact can result in consequences that will have irreplaceable losses of a physical and psychological nature.	
Can impacts be enhanced: (Yes or No)	No	
Residual impacts • The impact may be reversible over time as workers and job-seekers leave the area, consequences such as HIV/AIDS and unwanted pregnancies will be permanent		
Mitigation measures • Make it compulsory for contractors to submit a transport plan to ensure that workers are transported to and from their places of residence; • Should contractors and/or other persons with specialised skills not be available locally, the main contractor would be required to draw up and submit a housing plan that sets out how he will be dealing with employees from outside the municipal boundaries; • Draw up and implement a Local Employment Strategy as proposed in the Social Management Plan; Do not create unrealistic job expectations and set clear goals with regards to local employment, employment numbers and so forth. Make this information available to the Ward Councillor to distribute to local communities; • Collaborate with surrounding landowners through the EMC and ensure that stakeholders are aware of contact details and the procedures to raise complaints. • Deal with illegal structures expediently, follow the correct legal procedures and support landowners in this regard.		

	Impact Rating Without Mitigation	Impact Rating With Mitigation
• Provision of sufficient entertainment facilities in construction camps Cease construction activities before nightfall, if possible; • Liaison with police, community policing forum and security stakeholders; • Housing of construction workers in a construction camp site • Maximisation of the proportion of job opportunities allocated to locals; • Demolishing construction camp after construction activities have finished, or donating the construction camp to one of the local municipalities; • Construction workers should be clearly identifiable by wearing proper construction uniforms displaying the logo of the construction company. Construction workers could also be issued with identification tags. • The appointed contractor should establish clear rules and regulations for access to the construction site and offices to control loitering. Consultation should occur with the local police branch to establish standard operating procedures for the control and/ or removal of loiterers. • Liaison structures are to be established with local police to monitor social changes during the construction phase. Liaison should also be established with existing crime control organisations. Limit, as far as reasonably possible, social ills caused by influx of workers and job-seekers • Liaise openly and frequently with affected stakeholders to ensure they have information about the Project; • Extensive HIV/AIDS awareness and general health campaign. It should be noted that National Treasure has no control over activities related to workers' behaviour, however It is recommended that HIV/AIDS campaigns are conducted within the affected area; • Discourage influx of job-seekers by prioritising employment of unemployed members of local communities; • Liaise with the eMalahleni Local Municipality, and Traditional Authority to ensure that expected population influx is considered in infrastructure development and spatial development planning; Create synergies with local government IDP and other companies' SLP/CSR projects to promote infrastructure development; • Clear identification of workers –prevention of loitering; • Liaison with police or establish/ support community policing forum; Community education; and • Implement measures to address potential conflict between locals and non-locals		

9.4.2 Operational Impact

	Impact Rating Without Mitigation	Impact Rating With Mitigation
Extent (Local, Regional, International)	National (4)	National (4)
Duration (Short term, Medium term, Long term)	Long Term (4)	Long Term (4)
Magnitude (Major, Moderate, Minor)	Very High – (10)	High – (8)

	Impact Rating Without Mitigation	**Impact Rating With Mitigation**
Probability (Definite, Possible, Unlikely)	High (4)	Medium (3)
Calculated Significance Rating (Low, Medium, High)	High (72)	Medium (48)
Impact Status: (positive or negative)	Negative	Negative
Reversibility: (Reversible or Irreversible)	Partly reversible	
Irreplaceable loss of resources: (Yes or No)	This impact can result in consequences that will have irreplaceable losses of a physical and psychological nature.	
Can impacts be enhanced: (Yes or No)	No	
Residual impacts • The impact may be reversible over time as workers and job-seekers leave the area, consequences such as HIV/AIDS and unwanted pregnancies will be permanent.		
Mitigation measures • Extensive HIV/AIDS, drug abuse and domestic violence awareness campaigns; A voluntary counselling and testing (VCT) programme should be introduced; • Align awareness campaigns with those of other organisations in the area; • To limit, as far as reasonably possible, social ills caused by influx of workers and job-seekers; • To liaise openly and frequently with affected stakeholders to ensure they have information about the Project; and • To make available, maintain and effectively implement a grievance/complaint register that is easily accessible to all neighbours and affected stakeholders.		

9.4.3 Decommissioning Impact

During the decommissioning and closure phases, it is likely that workers will remain in the area as they may seek employment locally and are likely to have established networks and become connected after a long period of time. Given the high levels of uncertainty regarding the actions of people or nature of the socio-economic environment, it is not possible to assess this project phase

9.5 Impacts Related to Community Health and Safety

The proposed Nwabu Project using continuous miners presents several community health and safety impacts, as well as occupational health risks for workers. Effective mitigation measures must be implemented to address these concerns, ensuring the well-being of both the surrounding communities and the mine's workforce. By prioritizing health and safety, the mine can operate sustainably and responsibly.

9.5.1 Air Quality

- Impact: Continuous miners, though less impactful than blasting, still generate dust and particulate matter (PM) during coal cutting and material handling.

- Mitigation: Implement dust suppression systems and regular air quality monitoring to ensure compliance with health standards.

9.5.2 Water Contamination

- Impact: Mining activities can potentially contaminate local water sources through the release of sediments, chemicals, and heavy metals.
- Mitigation: Establish proper water management systems, including treatment facilities and regular water quality testing.

9.5.3 Noise Pollution

- Impact: Continuous miners produce noise from machinery operation, which can affect nearby communities, although at lower levels than blasting.
- Mitigation: Utilize noise reduction technologies and maintain an appropriate buffer zone between the mine and residential areas.

9.5.4 Land Subsidence

- Impact: Underground mining can lead to ground subsidence, affecting the structural integrity of buildings and infrastructure.
- Mitigation: Conduct regular geotechnical surveys and implement ground support systems to minimize subsidence risks.

9.5.5 Traffic and Transport

- Impact: Increased vehicular traffic for transporting coal and materials can lead to road accidents and congestion.
- Mitigation: Develop traffic management plans, improve road infrastructure, and ensure safe transport practices.

9.5.6 Emergency Preparedness

- Impact: Mining operations can pose risks of accidents such as fires, explosions, or gas leaks, impacting community safety.
- Mitigation: Develop and implement comprehensive emergency response plans, conduct regular drills, and establish communication channels with local authorities.

9.5.7 Occupational Health Risks for Workers in an Underground Coal Mine

9.5.7.1 Respiratory Diseases

- Risk: Continuous exposure to coal dust and other particulates can lead to respiratory conditions such as pneumoconiosis (black lung disease) and chronic obstructive pulmonary disease (COPD).

- Mitigation: Provide personal protective equipment (PPE) like respirators, ensure proper ventilation systems, and conduct regular health screenings.

9.5.7.2 Exposure to Toxic Gases

- Risk: Miners may be exposed to toxic gases such as methane, carbon monoxide, and hydrogen sulfide, which can be harmful or fatal.
- Mitigation: Implement continuous gas monitoring systems, ensure adequate ventilation, and train workers on emergency response protocols.

9.5.7.3 Noise-Induced Hearing Loss

- Risk: Prolonged exposure to high noise levels from machinery can cause hearing impairment.
- Mitigation: Use noise-reducing equipment, provide hearing protection, and enforce regular hearing tests.

9.5.7.4 Musculoskeletal Disorders

- Risk: Manual handling of heavy equipment and awkward postures can lead to musculoskeletal injuries and disorders.
- Mitigation: Implement ergonomic practices, provide mechanical aids, and conduct training on safe manual handling techniques.

9.5.7.5 Fatigue and Mental Health

- Risk: Long working hours, shift work, and the isolated nature of underground mining can contribute to worker fatigue and mental health issues.
- Mitigation: Promote work-life balance through appropriate shift scheduling, provide mental health support services, and create a supportive work environment.

9.5.7.6 Accidents and Injuries

- Risk: The underground mining environment poses risks of accidents such as falls, equipment failures, and entrapment.
- Mitigation: Enforce strict safety protocols, conduct regular equipment maintenance, and provide comprehensive safety training.

9.6 Dependency on the Mine for sustaining local economy (during closure)

While the proposed infrastructure can contribute significantly to economic development through its lifetime, this positive impact also has an adverse aspect, in that the KPSX will inevitably close, and this may have devastating consequences for an area that has not invested in economic diversification. The Decommissioning and Closure Phase of the Project will result in several potential

negative socio-economic impacts. A considerable number of people and their families will also become increasingly dependent on the Colliery for their livelihood. Employment opportunities associated with the proposed opencast Project will be lost at closure (a large percentage of whom will have been sourced from the local area or have become permanent residents in the area in accordance with the SLP), as will be the corresponding project benefits such as community development, LED and CSI programmes). More widely, project benefits arising from the procurement of goods and services as well as demand for goods and services by wage-earning employees will cease. The Collieries' direct involvement in community development initiatives will also cease. Economic downturn and the resultant loss of employment could result in increases in social pathologies, such as crime, gender violence, prostitution and substance abuse (IFC, 2012).

The severity of this impact depends to a large extent on the degree to which the local economy has grown dependent on the Project throughout its operation. For this reason, skills development, SMME development, and the design of community development initiatives to be sustainable beyond the life of the Collieries are key elements in successful mitigation of this impact. It will also be important to mitigate the negative impact of retrenchment on employees and their dependents.

The continual investment in Human Resource Development and facilitation of training during the lifetime of the Collieries has the purpose to sustain skills that will support employment of the workers beyond the life of the Collieries. The Collieries intends to comply with the Basic Conditions of Employment Act in respect of specific skills development directed at facilitating the further acquisition of skills that will be of value to employees at the Collieries at the time of downscaling and retrenchment. The company will follow the procedures for downscaling and retrenchment as set out by the Department of Labour and the Labour Relations Act (LRA). The Collieries will develop turnaround strategies and mechanisms to save jobs, prevent unemployment and avoid downscaling. The "notification process" as outlined in the Social Plan Guidelines and the LRA will be followed.

Retrenchments before the end of life of the Project are another possibility and could be necessitated by downscaling as a result of external forces such as reduced profitability, and technical innovation. At such a time, project employees may not be able to secure alternative employment.

- Job losses and retrenchments would lead to loss of income and local expenditure. Unemployed staff may be unable to pay for municipal services and will be unable to service their debts, including any home loans/ mortgages they may have. Taking into consideration the likely dependency on employee income, the loss of income will have considerable negative impacts on the wellbeing of households, especially where employees were the sole breadwinners.
- Suppliers could also be affected as the opportunity to sell goods and services to the Klipspruit Colliery Mining Right Amendment Applications will be lost. This could furthermore affect those companies that supply these businesses with their goods and services. This impact will mostly be felt by suppliers at a local municipal level.
- Economic downturn and the resultant loss of employment could also result in increases in social pathologies, such as crime, prostitution and substance abuse (IFC, 2012).

Other socio-economic impacts usually associated with such Projects dependencies include:

- Impacts on the workforce – Psychological issues (distraction from normal activities with a potentially negative impact on performance and safety), and personal and family income issues (e.g. concerns about the effect of reduced income on family life); and
- Impacts on the wider community - the regional economy (e.g. impact on the viability of other indigenous industries due to the loss of locally produced outputs), financing of decommissioning (e.g. adequate funds may not have been provided for decommissioning and site rehabilitation); and infrastructure (e.g. possible requirement for reconfiguration of essential national systems to maintain stability and reliability in power supply to the communities who are benefitting from the supply).

