PROPOSED TOWNSHIP ESTABLISHMENT ON SEVERAL FARM PORTIONS WITHIN THE MUSINA AND MAKHADO LOCAL MUNICIPALITY FOR THE MUSINA-MAKHADO SEZ

PLANNING IMPACT ASSESSMENT REPORT

DRAFT REPORT
REVISION 00

SEPTEMBER 2020

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EXECUTIVE SUMMARY

The National Development Plan (NDP) aims to eliminate poverty and reduce inequality by 2030. The goal is to increase employment from 13 million in 2010 to 24 million in 2030. In order to reach this target, policies and investment are aimed, by and large, at labour intensive industrial development. This will also occur only as part of a strategic re-think of South Africa's foreign trading and investment partners. The plan clearly states that, *'Understanding and responding appropriately to complex global challenges is the first task of planning'.*

In order to achieve radical economic transformation and diversify the economy of the Limpopo Province, a substantial investment in infrastructure is required. Water and sanitation, transport and energy supply improvements are essential to attract investment, manufacture goods, and efficiently export them to the market. Improvements to infrastructure are also mandatory if thriving human settlements, where people can live and thrive, are to be planned for the future.

On 1 December 2017, the Minister designated the Musina-Makhado Special Economic Zone (South Africa Energy and Metallurgical Zone), in Gazette No. 41287. The SEZ affected properties is approximately 8 020 ha in extent comprising eight previously mainly undeveloped farm portions located across the border between the municipality areas of Musina and Makhado, within the Vhembe District municipality area.

Over the longer term, South Africa has to enhance value-added industries and increase the volume of amongst others processed mineral and metal exports to compete on the global economic stage.

The development of a metallurgical and power cluster at the Musina-Makhado Special Economic Zone (SEZ) is the direct spatial response to producing metallurgical goods that are actively sought in the domestic and foreign markets.

Two townships are proposed to accommodate the SEZ, one on either side of the municipal border in the local municipalities of Musina and Makhado. Together the townships with a joint land area of 8 022 ha will be developed as predominantly heavy (noxious) industrial plants that produce various types of steel products. It is proposed that these plants will be powered by an on-site thermal power plant of 3 300 MW when developed fully. The availability of coal and coking coal and proximity to input minerals required for power generation and smelting, according to LEDA, are one of the main reasons for locating the SEZ here.

The SEZ is also located in the Limpopo province, which is the second poorest province by income per capita after the Eastern Cape Province. The SEZ to will form a key anchor within the planned Eastern Escarpment National Transformation Corridor designated in the Final Draft National Spatial Development Framework,2019.

The implementation of the SEZ will form the centre of the coal producing area of Limpopo, and the vehicle by which the Provincial and National Government will negotiate foreign direct investment, direct infrastructure clustering and cross-subsidising by potential investors, to

create jobs and strengthen the Limpopo Province economy. The vision for the SEZ is also to function as industrial gateway to the wider Southern Africa Development Community (SADC). The development of the SEZ also meets broader state priorities such as minerals beneficiation to enhance the South African economy as a whole.

The socio-economic benefit of the proposed development is unprecedented in the Limpopo Province. The total investment for the SEZ is estimated at R287.5 billion when fully developed.

According to estimates provided by LEDA via the appointed operator, 48 800 workers will be required by operational entities within the SEZ at full operational status, along with 5 000 additional workers required in the human settlement(s) that will expand as a direct result of the SEZ. A total of 53 800 job opportunities are created by the proposed SEZ development.

Based on the estimated 53 800 employment opportunities by the SEZ the total projected population associated with the SEZ is estimated at 144 311. It is estimated that 47 320 housing units will be required over time to house the population. Approximately 1 500 ha of land will be required to provide for human settlement development. A total of 189 social, educational, and other community service facilities will also have to be developed.

Alternative strategic options for human settlement development include the development of a new settlement in proximity to the east of the SEZ and or at the existing Musina or Louis Trichardt/Makhado towns.

Due to the extent of the proposed SEZ development, an Environmental Impact Assessment (EIA) and authorisation is required in terms of the National Environmental Management Act, 1998 (Act 107 of 1998). Various specialist studies have been prepared, which identify potential impacts on the natural and built environment in respect of aspects such as air emissions generated by heavy industrial activities and power generation, the loss of biodiversity, impact on economic activities and bulk infrastructure etc.

The Spatial Development Framework Plans of both the Musina and Makhado Local Municipalities make provision for the development of the SEZ within their respective municipal areas, and the current land use management schemes of both municipalities cater for the proposed range of land uses of the SEZ. The Spatial Planning and Land Use Management By-Laws) in terms of which applications for township establishment have to be made are in place. Joint decision-making to ensure the integration of the development implementation and phasing of bulk infrastructure services for the SEZ, between the Vhembe District municipality, local municipalities, and other spheres of government will be required.

Both municipalities, and the Vhembe District Municipality would have to plan for and ensure the additional operational and institutional capacity and budget to address the service delivery requirements of the SEZ.

The SEZ site does not have access to adequate bulk engineering infrastructure services. In terms of the draft internal masterplan, 2019 the bulk engineering infrastructure services requirements for the SEZ will be significant. The traffic generated by the proposed land uses

of the SEZ will have a high impact on road, rail, and public transport infrastructure with several upgrades that will be required. The same apply to the public transport arrangements that will have to be put in place.

Currently the section of the railway line from Polokwane towards Pyramid is electrified (25 kV AC traction) but the section from Polokwane to Beit Bridge carries Diesel locomotives. In order to meet the projected 50 mega tonnes per annum (MTPA) of raw material, an estimated 70 trains of 40 wagons each will be added to the external railway network. To meet this demand the railway line would have to be significantly upgraded. The impact on the countries ports will also be significant.

The SEZ would also necessitate air transport connections from a major international hub such as O.R. Tambo International Airport. The Musina Municipal Airport is an unlicensed airport situated approximately 7 km west of Musina, in closest proximity to the SEZ (approximately 46 km, or 36 min drive) that would have to be upgraded.

The sustainable supply of bulk water to the SEZ is also of critical importance. The National Department of Water Affairs and Sanitation is currently investigating the potential for the development of a water transfer agreement and scheme with Zimbabwe and other stakeholders, in order to supply the SEZ and to address other water needs in the region.

Significant volumes of domestic, general, industrial and hazardous waste will be generated at the SEZ that will have to be reduced as a point of departure through re-use and recycling efforts. The upgrading of existing general waste landfill facilities at the towns as well as the development of a hazardous waste facility, will be required over time to accommodate the waste generated by the SEZ.

The report further discusses the potential planning impact of the proposed development considering the spatial principles of the Spatial Planning and Land Use Management Act,2013(Act no.16 of 2013).

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ABBREVIATIONS

DTI	Department of Trade and Industry