It is recommended that a Social Closure Plan be formulated at least five years before planned closure, including the undertaking of a SIA and stakeholder consultation process, which should focus on the following:

- Predicting the likely socio-economic impact on employee households, communities and the region;
- Identifying critical issues affecting the on-going sustainability of employees and communities during closure, by means of a detailed consultation process;
- Identification of alternative livelihood and socio-economic development opportunities and projects, which may become sustainable over the long term; and
- Mitigating and managing the adverse impacts of closure.

The Collieries should make every effort to ameliorate the social and economic impact on individuals, regions and economies where retrenchment and closure of the Collieries are certain. Should downscaling and retrenchment take place, the Collieries should assist affected employees in finding alternative employment or livelihood opportunities. This should be done in cases where employees cannot be integrated or redeployed to any of the other mining operations, or where they are not of a retirement age.

Klipspruit Colliery, in partnership with the Department of Provincial and Local Government, should jointly manage any process of this nature. The integration of the workforce into various LED projects, if required, could be done in collaboration with relevant municipalities, and other stakeholders serving on Municipal Development Forums, especial LED Forums. Where workers cannot be absorbed into LED initiatives, they should be furnished with portable skills training opportunities, enabling them to find alternative employment after decommissioning or retrenchment. Other initiatives could focus on assessment and counselling services for affected individuals.

	Impact Rating Without Mitigation	**Impact Rating With Mitigation**
Extent (Local, Regional, International)	National (4)	National (4)
Duration (Short term, Medium term, Long term)	Long Term (4)	Long Term (4)

	Impact Rating Without Mitigation	**Impact Rating With Mitigation**
Magnitude (Major, Moderate, Minor)	High – (8)	Moderate – (6)
Probability (Definite, Possible, Unlikely)	High (4)	Medium (3)
Calculated Significance Rating (Low, Medium, High)	**High (64)**	**Medium (42)**
Impact Status: (positive or negative)	Negative	Negative
Reversibility: (Reversible or Irreversible)	Partly reversible	
Irreplaceable loss of resources: (Yes or No)	This impact can result in consequences that will have irreplaceable losses of a physical and psychological nature.	
Can impacts be enhanced: (Yes or No)	No	
Residual impacts • The impact may be reversible over time as workers and job-seekers leave the area, consequences such crime and other social pathologies will be permanent.		
Mitigation measures • Effect retrenchments according to procedures stipulated in approved SLP; • The Colliery' SLP should provide strategies and measures that prevent job loss; Support economic diversification through development of alternative markets; Develop a Social Mine Closure Plan; • Proactively and effectively implement mine closure plan; • Collaborate with adjacent mining companies to develop and implement sustainable community; Develop alternative and sustainable livelihoods; • Alternatives to save jobs/avoid downscaling should be investigated beforehand; • Proactively assess and manage the social and economic impacts on individuals, regions and economies where retrenchment and/or closure of the Colliery are certain; and • Partner with the relevant government departments, to jointly manage Closure process.		

9.7 Cumulative Impacts[1]

Cumulative impacts are contextual and encompass a broad spectrum of impacts at different spatial and temporal scales (IFC, 2013) –i.e., cumulative impacts can result from individually minor but collectively significant activities taking place over a period of time (Dutta, et al., 2012). These are not new types of impacts but recognition that impacts from individual projects and activities can combine together in time and space.

[1] The impacts which combine from different projects and which result in significance change, which is larger than the sum of all the impacts.

From a social perspective, some of the most significant cumulative impacts relate to the following aspects:

- The expansion of KPSX could enhance the concentration of activity on a single industry, i.e. coal mining. Agricultural land is further reduced, leaving this industry to shrink, resulting in job losses of (in particular) unskilled workers.
- The possible cumulative socio-economic impacts that are expected to occur as result of the combined effect of the proposed opencast Project and other current or planned operations in the area that were identified are the impacts related to population influx and impacts on the visual surroundings and sense of place;
- The simultaneous development and expansion of various coal mines in the area could make local residents feel disempowered, which could enhance the risk for social mobilisation.
- Other development projects in the area (not only mining related) would exacerbate the pressure on the municipality to deliver housing and quality municipal services.
- The cumulative impacts associated with the creation of employment and business opportunities and training during the construction phase, are that there is an opportunity for employment seekers to improve their skills;
- KPSX, together with other existing and planned mining operations will result in several economic benefits for local communities through direct and multiplier effects. These effects are usually stimulated by wage bills, local and regional procurement spend, and investment into LED. The continuation of mining at KPSX will add to the existing positive effect of mining on local economic development by applying best practice in terms of local employment and procurement, as well as LED;
- An increase in direct project nuisance factors; namely, noise, air pollution, traffic and visual disturbances could further impact negatively on the sense of place for some receptors. Implementation of suitable mitigation measures has been proposed by the relevant specialist to reduce and manage these nuisance factors
- The other mines may contribute to the pollutant load on surface water systems. These changes may be substantial, affecting the regional water quality, though some mitigation is possible with practicable management systems. Changes in surface water quality impacts on the health various surface water users – drinking and recreational users. The continuation of mining at KPSX may place pressures on existing sanitation and water supply systems because of the anticipated increase in population in the area.
- Ground water extraction at other mines may affect groundwater availability in the area. The change may be substantial, extend regionally, affect many people, and may be cumulative in nature causing an overall shortage of drinking water as majority of the settlements depend on groundwater resources.
- Changes in income level; education; health care; change in existing cultural pattern; alteration of location or distribution of human population in the area; change in housing.

- Potential health hazards; risk of accidents from explosion, release of oil, radioactive materials, toxic substances etc

10 Potential Social Risks

The objective of this section is to identify any aspects of the receiving socio-economic environment that would represent significant risks to the Project.

These may constitute constraints that would have to be accommodated during the Project design phase, or concerns and disputes that would require appropriate management and mitigation. Social risk is linked to a project's stakeholders and can either be a risk to a project as a result of the impact on stakeholders or stakeholders' impact on the Project. In most cases a risk can be financial, delay or reputational.

- Financial: A financial risk can result in the expansion being financially unfeasible due to costs.
- Delay: could result in a delay to a project at any stage.
- Reputational: could cause damage to a company's reputation, which could result in delays or have financial implications.

The potential social risks, which the proposed Project might be exposed to are listed below:

- Community expectations
- Employment
- Community unrest due to a perceived and potential lack of economic opportunities
- Political tensions
- Failure to acquire a social license to operate

Community Expectations

Communities surrounding the Klipspruit Colliery often resort to unrest and protests whenever they feel unheard or somewhat dissatisfied with mining projects. Unrest and protest often lead to destruction of property and infrastructure; as well as loss of work hours and business and reputational risks for KPSX.

The current Klipspruit Colliery residents are a group who, historically, largely live in absolute poverty or form part of the lower middle-income group. During consultation, these residents complained about "outsiders" who belong to the middle and higher middle-income groups in the "suburbs" and Delmas are getting preferential recruitment at the Klipspruit Colliery. It is likely that these groups would experience the Project in vastly different ways:

- Those living in poverty tend to have a short-term view of negative social and environmental impacts as they are more focused on the benefits (or perceived benefits) of any development, which is job creation. They are willing to endure negative impacts for as long as they benefit from the Project.
- People from the higher income groups tend to focus more on the negative effects of a development as they are focused on how it would affect their individual lives. People from this segment of the local community are unlikely to seek work at the Collieries, they are likely to focus on the visual intrusion, health, blasting or other negative impacts, i.e. there is no immediate benefit for this group to support the Project. They are also more likely to have resources at their disposal to oppose the Project.

The process of 'othering' is highly present, in other words noticeable division within the local community/ communities, largely based on economic, political and cultural disparities. Cultures have well-developed systems that allow them to buffer change, but when change occurs too rapidly, such systems often cannot cope which then leads to social ills and the loss of social capital (NLN Consulting (Pty) Ltd, 2018).

Community expectations regarding the proposed opencast extension at the KPS are most frequently related to employment and CSI Projects. When such hopes are not met with interventions or addressed with appropriated communication it may lead to potential stakeholder opposition and public mobilisation against the project. These are discussed in turn below.

Employment

In a context of widespread unemployment, local residents (and especially people in the proximate area to KPSX) will be dissatisfied if access to the finite construction phase jobs and the provision of associated services is perceived to be biased and preferential. In other words, employment of locals is a sensitive issue and social mobilisation against the project as a result of perceived unfair practices can be a real threat to mining companies in the area.

Most of the surrounding communities will be expecting to benefit from the potential employment opportunities created by the continuation of mining and infrastructure amendment, although they all are not equally affected.

Community unrest due to a perceived and potential lack of economic opportunities

It is possible that if expectations of the surrounding communities are not carefully managed that social discontent will form. It is essential that communication channels are open between the communities and the Seriti Power so that stakeholders can lay complaints and discuss concerns with the Project. It is recommended that stakeholder engagement and public participation is on-going in order to manage expectations, allow for stakeholder input into the Project, inform and educate stakeholders about the project, and allow for open discussions. This will assist in anticipating any potential social issues, which may be a risk to the proposed Project and to implement measures to avoid those risks.

It is possible that regardless of the KPS Mining Right Amendment Applications' efforts for free, prior and informed consent that there will still be stakeholders who are dissatisfied with the process or use publicity of demonstrations as leverage either against the Project or for ulterior reasons.

Community unrest and protests are common in the LM area due to perceived lack of economic opportunities being offered to local people and businesses as well as community development.

This potential for local instability should be considered together with the recent nationwide mining strikes. Community members may have a negative attitude towards the mining sector as they may have spouses, friends or relatives that have been retrenched or treated unjustly by other mining operations. When combining these dynamics, it can be argued that affected communities might become resistant or hostile towards the KPS, if not treated in a socially justifiable manner.

It is imperative that local businesses are considered as part of the project activity' supply chain.

Mitigation measures include:

- Reviewing the numbers of local businesses engaged in the proposed Project.
- Undertake ongoing consultation with local communities (including local authorities and traditional leadership) and clearly communicate Project needs and schedule.
- Encourage communities to utilise the existing grievance procedure to communicate their issues and ensure timeous response to all lodged complaints and grievances.
- Utilise existing procurement and employment plans that promote transparent and fair recruitment and procurement.
- Ensure the development and implementation of the social closure plan.

Political tensions

In order to reduce the risk of being caught up in local political conflicts, Seriti Power should at all times avoid creating the impression of being biased towards any particular faction. The company should also keep abreast of all political developments that have a potential to spill over into local conflict, where project-related consultation could be used as a platform for furthering ulterior agendas. One way of keeping up-to-date with relevant political developments is by implementing a press-tracking system, which would send and automated alert to relevant parties whenever press releases appear that contain keywords related to the area, the company and/or the project.

Depending on the form that social mobilisation takes, it could lead to work stoppages, violent protests (causing health and safety fears), and appeals against the Project at the competent authority. All of this can cause delays, which could have an economic impact on the developer and its workforce. Changes can occur in the following areas:

- Segregation: creating social difference within the community
- Social disintegration: the loss of social capital and the abandonment of social and cultural practices. Cultural differentiation: an increase in cultural differences (or perceived differences), which enhances the process of 'othering'.

- Defiant social behaviour: e.g. an increase in prostitution, drug and alcohol use, violent protests, etc.

Failure to acquire a social license to operate

Dissatisfaction with the Seriti Power relating to economic opportunities may often be expressed through unrest and protests in the area. Failure to avoid any of the aforementioned risks might detract from the Project proponent's "social licence to operate." A social license to operate may be defined as the on-going approval and acceptance from a local community and stakeholders for a mine or project to operate. A social license to operate is intangible and dynamic. It is granted by the communities, in which a mine operates and is rooted in stakeholder perceptions and opinions about the project. A social license to operate is earned through on-going, transparent communications and mutual trust. It is therefore earned and needs to be maintained as opinions and perceptions can change. A social license to operate is gained through free, prior informed consent from local communities and stakeholders. Gaining a social licence to operate for a mine can therefore be a critical factor a project's success and an important component to human rights.

11 Need and Desirability

Need and desirability for the additional infrastructure at KPS was compiled in line with the requirements of the National Environmental Management Act, No. 107 of 1998 (NEMA) Need and Desirability Guideline (GN891 of 2014). The EIA Regulations specify that the Basic Assessment Report, Scoping Report and Environmental Impact Assessment (EIA) Report must provide a description of the need for and desirability of the proposed opencast extension. It requires that both "need' and "desirability" must be considered by the Applicant, his/her independent Environmental Assessment Practitioner (EAP), the specialists, and the Competent Authority.

Addressing the need and desirability of this proposed activity is a way of ensuring sustainable development – in other words, that a development is ecologically sustainable and socially and economically justifiable – and ensuring the simultaneous achievement of the triple bottom-line.

There are traditional trade-offs that exist between economic-social-environmental systems such as represented in the figure below. These systems are inextricably bound. The health of the ecological systems and associated natural capital underpins social and economic growth. These trade-offs have different meanings for different stakeholders.

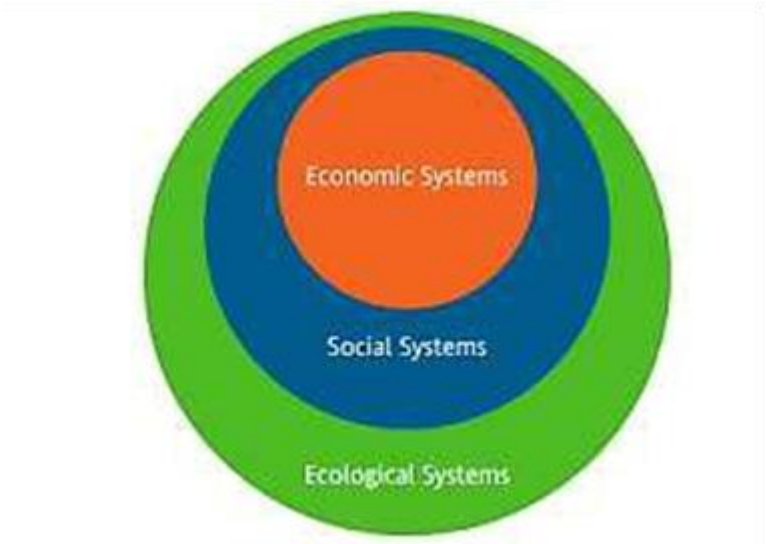


Figure 11-1 The Economic, Social and Environmental systems that are inextricably bound

During the 'Investing in African Mining Indaba' in Cape Town in May 2022, President Cyril Ramaphosa referred to the mining sector as the "Continuous Sunrise Sector" due to its enduring contribution to South Africa's economy. Despite facing challenges exacerbated by the Covid-19 pandemic, the mining sector remains a vital contributor to export earnings, a significant source of foreign direct investment, and a major employer, highlighting its resilience and importance in driving economic growth.

As the economic impacts of the Covid-19 Pandemic gradually diminish, the mining sector has played a crucial role in the recovery of South Africa's economy. In 2021, the sector experienced substantial growth of 11.8%, the highest among all industries, effectively restoring production levels close to pre-pandemic conditions.

According to a 2019 report by StatSA, the South African Mining Industry emerged as a cornerstone of the economy, generating a total of R527.5 billion in sales that year. Notably, 61% of these sales (R323.8 billion) came from exports, highlighting the sector's significant contribution to foreign revenue. Coal production dominated the industry, constituting approximately 75% of total mineral mass, with 306 million metric tons produced in 2019. Furthermore, nearly two-thirds of mining sales were derived from international markets, with coal exports accounting for 39% of total production.

The mining sector is a major employer in South Africa, with 514,859 individuals employed in 2019. Distribution across sectors revealed that 39% of employees worked in the platinum group metals sector, 21% in coal, and 20% in gold. Despite the challenges posed by the pandemic, recent statistics indicate that the industry still directly employs over half a million people.

At the 4th South African Investment Conference in 2022, approximately R46 billion in investments were pledged towards mining and mineral beneficiation, signalling robust investor confidence in South Africa's mining potential and operations.

The mining industry is recognized as a key driver of Rapid Economic Growth, as emphasized in the State of the Nation Address in 2019. Addressing poverty and unemployment hinges on leveraging the sector's potential. Key issues surrounding mining in South Africa include:

- The need for a strong capable state;
- Cost reduction for businesses and consumers;
- The need for reindustrialisation and a revitalised mining sector;
- Faster growth in tourism;
- Improved infrastructure;
- Better support for small businesses; and
- Marked reduction in unemployment

Mining's contribution to provincial GDP (2020) is 25.9% and the sector employs 53 000 people. The activity of mining has numerous social and economic benefits in local, regional and national context. These include:

- Job creation.
- Skills development.
- SMME development.
- Local economic development.
- Contribution to local and national tax income (royalties, companies' tax etc.).
- Contribution to the national gross domestic product, and
- Future business opportunities.

The production of goods, supply of services or construction of infrastructure results in expenditure within a regional economy which has knock-on effects and results in additional expenditure which contributes to the regional economy.

12 Social Management Plans

Based on impacts assessed, social management plans have been developed these plans include:

12.1 Stakeholder Engagement Plan

Social impacts already start in the planning phase of a project and as such it is imperative to start with stakeholder engagement as early in the process as possible. A Stakeholder Engagement Plan will assist in outlining the approach on how to effectively communicate with community members. It is recommended that the SEP is updated annually ensure that it stays relevant and that it addresses relevant concerns/comments raised by stakeholders. Develop and implement a

stakeholder engagement plan (SEP) for the Project, inclusive of a communications plan for liaising with residents of the Project affected households specifically. Open, transparent and continuous two-way engagement with stakeholders is of utmost importance in establishing a relationship with the Colliery's impacted communities.

To identify and assess the processes and/or mechanisms that will improve the communication between local communities, the wider community and Mine:

- Provide a guideline on how to effectively share information with community members- information must be communicated to stakeholders early in the decision-making process in ways that are meaningful and accessible, and this communication should be continued throughout the life of the project;
- Serves as a tool to facilitate grievance management – accessible and responsive means for stakeholders to raise concerns and grievances about the project must be established throughout the life of the project

The SEP should be aligned with the requirements of the Equator Principles (2013) and the IFC Performance Standards (2012). The plan should cover (but not be limited to) the following:

- Outline the aim and objectives of ongoing engagement;
- Describe all internal and external stakeholder groups (including levels of support and influence);
- Describe all stakeholder issues and concerns as known currently (this will require exploratory meetings with each stakeholder group);
- Define engagement techniques and protocols for each stakeholder group;
- Present a schedule that includes all identified stakeholders and topics;
- Outline resources required for implementation, timeframes, responsible people, monitoring mechanisms; and
- Layout process for undertaking and documenting engagement, including a clear process for registering and responding to issues and concerns raised.

12.2 Grievance Mechanism

A grievance mechanism is a formal, legal or non-legal complaint process that can be used by individuals, workers, communities and/or civil society organisations that are being negatively affected by certain business activities and operations. A grievance mechanism plan aims to prevent, defuse and resolve community complaints and disputes.

The World Bank Group (2005:72) states that a company's grievance procedures should be communicated to all stakeholders, community members should be made aware of the procedures to follow (i.e.) people should know where to go and whom to talk to if they have a complaint and understand what the process will be for handling the complaint. Communication with stakeholders should be provided in a format and language that will be understood by stakeholders. It is recommended information is communicated orally in areas where literacy levels are low.

A grievance mechanism provides stakeholders with an opportunity to raise their concerns and provides them with confidence that their issues will be addressed- this encourages better community relations and good reputation for the company.

12.3 Social Monitoring

The key relevant social aspects to be monitored are based on the social impacts and the relevant mitigation measures that have been identified. These social aspects are as follows:

- Water quality impacts;
- Procurement targets;
- Grievances;
- Community development initiatives as part of the SLP;
- Local employment targets; and
- Livestock monitoring.

13 Conclusion

In summary, the Project has the potential to bring about several, positive impacts/ changes. These are briefly listed below:

- Economic Growth: The approval/ authorisation of the Project can stimulate economic growth in the province. The Project will provide direct employment opportunities for the host communities within the mining industry and can also create jobs in related industries such as transportation, construction, and manufacturing.
- Revenue Generation: The affected Local and District Municipalities may benefit from taxes, royalties, and fees paid the Applicant. This revenue can in turn be used to fund public services, infrastructure projects, and community development initiatives.
- Infrastructure Development: Mining operations very often lead to the development or improvement of local infrastructure, including roads, utilities, and transportation networks. The Mine has the potential to do the same.
- Skills Development and Training: Through their SLP, it is anticipated that the Mine will provide training programs and skills development opportunities for local residents, which will enhance employability even after the mine closes.

The proposed Project also has the potential to bring about negative changes, namely:

- Air and Water Pollution: Mining activities at the Mine may release pollutants into the air and water, affecting the health of local communities. This can lead to respiratory problems, water contamination, and other health issues.

- Noise and Vibration: Mining operations can generate significant levels of noise (nuisance) and ground vibrations, which can disrupt communities, impact mental well-being, and potentially damage structures.
- Health Risks: Mining and processing can expose communities to health risks due to exposure to dust, chemicals, and hazardous substances. This can lead to respiratory diseases, skin disorders, and other health problems.
- Social Disruption: The influx of new workers and changes in the local economy can disrupt established social structures and networks. This can lead to increased crime rates, strained public services, and other social challenges.

The mine need to establish a monitoring framework to track the actual impacts of their mining operation over time. Regular reporting to stakeholders, including the host communities, government, and the Competent Authorities, is essential.

The findings of this SIA indicate the proposed resuscitation of the Mine has positive and negative potential impacts which range in significance. The construction of the infrastructure and the operation of the Mine has positive impacts are mainly due to creation of employment opportunities, boosting of the local economy due to increased disposal income and contribution to the revenue for the affected Local Municipalities. Negative impacts may be experienced due to potential loss of agricultural land, disturbance of cultural/spiritual and religious sites, increased pressure on municipal infrastructure, increased social pathologies linked to influx of job workers and work seekers, increased nuisance factors and changed sense of place.

In light of the SIA findings the following recommendations should be considered:

- It is recommended that the mitigation and management measures as contained in this SIA report be actively pursued and incorporated in the EMP where applicable; and
- Regular internal and external monitoring should be undertaken to ensure compliance with the Environmental and Social Management Plan.

In conclusion, it is recommended that the proposed Project is approved based on the assurance that potential negative impacts on the receiving socio-economic environment will be mitigated and managed as far as possible, and that potential positive impacts are enhanced to ensure the greatest value.

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EDUCATION AND QUALIFICATIONS

- BSocSc. (Geography and Environmental Management) University of KwaZulu Natal (2007)
- BSocSc. Hons. (Environmental Analysis and Management) University of Pretoria (2011)
- MPhil. (Environmental Law) University of Pretoria (current)

AFFILIATIONS

- Environmental Assessment Practitioners Association of South Africa (EAPASA)
- International Association of Impact Assessment South Africa (IAIASA)
- Public Health Association of South Africa (PHASA)
- Society of South African Geographers (SSAG)
- National Association for Clean Air (NACA)

YEARS OF EXPERIENCE

- 17 years

KEY COMPETENCIES

- Project Management
- Health Impact Assessments
- Community Health, Environmental Health

BIOGRAPHY

Vumile Ribeiro is the Director of Environmental Management Services at Niara Environmental Consultants (Pty) Ltd. Vumile has 17 years of professional and international experience in Environmental Assessment and Management primarily in the minerals resources and energy sector. Her roles include the operational management responsibilities of Niara Environmental Consultants, project management, report writing, client liaison, as well as business development.

Having worked for a multi-disciplinary advisory firms and environmental consultancies, Vumile has a competent understanding of the work effort and cross collaboration required for a successful multidisciplinary organisation. Vumile has been involved in a number of Environmental Impact Assessments and has a particular interest in health impacts assessments, water resource management, mining, energy and stakeholder engagement. Vumile has considerable experience across a range of developmental and environmental sciences and has worked in South Africa, Mozambique, Sierra Leone and Liberia and is familiar with Regulatory Environmental Legislation in other parts of Africa.

Vumile is very well versed in the IFC Environmental and Social Performance Standards (including IFC PS 2012) and the associated Equator Principles, which have informed the approach and standard for a number of ESIA processes that she has been involved in. Vumile is skilled at organising and driving effective project teams at a scale relevant to the project's requirements. She has technical experience and is able to quickly identify the most pertinent issues of a particular project whilst focussing on driving project success by rigorously implementing project management tools. Vumile's special interest areas involves understanding the systemic nature of factors that pose threats and opportunities in terms of establishing healthy, resilient communities, and exploring the use of various data types, approaches and methodologies to enable effective change.

- Legal Compliance Audits: Environmental / Health & Safety
- Environmental Control Officer
- Performance Assessments (Environmental Audits) on mine EMPrs
- Compliance Audits on Environmental Authorisations (e.g., ROD's, Water, Air and Waste Licenses)
- Consolidated Compliance Programmes
- Environmental Impact Assessments
- Basic Assessment Reports
- Mineral Law -Mining Rights and Permits
- Environmental Authorisation Applications
- Water Use License Applications
- Waste Management License Applications
- Co-ordinating and conducting Public Involvement processes.
- Social Assessment (Stakeholder and Social Analysis)
- Public Participation Process and Stakeholder consultation and mediation

COUNTRIES OF WORK EXPERIENCE

- Cameroon
- Democratic Republic of Congo
- Liberia
- Mozambique
- Sierra Leone
- South Africa
- Tanzania
- Zambia

LANGUAGES

English (excellent), Afrikaans (intermediate), siSwati (excellent), isiZulu (excellent) and Xhosa (excellent)

EMPLOYMENT HISTORY

June 2017 – present: Director: Environmental Management Services, Niara Environmental Consultants

March 2012 – May 2017: Environmental Consultant Human Sciences Department, Digby Wells Environmental, South Africa

January 2010 – December 2010: GIS Technician, Niara Environmental Consultants

October 2008 – October 2009: Client Service Executive, Ernst & Young

July 2007 – August 2008: GIS technician Capturer, Geospace International, (City of Tshwane Public Works and Infrastructure Development Department: Roads and Storm Water Division Project.)

April 2007 – July 2007: Mineral information Management Intern Department of Minerals and Energy, Mpumalanga Regional Office

EXPERIENCE HIGHLIGHTS

The below highlight key recent and relative project experience:

- Environmental Authorisation for Klipspruit Colliery – Inclusion of Pits S & G and Water Use License Application Process, Seriti Power (Pty) Ltd: Project Manager; Stakeholder Engagement Specialist
- Environmental Authorisation Application for The Springfield Colliery, Redan Siding and Vlakfontein Coal Mining Projects by Glubay Coal (Pty) Ltd in The District of Vereeniging and Meyerton, Gauteng: Health Impact Assessments and Social Impact Assessments: Social and Health Specialist and Reports Writer
- Graphit Kropfmühl - Community Impact Assessment for the GK Ancuabe Graphite Mine Graphit Kropfmühl Ancuabe Graphite Mine SA, Cabo Delgado Province Mozambique: Health Specialist and Report Writer
- Health Impact Assessment for the Mining Right Application for Iron Ore for Muhlava Mining on the Farms Berlyn 670 LT and Keulen 669 LT in Tzaneen, Limpopo Province, Titanium Mining (Pty) Ltd, Republic of South Africa: Health Specialist and Report Writer
- Nkomati Mine Closure Project: Community and Occupational Health Assessment Nkomati Joint Venture – a partnership between African Rainbow Minerals Limited and Norilsk Nickel Africa (Pty) Limited (Nkomati Mine
- Scoping EIA, Water Use License Application, Waste Management Licence Application for the Sasol Sigma Colliery Underground Ash Backfilling Project Sasol Mining (Pty) Ltd Republic of South Africa: Project Manager

Please consult the attached appendix for a comprehensive list detailing the project experiences undertaken.

APPENDIX A: PROJECT EXPERIENCE

Duration	Assignment name / brief description of main deliverables/outputs	Name of client and country of assignment	Role on the assignment
2012	Scoping EIA and Water Use License Application for the Bokoni Platinum Mine: Klipfontein Opencast Mining Operation	Bokoni Platinum Mines (Pty) Ltd Republic of South Africa	Project Administrator
2012	Amendment to City Deep EIA/EMP for the inclusion of Dump 3/L/40 and 3/L/42	Ergo Mining (Pty) Ltd Republic of South Africa	Project Assistant
2012	Community Health Baseline Study for Tonguma	Koidu Holdings Sierra Leone	Project Assistant / Report Writer
2012-2013	Community Health Impact Assessment for the Cooke Uranium Project re-mining of historic tailings facilities and establishment of a single large new Tailings Storage Facility for residual tailings	Gold One International Ltd Republic of South Africa	Health Specialist / Report Writer
2012-2013	Water Use Licence Compliance Audit	Ergo Mining (Pty) Ltd Republic of South Africa	Project Administrator
2013	Community Health Impact assessment for the Vedanta Power Plant and Associated Transmission Lines	Vedanta Zinc International Republic of South Africa	Health Specialist / Report Writer
2013	Community Health Impact Assessment for the Balama Graphite Mine	Syrah Resources Mozambique	Health Specialist / Report Writer
2013	Community Health Impact Assessment for the Putu Iron Ore Project	Atkins Global, Grand Gedeh County, Liberia	Project assistant for Health Impact Assessment
2013	Prospecting Right Application and Environmental Management Program Compilation for the St. Agnesfontein	Glenover Phosphate (Pty) Ltd / FermineOre, Republic of South Africa	Project Administrator
2013-2014	Scoping EIA, Water Use License Application, Waste Management Licence Application for the Sasol Sigma Colliery Underground Ash Backfilling Project	Sasol Mining (Pty) Ltd Republic of South Africa	Project Manager
2013-2014	Basic Assessment Report, Scoping EIA, Water Use License Application for the Sasol Syferfontein Block 4 Expansion Project	Sasol Mining (Pty) Ltd Republic of South Africa	Project Administrator
2013-2014	Community Health Impact Assessment for the Platreef underground platinum mine operation	Platreef Resources (PTY) Ltd Republic of South Africa	Health Specialist / Report Writer
2014	Submission of revised Environmental Impact Assessment and Environmental Management Programme for the Trichardtsfontein Project	Glencore Operations South Africa (Pty) Ltd, Republic of South Africa	Project Administrator / Report Co-author

Duration	Assignment name / brief description of main deliverables/outputs	Name of client and country of assignment	Role on the assignment
2014	Amendment to the Nooitgedacht Environmental Impact Assessment and Environmental Management Programme: Inclusion of Seams 2 and 4	Glencore Operations South Africa (Pty) Ltd, Republic of South Africa	Project Administrator / Report Co-author
2014	Community Impact Assessment for the proposed Kamiesberg heavy mineral sands mine Project	Zirco Roode Heuwel (Pty) Ltd Republic of South Africa	Health Specialist / Report Writer
2014	Community Impact Assessment for the proposed Tenge Iron Ore Project	Capitol Resources Limitada –subsidiary of Baobab Resources Plc, Mozambique	Health Specialist / Report Writer
2015	Integrated Water Use Licence Application and Integrated Waste Water Management Plan for the proposed Klipspruit Extension: Weltevreden	BHP Billiton Energy Coal South Africa Limited, Republic of South Africa	Project assistant for the WULA and IWWMP
2015	Integrated Water Use Licence Application for the proposed Middelburg – Mhluzi Powerline Project	Eskom SOC Holdings Limited Republic of South Africa	Project Manager / Report Writer for the WULA
2015	Community Health Impact Assessment for the proposed open-pit magnetite mine and concentrator plant	Pamish Investments No. 39 (Pty) Ltd Republic of South Africa	Health Specialist / Report Writer
2015	Environmental and Social Impact Assessment for the Proposed Nachu Graphite Project	Magnis Resources T/A Uranex Tanzania Ltd, Ruangwa District, Lindi Region Tanzania, East Africa	Health Impact Assessment Report Reviewer
2015	Integrated Water Use Licence Application and Integrated Waste Water Management Plan for the Lanxess Chrome Mine	Lanxess Mining (Pty) Ltd Republic of South Africa	Report Writer for the WULA and IWWMP
2015	De Groote Boom Mining Permit Application: Prescribed Environmental Management Programme	De Groote Boom Minerals (Pty) Ltd Republic of South Africa	Project Administrator and Report Writer
2015	Environmental Impact Assessment and Environmental Management Programme Report for the Proposed Realignment of the P141-1 Provincial Road, Tweefontein Mine Complex, Mpumalanga Province	Glencore Operations South Africa (Pty) Ltd	Report Compiler
2015	Water Use Licence Application for the Proposed Realignment of the P141-1 Provincial Road, Tweefontein Mine Complex, Mpumalanga Province	Glencore Operations South Africa (Pty) Ltd, Republic of South Africa	Report Writer for the WULA and IWWMP

Duration	Assignment name / brief description of main deliverables/outputs	Name of client and country of assignment	Role on the assignment
2015	Community Impact Assessment for the GK Ancuabe Graphite Mine	Graphit Kropfmühl Ancuabe Graphite Mine SA, Cabo Delgado Province Mozambique	Project Manager / Health Specialist / Report Writer
2015	Water Use Licence Application for the Proposed Roodekop Wetland Offset and Compensation Strategy Project	Universal Coal Development IV (Pty) Ltd Republic of South Africa	Report Writer for the WULA and IWWMP
2015	Water Use Licence Application for the proposed Lambda Substation near Volksrust, Mpumalanga and Associated 2 x 400kV & 2 x 765kV Loop in Transmission Line Project	Eskom SOC Holdings Limited Republic of South Africa	Project Manager
2016	Klipspruit Extension: Motivation for The Drilling Of Exploration Holes Within A Wetland	South32 Sa Coal Holdings (Pty) Ltd	Project Administrator / Report Writer
2016	Namane Generation Independent Power Producer and Transmission Line Project, near Lephalale, Limpopo	Namane Generation (Pty) Ltd	Health Specialist
2016	Risk Assessment and Associated General Authorisation for the Proposed KPSX Northern Bypass, in Mpumalanga	South32 SA Coal Holdings (Pty) Limited	Project Manager and Report Writer
2016	Environmental and Social Impact Assessment for the Massawa and Sofia Gold Project, Senegal	Randgold Resources Limited	Health Specialist
2016	Proposed Reclamation of the Grootvlei Tailings Storage Facilities Cluster, near Springs, Gauteng	Ergo Mining (Pty) Ltd Republic of South Africa	Health Specialist
2017	Environmental and Social Impact Assessment for the Proposed Ntem Iron Ore Project, in Cameroon: Health Impact Assessment Report	Caminex SA, Cameroon	Health Specialist
2017	Water Use Licence for the Proposed Pit H and Associated Infrastructure at KPSX: Weltevreden and KPSX: South Operations, in Mpumalanga	South32 SA Coal Holdings (Pty) Limited, Republic of South Africa	Project Manager and Report Writer
2017	Risk Assessment and Associated General Authorisation for the Proposed Substation and 132kV Power Lines in Ogies, Mpumalanga	Eskom Holdings SOC Limited, Republic of South Africa	Project Manager and Report Writer
2017	Wetlands Risk Assessment and Associated General Authorisation for the Proposed Geotechnical Drilling Project at Khutala Colliery, in Mpumalanga	South32 SA Coal Holdings (Pty) Limited, Republic of South Africa	Project Manager and Report Writer

Duration	Assignment name / brief description of main deliverables/outputs	Name of client and country of assignment	Role on the assignment
2017	Community Health Impact Assessment for the Proposed Phase 2 KwaMathukuza Housing Development in KwaMathukuza, Newcastle, KwaZulu-Natal	Phumaf Consulting Engineers, Republic of South Africa	Project Manager and Report Writer
2017	Odour Survey / Assessment for the Proposed Phase 2 KwaMathukuza Housing Development in KwaMathukuza, Newcastle, KwaZulu-Natal	Phumaf Consulting Engineers, Republic of South Africa	Project Manager and Report Writer
2017	Health Impact Assessment for the Mining Right Application for Iron Ore for Muhlava Mining on the Farms Berlyn 670 LT and Keulen 669 LT in Tzaneen, Limpopo Province	Titanium Mining (Pty) Ltd, Republic of South Africa	Project Manager and Report Writer
2017	Emakhazeni Coal Mining Project in the Eastern Basin Coalfield, Mpumalanga Province	Umsimbithi Mining (Pty) Ltd, Republic of South Africa	Health Specialist
2017	Odour Impact Survey for the Proposed Phase 2 KwaMathukuza Housing Development in KwaMathukuza, Newcastle, KwaZulu-Natal	Phumaf Consulting Engineers, Republic of South Africa	Project Manager and Report Writer
2018	Renewal of an Existing Integrated Water Use License for Vlakfontein Mine: Central Block, Ogies in Mpumalanga Province	African Exploration Mining and Finance Corporation SOC Limited (AEMFC)	Project Manager and Report Writer
2018	2017 IWWMP Update and Amendment for Eskom Lethabo Power Station in Free State	Eskom Holdings SOC Limited	Project Manager and Report Writer
2018	East Block External Integrated Water Use License Audit at Vlakfontein Mine, Ogies in Mpumalanga Province	African Exploration Mining and Finance Corporation SOC Limited (AEMFC)	Project Manager and Report Writer
2018	Waste Management License Application for NN Metals proposed listed activities of the scrap metal recycling operation located at 300 Mundt Street on Waltloo township ERF 110 in Pretoria within the City of Tshwane Metropolitan Municipality	NN Metals (Pty) Ltd, Pretoria, Republic of South Africa	Project Manager and Report Writer
2018	Community Health Impact Assessment for The Development of the Proposed Leslie 1 Coal Mining Project, near Leandra, Mpumalanga Province	Anglo Operations (Pty) Ltd and Leslie Coal Mine (Pty) Ltd	Health Specialist
2018	The Development of the Proposed Transformer Manufacturing, Repairing and Testing Facility at Portion 189 of the Farm Zandfontein 317JR, Kirkney Industrial Township, Pretoria West: Health Impact Assessment	Contipower (Pty) Ltd	Health Specialist

Duration	Assignment name / brief description of main deliverables/outputs	Name of client and country of assignment	Role on the assignment
2018	Elandsfontein Colliery: Oosbank Coal Siding Draft Environmental Management Programme	Anker Coal, Elandsfontein Colliery (Pty) Ltd	Project Manager and Report Writer
2018	Elandsfontein Colliery (Pty) Ltd: Elandsfontein Mine Integrated Water and Waste Management Plan Annual Update: 2018	Anker Coal, Elandsfontein Colliery (Pty) Ltd	Project Manager and Report Writer
2018	Rehabilitation, Decommissioning and Mine Closure Plan for the Proposed Woestalleen Holdings (Pty) Ltd Coal Mine in Middelburg, Mpumalanga Province	Woestalleen Holdings (Pty) Ltd	Project Manager and Report Writer
2019	Elandsfontein Colliery: Performance Assessment Audit Report on MP 63 MR Environmental Management Programme	Anker Coal, Elandsfontein Colliery (Pty) Ltd	Project Manager and Report Writer
2019	Community Health Impact Assessment The Development of the Proposed Matai Mining Project in Mankwe District, North West Province	Matai Mining (Pty) Ltd	Project Manager and Report Writer
2019	Social Impact Assessment The Development of the Proposed Matai Mining Project in Mankwe District, North West Province	Matai Mining (Pty) Ltd	Project Manager and Report Writer
2019	Health Impact Assessment Report The Development of the Proposed Panfontein Mining Project in the Magisterial District of Vereeniging, Gauteng Province	Richtrau 253 (Pty) Ltd	Project Manager and Report Writer
2019	Socio-economic Impact Assessment Report The Development of the Proposed Panfontein Mining Project in the Magisterial District of Vereeniging, Gauteng Province	Richtrau 253 (Pty) Ltd	Project Manager and Report Writer
2019	Elandsfontein Colliery (Pty) Ltd: Elandsfontein Mine Integrated Water and Waste Management Plan and RSIP Annual Update: 2019	Anker Coal, Elandsfontein Colliery (Pty) Ltd	Project Manager and Report Writer
2019	Vlakfontein Colliery Financial Provision Assessment: 2019	African Exploration Mining and Finance Corporation (SOC) Ltd (AEMFC)	Project Manager and Report Reviewer
2019	Inyanda Coal Mine Integrated Water and Waste Management Plan Update: 2019	Inyanda Mining Holdings (Pty) Ltd	Report Writer

Duration	Assignment name / brief description of main deliverables/outputs	Name of client and country of assignment	Role on the assignment
2019	Inyanda Coal Mine Rehabilitation Strategy and Implementation Plan	Inyanda Mining Holdings (Pty) Ltd	Report Writer
2019	Health Risk Assessment for The Proposed Residential Development on Various Portions of The Farm Rooikoppies 297-JQ	Seaton Thomson and Associates Cc	Specialist and Report Writer
2019	Application for Environmental Authorisation and A Change of Land Use for the Proposed Musina-Makhado Special Economic Zone (SEZ) in the Limpopo Province Health Impact Assessment Report	Limpopo Economic Development Agency (LEDA)	Specialist and Report Writer
2019	Integrated Environmental Authorisation Process for the Proposed Weltevreden Mining Right Application, Socio-economic Impact Assessment Report	Saldomate (Pty) Ltd	Specialist and Report Writer
2019	Integrated Environmental Authorisation Process for the Proposed Wildebeestfontein Mining Right Application, Socio-economic Impact Assessment Report and Social and Labour Plan	Opsirex (Pty) Ltd	Specialist and Report Writer
2020	Proposed Aggregate and Gravel Mining in Bizana, Eastern Cape: Social and Labour Plan	Ilitye Industrial (Pty) Ltd	Specialist and Report Writer
2020	Integrated Water Use Licence Application and IWWMP: Inyanda Coal Mine Rehabilitation Strategy and Implementation Plan	Inyanda Mining Holdings (Pty) Ltd	Report Writer
2020	Integrated Water Use Licence Application and IWWMP: The Development of the Proposed Panfontein Mining Project in the Magisterial District of Vereeniging, Gauteng Province	Richtrau 253 (Pty) Ltd	Project Manager and Report Writer
2020	Integrated Environmental Authorisation Process for the Proposed Van Oudshoornstroom Mining Right Application: Socio-economic Impact Assessment Report	Estate Late Philippus Christoffel Johannes De Jager	Specialist and Report Writer
2020	Nkomati Mine Closure Project: Community and Occupational Health Assessment	Nkomati Joint Venture – a partnership between African Rainbow Minerals Limited and Norilsk Nickel Africa (Pty) Limited (Nkomati Mine	Specialist and Report Writer
2020	Social Impact Assessment Report for the Development of the Proposed Zelpy Kafferskraal Mining Right Application	Zelpy Gold Mine (Pty) Ltd	Specialist and Report Writer

Duration	Assignment name / brief description of main deliverables/outputs	Name of client and country of assignment	Role on the assignment
2020	Health Impact Assessment Report for the Development of the Proposed Zelpy Kafferskraal Mining Right Application	Zelpy Gold Mine (Pty) Ltd	Specialist and Report Writer
2020	Environmental Authorisation and Water Use Licence Application for The Electrisurv Cc Beneficiation Plant	Electrisurv Surveying CC	Project Manager and Reports Writer
2020	Mining Right Application of the Proposed Springfield Opencast Colliery, near Meyerton & Vereeniging in the Gauteng Province: Health Impact Assessment	Glubay Coal (Pty) Ltd, an affiliated company of Canyon Resources (Pty) Ltd	Specialist and Report Writer
2020	Koppie Canyon Mining Right Application near Hendrina, Mpumalanga: Social Impact Assessment Report and Social and Labour Plan	Canyon Resources (Pty) Ltd	Specialist and Report Writer
2020	Risenga Colliery Water Use Licence Application: Integrated Water and Waste Management Plan	SARMCO Group (Pty) Ltd	Project Manager and Report Writer
2021	Integrated Water and Waste Management Plan (IWWMP) for the Proposed Samara Prospecting Right near Barkley West, Northern Cape	Samara Mining (Pty) Ltd	Specialist and Report Writer
2021	Social Impact Assessment Report and Social and Labour Plan for the Development of the Lakeside Colliery S102 Amendment	Zomhlaba Resources (Pty) Ltd	Specialist and Report Writer
2021	Social Impact Assessment Report and Social and Labour Plan for the Development of the Leeuwfontein Colliery S102 Amendment	Zomhlaba Resources (Pty) Ltd	Specialist and Report Writer
2021	Health Impact Assessment Report for the Development of the Proposed Ericure Dannhauser Coal Project	Ericure (Pty) Ltd	Specialist and Report Writer
2021	Application for Environmental Authorisation and Water Use Licence Application for the Proposed Middelburg Mining Services (MMS) Boschmanskrans Section Implementation of Wetland Mitigation and Offset Strategy: Social Impact Assessment	South32 SA Coal Holdings (Pty) Limited: South Africa Energy Coal	Specialist and Report Writer
2021	Application for General Authorisation: Ifalethu Colliery, Middelburg, Mpumalanga	South32 SA Coal Holdings (Pty) Limited: South Africa Energy Coal	Specialist and Report Writer

Duration	Assignment name / brief description of main deliverables/outputs	Name of client and country of assignment	Role on the assignment
2021	Application for Environmental Authorisation and Water Use Licence Application for the Proposed Middelburg Mining Services (MMS) Boschmanskrans Section Implementation of Wetland Mitigation and Offset Strategy: Water Use Licence Application	South32 SA Coal Holdings (Pty) Limited: South Africa Energy Coal	Specialist and Report Writer
2021	Social Impact Assessment for the Proposed Farm Marsh Lusern and Hydroponics Systems Project: Social Impact Assessment	Sishen Iron Ore Company (Pty) Ltd	Specialist and Report Writer
2021	Environmental Regulatory Process Required for the Proposed Wolvekrans Colliery Boschmanskrans Section Mining Extension Project Wetland Mitigation and Offset Strategy near Middelburg, Mpumalanga	South32 SA Coal Holdings (Pty) Ltd	Project Manager
2021	Water Use Licence Application for the Proposed Wolvekrans Colliery Boschmanskrans Section Mining Extension Project Wetland Mitigation and Offset Strategy	South32 SA Coal Holdings (Pty) Ltd	Specialist and Report Writer
2021	Social Impact Assessment for the Proposed Wolvekrans Colliery Boschmanskrans Section Mining Extension Project Wetland Mitigation and Offset Strategy	South32 SA Coal Holdings (Pty) Ltd	Specialist and Report Writer
2021	Environmental Impact Assessment and IWUL for the Proposed Ikwezi Vanadium Mine, near Northam	Ikwezi Mining (Pty) Ltd	Project Manager
2021	Social Impact Assessment and IWUL for the Proposed Ikwezi Vanadium Mine, near Northam	Ikwezi Mining (Pty) Ltd	Specialist and Report Writer
2021	Integrated Environmental Authorisation Process for The Proposed Aangewys Coal Mine Mining Right Application: Social Impact Assessment	National Treasure Minerals (Pty) Ltd	Specialist and Report Writer
2021	Social and Labour Plan for The Proposed Straffontein Colliery Mining Right Application	Mnambithi Mining (Pty) Ltd	Specialist and Report Writer
2021	Integrated Environmental Authorisation Process for The Proposed Straffontein Colliery Mining Right Application: Social Impact Assessment	Mnambithi Mining (Pty) Ltd	Specialist and Report Writer
2021	Environmental Authorisation and Water Use Licence Application for The Construction of the Doornpoort Pumping Main and Pump Station Project	eMalahleni Local Municipality	Project Manager and Report Writer
2021	Environmental Audit Report for Sekoko Coal – 2021	M3P Mining (Pty) Ltd	Project Manager

Duration	Assignment name / brief description of main deliverables/outputs	Name of client and country of assignment	Role on the assignment
2021	Environmental Authorisation required for Prospecting Right Application on various Portions of the Farm Schaapkopje 194 HT, 5km North of Vryheid Town in the AbaQulusi Local Municipality, KwaZulu Natal	Tuutuuka Resources (Pty) Ltd	Project Manager and Report Writer
2021	Basic Assessment Process and Water Use Licence Application for the Alignment of the Klipspruit Colliery Environmental Management Programme for Klipspruit Colliery, Mpumalanga Province	Seriti Power (Pty) Ltd	Project Manager and Report Writer
2022	Social and Labour Plan for The Proposed Roodepoort Coal Mine	Roodepoort Coal (Pty) Ltd	Specialist and Report Writer
2022	Social Impact Assessment for The Proposed Roodepoort Coal Mine on Farm Roodepoort 40 Is Portion 15, Nkangala District Municipality Within the EMalahleni Local Municipality, Mpumalanga Province	Roodepoort Coal (Pty) Ltd	Specialist and Report Writer
2022	Social and Labour Plan for Kleinwater Colliery	Madini Mining (Pty) Ltd	Specialist and Report Writer
2022	Social Impact Assessment for the Section 102 Amendment in Respect of Portions 2, 8, 9 of the Farm Kleinwater 301 JS, Portions 11, 39, 40 Of the Farm Doornrug 302 JS, and the Remaining Extent of the Farm Rondebult 303 JS, eMalahleni Local Municipality, Mpumalanga	Madini Mining (Pty) Ltd	Specialist and Report Writer
2022	Health Impact Assessment for the Proposed Nellmapius Extension 26 Township on Various Portions of The Farm Hatherley 331 JR, City of Tshwane Metropolitan Council	Tambura 69 Trust	Specialist and Report Writer
2022	Environmental Impact Assessment (EIA) and Water Use Licence Application for The Grootlaagte Opencast Mine Mining Right Application Situated in The Steve Tshwete Local Municipality, Nkangala District Municipality in Mpumalanga	Arnot OpCo (Pty) Ltd	Project Manager and Report Writer
2022	Basic Assessment Process and Water Use Licence for The Proposed Upgrade of Weltevreden Wetland Interventions	Seriti Power (Pty) Ltd	Project Manager and Report Writer
2022	Social Impact Assessment for the Blesboklaagte S102 EA IWUL and WL	Eyethu Coal (Pty) Ltd	Specialist and Report Writer

Duration	Assignment name / brief description of main deliverables/outputs	Name of client and country of assignment	Role on the assignment
2022	Environmental Authorisation for Klipspruit Colliery - Pit H: Regulation 31 Amendment and Water Use License Application	Seriti Power (Pty) Ltd	Project Manager and Report Writer
2022	Social Impact Assessment for the proposed Wonderhoek Open Cast Coal Mine near Middelburg, Mpumalanga Province	Wonderhoek Colliery (Pty) Ltd	Specialist and Report Writer
2022	Community Health Impact Assessment for the proposed Interwaste Brakkefontein Waste Management Facility near Atlantis, Western Cape	SLR Consulting on behalf of Interwaste (Pty) Ltd	Specialist and Report Writer
2022	Community Health Impact Assessment for the proposed Wonderhoek Open Cast Coal Mine near Middelburg, Mpumalanga Province	Wonderhoek Colliery (Pty) Ltd	Specialist and Report Writer
2022	Community Health Impact Assessment for the proposed Schurvekop Underground Coal Mine near Bethal in Mpumalanga	Mmakau Coal (Pty) Ltd	Specialist and Report Writer
2022	Public Participation Process in Support of the Queenstown Quarry S102 Amendment Process, Eastern Cape	Raumix Aggregates, a subsidiary of Raubex Group Ltd	PPP and Stakeholder Engagement Specialist
2022	Community Health Impact Assessment for the proposed Arengo Iron-Ore Project	Arengo 297 (Pty) Ltd	Specialist and Report Writer
2022	Water Use Licence Application and Associated Specialist Studies for the proposed Idwala Coal Mine	Idwala Coal Mine (Pty) Ltd	Specialist and Report Writer
2022	Rapid Appraisal Health Impact Assessment for the Proposed Platinum Pride Crematorium in Cape Town	Sharples Environmental Services cc (SES)	Specialist and Report Writer
2022	Rapid Appraisal Health Impact Assessment for the Proposed Construction and Operation of a Cement Grinding Facility and Storage of Dangerous Goods Located in Blackheath Within the City of Cape Town Municipality	Cemza Coastal (Pty) Ltd	Specialist and Report Writer
2022	Environmental Authorisation for Klipspruit Colliery – Inclusion of Pits S & G and Water Use License Application Process	Seriti Power (Pty) Ltd	Project Manager; Stakeholder Engagement Specialist

Duration	Assignment name / brief description of main deliverables/outputs	Name of client and country of assignment	Role on the assignment
2022-2023	ZNT 03 EDTEA 2021/2022 KwaZulu-Natal Air Quality Management Plan Draft Air Quality Management Plan – Provincial Stakeholder Engagement / PPP	Kwazulu-Natal: Department of Economic Development, Tourism and Environmental Affairs	PPP and Stakeholder Engagement Specialist
2023	Community Health Impact Assessment for the proposed Holfontein Waste Management Facility Expansion Project	EnviroServ Waste Management (Pty) Ltd	
2023	Social Impact Assessment for the Proposed Highbury Mining Right Application in the Magisterial District of Port Shepstone in the Ray Nkonyeni Local Municipality, KwaZulu Natal Province	SA Lithium (Pty) Ltd	Specialist and Report Writer
2023	Environmental Authorisation Process for the proposed Pivaanspoort Prospecting Right Application in Vryheid, KwaZulu-Natal	Pivaanspoort Mining (Pty) Ltd	PPP and Stakeholder Engagement Specialist
2023	Rapid Appraisal Health Impact Assessment for the Proposed Housing Development on Erf 43937 in Colorado Park, Mitchell's Plain	The City of Cape Town (CoCT) Metropolitan Municipality	Specialist and Report Writer
2023	Health Impact Assessment for the Proposed Highbury Mining Right Application in the Magisterial District of Port Shepstone in the Ray Nkonyeni Local Municipality, KwaZulu Natal Province	SA Lithium (Pty) Ltd	Specialist and Report Writer
2023	Public Participation Process for the proposed Wonderhoek Open Cast Coal Mine near Middelburg, Mpumalanga Province	Wonderhoek Colliery (Pty) Ltd	PPP and Stakeholder Engagement Specialist
2023	Environmental Authorisation Application for The Vlakfontein Coal Mining Project by Glubay Coal (Pty) Ltd in The District of Vereeniging and Meyerton, Gauteng: Health Impact Assessment	Glubay Coal (Pty) Ltd	Specialist and Report Writer
2023	Community Health Impact Assessment for the Proposed Multisand General Waste Management Facility Project	Multisand (Pty) Ltd	Specialist and Report Writer
2023	Seriti MMS Environmental Management Programme (EMPr) Consolidation	Seriti Coal (Pty) Ltd	Project Manager and Report Writer
2023	Randfontein Estates Limited: Doornkop Underground Mining Operations Water Use Licence Application (WU29548) and Associated Specialist Studies	Randfontein Estates Limited (a subsidiary of Harmony Gold Mining Company Limited)	Project Manager, Report Compiler and Reviewer

Duration	Assignment name / brief description of main deliverables/outputs	Name of client and country of assignment	Role on the assignment
2023	Klipspruit Extension EIA and WUL: Alignment from opencast to underground	Seriti Coal (Pty) Ltd	Project Manager, Report Compiler and Reviewer
2023	Integrated Environmental Authorisation Process for the Proposed Coastal Fuels: Alkmaar Mining Right Application: Social Impact Assessment	Coastal Fuels	Specialist and Report Writer
2023	Environmental Authorisation Application for The Redan Siding Project by Glubay Coal (Pty) Ltd in The District of Vereeniging and Meyerton, Gauteng: Health Impact Assessment	Glubay Coal (Pty) Ltd	Specialist and Report Writer
2023	Environmental Services for the Upgrade of N11 Section 3 from Newcastle South (KM 50.00) to Ncandu River (KM 57.20) in KwaZulu-Natal Province: Socio-Economic Impact Assessment	South African National Roads Agency SOC Ltd	Specialist and Report Writer
2023	Health Impact Assessment for the Proposed Manganese Slag Processing Plant and Associated Infrastructure in eMalahleni,	Zonglin Resources (Pty) Ltd	Specialist and Report Writer
2023	Community Health Impact Assessment for the Shiva Uranium Mine in the North West Province	Industrial Development Corporation of South Africa Limited (IDC)	Specialist and Report Writer
2023	Health Impact Assessment for the Proposed Samancor TC Smelter Plant: Addition of Two 70 MW Furnaces	Samancor Terris Chrome Smelters Ltd (Pty)	Specialist and Report Writer
2023	Environmental Control Officer Services for Water Conservation and Demand Management in Standerton	Gert Sibande District Municipality	Specialist and Report Writer
2024	Social Impact Assessment for the proposed Bengwenyama Underground Mining Project in the Sekhukhune District Municipality, Limpopo	Miracle Upon Miracle Investments (Pty) Ltd	Specialist and Report Writer
2024	Social Impact Assessment for the Proposed the Development of Coal Mine within Abaqulusi Local Municipality of Zululand District Municipality, KwaZulu Natal Province	Amora Properties (Pty) Ltd	Specialist and Report Writer
2024	External Environmental Audits for MMS (EMPRs, WULS, and WML Audits)	Seriti Power (Pty) Ltd	Specialist and Report Writer
2024	Seriti MMS General Authorisation for Exploration Drilling on Portions 15 and 16	Seriti Power (Pty) Ltd	Specialist and Report Writer

Duration	Assignment name / brief description of main deliverables/outputs	Name of client and country of assignment	Role on the assignment
2024	Social Impact Assessment Study for the proposed Palmietfontein Mining Right Application, in the Moses Kotane Local Municipality	Palm Chrome (Pty) Ltd	Specialist and Report Writer
2024	Social Impact Assessment Study for the Izimbiwa Coal Banana Republic (Rietfontein Colliery) S102 Amendment Process, near Middelburg, Mpumalanga	Izimbiwa Coal (Pty) Ltd	Specialist and Report Writer
2024	Social Impact Assessment Study for the Izimbiwa Coal Townlands (Uitkyk Colliery) S102 Amendment Process, near Middelburg, Mpumalanga	Izimbiwa Coal (Pty) Ltd	Specialist and Report Writer
2024	Social and Labour Plan for the proposed Palmietfontein Mining Right Application, in the Moses Kotane Local Municipality	Palm Chrome (Pty) Ltd	Specialist and Report Writer
2024	Social Impact Assessment for the proposed Samancor Western Chrome Mine, near Mooinooi, in the North West Province	Samancor Chrome (Pty) Ltd	Specialist and Report Writer
2024	Social Impact Assessment for the Ivanplats Application for Integrated Environmental Authorisation for the proposed Dry Stack TSF Project	Ivanplats (Pty) Ltd	Specialist and Report Writer
2024	Public Participation Process/ Stakeholder Engagement for the Ivanplats Application for Integrated Environmental Authorisation for the proposed Dry Stack TSF Project	Ivanplats (Pty) Ltd	Specialist and Report Writer
2024	Social Impact Assessment for the proposed Fuleni Mining Project within King Cetshwayo District Municipality, uMfolozi Municipality, Kwa-Zulu Natal Province	Imvukuzane Resources (Pty) Ltd	Specialist and Report Writer
2024	Kusasalethu Deelkraal Water Use Licence and GN 704 Audits	Harmony Gold Mining Company Limited	Specialist and Report Writer
2024	Health Impact Assessment for the proposed Fuleni Mining Project within King Cetshwayo District Municipality, uMfolozi Municipality, Kwa-Zulu Natal Province	Imvukuzane Resources (Pty) Ltd	Specialist and Report Writer
2024	Health Impact Assessment for the proposed Underground Expansion Project at East and West Mines for Tharisa Minerals Near Marikana, North West Province	Tharisa Minerals (Pty) Ltd	Specialist and Report Writer

Environmental Assessment Practitioners Association of South Africa

Registration No. 2019/1183

Herewith certifies that

Vumile Celiwe Ribeiro

is registered as an

Environmental Assessment Practitioner

Registered in accordance with the prescribed criteria of Regulation 15. (1) of the Section 24H Registration Authority Regulations (Regulation No. 849, Gazette No. 40154 of 22 July 2016, of the National Environmental Management Act (NEMA), Act No. 107 of 1998, as amended).

Effective: 01 March 2024

Expires: 28 February 2025

Chairperson

Registrar

SAQA
SOUTH AFRICAN QUALIFICATIONS AUTHORITY

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Environmental Assessment Practitioners Association of South Africa
Advancing environmental assessment practice in South Africa

Mrs Vumile Ribeiro
28 Shamrock Street
Ferndale
Randburg
2194

Sent by email to: vumile@niara.co.za

Dear Mrs Ribeiro

Registered Environmental Assessment Practitioner: Number 2019/1183
Vumile Celiwe Ribeiro : South African ID 8605090831080

The Environmental Assessment Practitioners Association of South Africa (EAPASA) herewith certifies that Vumile Celiwe Ribeiro is a Registered Environmental Assessment Practitioner (EAP) in accordance with the prescribed criteria of Regulation 15.(1) of the Section 24H Registration Authority Regulations (Regulation No. 849, Gazette No. 40154 of 22 July 2016, of the National Environmental Management Act (NEMA), Act No. 107 of 1998, as amended).

Your registration is duly authorised by EAPASA as the single Registration Authority for EAPs in South Africa (appointed as per Regulation No. 104, Gazette No. 41434 of 8 February 2018, in terms of section 24H(3)(a) of the NEMA). Your status as a Registered EAP is displayed in the 'EAP Register' - please find your name and contact email address at

https://registration.eapasa.org/registered-practitioners

Your registration is effective for a period of five years from 08 February 2024, and expires on 08 February 2029. The renewal of your registration in 2029 will be contingent on you having met the requirements of EAPASA's Continuing Professional Development (CPD) policy during each year of registration.

As a Registered EAP you are required to uphold the EAPASA Code of Ethical Conduct and Practice in your professional endeavours, towards the goal of quality assurance in environmental assessment practice.

Please accept my congratulations on your registration.

Best regards

Dr Patrick Sithole
Registrar
Date: 08 February 2024

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Website: www.iaiasa.co.za

IAIAsa Confirmation of Membership: 2024/2025

Vumile Ribeiro | Membership no: 5925

TO WHOM IT MAY CONCERN

This certificate confirms that Vumile Ribeiro, from Niara Environmental Consultants (Pty) Ltd with membership number: 5925 is a paid-up Full Member in good standing of the International Association for Impact Assessment South Africa and has been a member of IAIAsa since Thursday, March 1, 2018 to date.

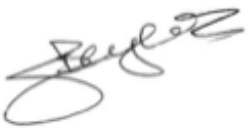
This membership is valid from 1 March 2024 to 28 February 2025.

IAIAsa is a voluntary organisation and is not a statutory body regulating the profession. Its members are however expected to abide by the organisation's code of ethics which is available on our website.

IAIAsa is an Affiliate of IAIA, which is an international body, through a memorandum of understanding. IAIA is not responsible or liable for the actions or activities of the Affiliates. Membership of one does not imply membership of the other.

Any enquiries regarding this membership may be directed to the Secretariat at the above contact details.

Yours sincerely



Greg Beyers
President 2023/2024

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IAIAsa Confirmation of Membership: 2024/2025
Vumile Ribeiro (Dlamini) Membership Number: 5925

04 Mar 2024

TO WHOM IT MAY CONCERN

Mrs Vumile Ribeiro (Dlamini), Niara Environmental Consultants (IAIAsa membership Number **5925**) is a paid-up Full Member in good standing of International Association for Impact Assessment, South Africa and has been a member of IAIAsa since 01 Mar 2018.

Membership has been continous from 01 Mar 2018 to date.

This membership is valid from 01 Mar 2024 to 28 Feb 2025.

IAIAsa is a voluntary organisation and is not a statutory body regulating the profession. Its members are however expected to abide by the organisation's code of ethics which is available on our website.

IAIAsa is an Affiliate of IAIA which is an international body through a memorandum of understanding. IAIA is not responsible or liable for the actions or activities of the Affiliates. Membership of one does not imply membership of the other.

Any enquiries regarding this membership may be directed to the Secretariat at the above contact details.

Yours sincerely

Greg Beyers
President 2023/2024

PHASA
Public Health Association of South Africa

MEMBERSHIP CERTIFICATE

This certifies that

Vumile Ribeiro

is a registered member of the **Public Health Association of South Africa**

Membership number: 2022378

Membership period ends: 03-18-2025

19th March 2024

Date

PHASA President

Secretariat Enquiries

secretariat@phasa.org.za or phasa.info@gmail.com

28419660

University of Pretoria

The Council and Senate hereby declare that
at a congregation of the University the degree

Bachelor of Social Sciences Honours

in

Environmental Analysis and Management

with all the associated rights and privileges
was conferred on

Vumile Celiwe Dlamini

in terms of the Higher Education Act, 1997 and the Statute of the University

On behalf of the Council and Senate

Vice-Chancellor and Principal

On behalf of the Faculty of Humanities

Dean (Acting)

Registrar

2012-04-23

CERTIFIED A TRUE COPY
OF THE ORIGINAL

Tshegofatso Mokoena
13 Eton Road
Parktown, 2193, Johannesburg
Commissioner of Oaths *Ex Officio*
Practising Attorney
Republic of South Africa
04/08/2023

UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA
YUNIBESITHI YA PRETORIA
Denkleiers • Leading Minds • Dikgopolo tša Dihlalefi

STUDENT NUMBER	28419660
SURNAME	Dlamini
FIRST NAMES	Vumile Celiwe
DATE OF BIRTH	1986-05-09
TYPE OF EXEMPTION	Gr 12 not required
DATE ISSUED	2012-02-23

LIST OF COURSES PASSED

2011 (Full-time)	Program: BSocSci Hons		Plan: Environmental Anal and Mngm	
Course offering	**Description**	**Academic progress unit**	**%**	**Decision result**
GGY 793	Geography of land reform 793	20	75	A- (Pass with distinction)
GGY 785	Env impact assess and man 785	20	68	B+ (Pass)
GGY 780	Urban geography of SA 780	20	75	A- (Pass with distinction)
GGY 729	Industrial environmental 729	20	78	A- (Pass with distinction)
GGY 727	Environmental compliance 727	20	68	B+ (Pass)
GGY 711	Environmental principles 711	20	75	A- (Pass with distinction)
GGY 703	Research and presen skills 703	10	68	B+ (Pass)
GGY 702	Geography Project 702	30	73	B+ (Pass)

Term percentage average: **72.81**
Cumulative Percentage Average: **72.81**

Outcome: Bachelor of Social Sciences Honours

The abovementioned student formally complied with all the requirements for the qualification: Bachelor of Social Sciences Honours on 2012-01-31 and this qualification will be conferred/issued on 2012-04-23

2012 (Full-time)	Program: BSocSci Hons		Plan: Environmental Anal and Mngm	
	In partial fulfilment of the requirements for Bachelor of Social Sciences Honours			
Course offering	**Description**	**Academic progress unit**	**%**	**Decision result**

Term percentage average: **0.00**
Cumulative Percentage Average: **72.81**

for **REGISTRAR**

OFFICE OF THE DEAN
FACULTY OF HUMANITIES
24 FEB 2012
STUDENTE ADMINISTRASIE
STUDENT ADMINISTRATION
UNIV VAN/OF PRETORIA

SOUTH AFRICAN POLICE SERVICE
2012 -03- 25

I CERTIFY THAT THIS IS A TRUE REPRODUCTION (COPY) OF THE ORIGINAL DOCUMENT. I FURTHER CERTIFY THAT FROM MY OBSERVATIONS, AN AMENDMENT OR A CHANGE WAS NOT MADE TO THE ORIGINAL DOCUMENT.
SIGNED
RANK
FORCE NUMBER
NAME IN PRINT

University of Pretoria

Faculty of Natural and Agricultural Sciences

Centre for Environmental Studies

This is to certify that

VC Dlamini

has successfully completed the

Basic Training Course for Environmental Inspection

July to December 2011

CERTIFIED A TRUE COPY
OF THE ORIGINAL

Tshegofatso Mokoena
13 Eton Road
Parktown, 2193, Johannesburg
Commissioner of Oaths *Ex Officio*
Practising Attorney
Republic of South Africa
04/08/2023

Course Leader

General Manager CE and CP

UNIVERSITY OF KWAZULU-NATAL

The Universities of Durban-Westville and Natal merged
to become the University of KwaZulu-Natal on 1 January 2004

This is to certify that

Vumile Celiwe Dlamini

was admitted this day
at a congregation of the University
to the degree of

Bachelor of Social Science
(Geography and Environmental Management)

having satisfied the conditions prescribed for the degree.

M W Makgoba
Vice-Chancellor

E Mnensy
Registrar

D P McCracken
Dean

CERTIFIED A TRUE COPY
OF THE ORIGINAL

Tshegofatso Mokoena
13 Eton Road
Parktown, 2193, Johannesburg
Commissioner of Oaths *Ex Officio*
Practising Attorney
Republic of South Africa
04/08/2023

23 April 2007

THE GLOBAL HEALTH NETWORK

Enabling research by sharing knowledge

Hereby Certifies that

VUMILE DLAMINI

has completed the e-learning course

INTRODUCTION TO CLINICAL RESEARCH

with a score of

89%

on

05/12/2018

This e-learning course has been formally recognised for its quality and content by the following organisations and institutions

WWARN

EACCR

LSTM LIVERPOOL SCHOOL OF TROPICAL MEDICINE

THE GLOBAL HEALTH NETWORK

Enabling research by sharing knowledge

Global Health Training Centre
globalhealthtrainingcentre.org/elearning

Certificate Number 579917

Nondumiso Bulunga

Social Performance Practitioner

Address: Office 1, Palm Place Office Park, 22 Bram Fischer Drive, Linden , Johannesburg
Email: nondumiso@niara.co.za
Contact No: +27 79 458 0862

EDUCATION AND QUALIFICATIONS

- MSc Geographical Information System and Remote Sensing, 2018
- BA Honours in Geography, 2015
- BA Geography and Sociology, 2013

YEARS OF EXPERIENCE

- 10 years

KEY COMPETENCIES

- Project Management
- Stakeholder Engagement
- Social Impact Assessment
- Public Participation
- Communication
- Research
- Geographical Information Systems
- Environmental Impact Assessments
- Basic Assessment Reports
- Mineral Law -Mining Rights and Permits
- Environmental Authorisation Applications
- Remote Sensing
- Data Analysis
- Qualitative and Quantitative Social Research
- ESG reporting & Due Diligence
- Sustainability frameworks and implementation

BIOGRAPHY

Nondumiso Bulunga brings a wealth of expertise as an Environmental, Social, and Governance Professional, boasting a decade of international experience in Environmental Assessment and Management, primarily within the minerals resources and energy sector. Her contributions to social and environmental projects at Niara Environmental Consultants have been pivotal, where she excels in project management, report writing, client relations, and business development.

With a rich background spanning multi-disciplinary advisory firms and environmental consultancies, Nondumiso possesses a deep understanding of the collaborative efforts essential for successful multidisciplinary organizations. She demonstrates exceptional proficiency in overseeing social, environmental, and development research activities, encompassing proposal writing, qualitative and quantitative data collection, analysis, and effective communication of project outcomes. Nondumiso maintains a distinguished track record of timely project completion and delivering invaluable results to clients.

Her core competencies encompass a wide spectrum of services, including Consultation, Business Development, Stakeholder Engagement, Facilitation, Social Impact Assessments, Communication, Livelihood Restoration, Livelihood Resettlement, Project Management, Project Coordination, Research, Geographical Information Systems, Remote Sensing, Human Rights, Due Diligence, and Socio-economic development. With Nondumiso's expertise, clients can expect comprehensive solutions tailored to their specific needs and objectives.

- Social Assessment (SLP and Social Data)
- Geographical Information Systems

COUNTRIES OF WORK EXPERIENCE

- South Africa
- Democratic Republic of Congo
- Malawi

LANGUAGES

- English (excellent)
- isiZulu (excellent)
- Xhosa (intermediate)
- Afrikaans (intermediate)

EMPLOYMENT HISTORY

Apr 2021 to Present: Environmental Consultant, Niara Environmental Consultants

Nov 2020 to Feb 2021: Data Analyst, Community Insights Group

Apr 2020 to Oct 2020: Project Manager, Pax Advisory

Nov 2019 to Mar 2020: Policy Coordinator Consultant, International Finance Corporation

Mar 2017 to Nov 2019: Environmental Stakeholder Consultant, Digby Wells Environmental

Feb 2015 to Feb 2017: Environmental Officer, EcoPartners

EXPERIENCE HIGHLIGHTS

The below highlight key recent and relative project experience:

- Nature-based solutions handbook, Rio Tinto, Assessor
- Human Rights Standard, Trainings and Workshops, Ivanhoe Mines Ltd, Assessor
- Integrated Mine Close for alternative Socio-Economic Transition, Petra Diamonds Limited , Assessor, Project Support and Report Writer
- ESG Risk Assessment Profile for South Africa and Southern Africa, Bettercoal, Researcher and Report Writer
- Goldfields South Deep Tailings Human Rights Due Diligence, Gold Fields, Human Rights Consultant and Assessor
- Glencore Human Rights Risk Assessment, Glencore Coal SA, Assessor, Report Writer and Project Support
- ESSD Due Diligence, Scatec, IFC & RMB, Assessor, Report Writer and Project Support

Please consult the attached appendix for a comprehensive list detailing the project experiences undertaken.

APPENDIX A: PROJECT EXPERIENCE

Duration	Assignment name/ brief description of main deliverables/outputs	Name of client and country of assignment	Role on the assignment
2023	Nature- based solutions handbook – South Africa	Rio Tinto	Assessor
2023	Human rights standard, trainings and workshops (South Africa & Democratic Republic of Congo)	Ivanhoe Mines Ltd	Assessor
2023	Integrated mine close for alternative socio-economic transition	Petra Diamonds Limited	Assessor, project support and report writer
2023	ESG Risk Assessment Profile for South Africa and Southern Africa	Bettercoal	Researcher and report writer
2023	Goldfields South deep tailings human rights due diligence	Gold Fields	Human rights consultant and assessor
2023	Glencore Human Rights Risk Assessment	Glencore Coal SA	Assessor, Report writer and Project Support
2023	ESSD Due Diligence	Scatec, IFC & RMB	Assessor, Report writer and Project Support
2023	Human rights impact assessment	Anglo Platinum Limited	Assessor and project manager
2023	Ghana Oil and Gas Company	Tullow Oil	Facilitator (Training)
2022	Dam trailing rapture for diamond mine	Williamson Diamond Limited	Data Analyst and Mapping
2022	Social and Economic Baseline study for Marlboro Gautrain Station	Gautrain	Project Manager
2022	Eskom socio-economic impact study for shutdown of seven coal-fired power stations	Eskom	Report Writer Reviewer, Quality Assurance & Project Support
2022	Human Rights Due Diligence for Thungela Operations	Thungela	Assessor
2021	Malawi Solar Projects, Livelihood restoration and social performance monitoring and planning	JCM Power	Data Analyst
2020	750 AMPED Campaign	Health Wellness SETA	Project Manager

Duration	Assignment name/ brief description of main deliverables/outputs	Name of client and country of assignment	Role on the assignment
2020	Integrity Due Diligence Reports	Various (South African Poultry Industry, Centre of Industrial Scientific Research; SA Milk Producers	Policy Coordinator/ Report Writer
2019	Policy Component for agri-processing projects	IFC – eThekwini Municipality	Policy Coordinator/ Report Writer
2019	Alignment of EIA's and WUL's	South 32	Social Specialist/Report Writer
2019	Environmental Authorisation for Klipspruit Colliery	South 32	Social Specialist/Report Writer
2019	Expansion and Development of Sun City Resorts	Sun International	Social Specialist/Report Writer
2018	Environmental Authorisation for a Regulatory Environmental Process	Blyvoor Gold	Social Specialist/Report Writer
2019	Mooikraal Road Diversion Project	Sasol (Pty) Ltd	Social Specialist/Report Writer
2018	Pretorius Park Housing Development	Luengo Consulting	Social Specialist/Report Writer
2018	Grave Relocation Project	Exxaro Resources	Social Specialist/Report Writer
2018	Syferfontein Housing Development	LTE Consulting	Social Specialist/Report Writer
2018	Leeuwpan Lifex Project	Exxaro Resources	Social Specialist/Report Writer
2017	Environmental Authorisation required for Proposed Palmietkuilen Colliery near Springs	Canyon Resources (Pty) Ltd	Social Specialist/Report Writer
2017	Environmental Authorisation required for the Agnes Gold Mine, Barberton	Galaxy Gold Reefs (Pty) Limited	Social Specialist/Report Writer
2017	Environmental Authorisation for the Proposed Hendrina Underground Coal Mine, Mpumalanga	Glencore Operations South Africa (Pty) Ltd	Social Specialist/Report Writer
2016	Environmental authorisation applications (Waste management, Water Use License, EMP)	Various	Social Specialist/Report Writer
2015	Environmental Authorisation Applications related to the Construction of Power Station, Associated Infrastructure, and Coal Mine near Colenso, KZN	Dunrose Investments 244 for Colenso Power (Pty) Ltd	Project Adminstrator/ Social Specialist
2015	Environmental Awareness Training	Various	Facilitator
2015	Legal register	Various	Report Compiler
2014	Dynamics and Incidence of Child Abuse, Neglect, and Exploitation (DICANE)	Department of Social Development	Facilitator
2014	The Alexandra Environment Public Upgrade- management of the public participation process	Johannesburg Development Agency	Project Administrator

Duration	Assignment name/ brief description of main deliverables/outputs	Name of client and country of assignment	Role on the assignment
2014	Cities Green Transport Programme	South African Cities Network	Project Researcher
2014	Project Management of the EPWP Construction of the Mvoti Regional Landfill	Department of Environmental Affairs	Project Researcher
2014	Development of climate change adaptation and mitigation programme	Department of Agriculture Forestry and Fisheries	Project Researcher
2014	Capacity Building in spatial transformation	South African Cities Network	Project Researcher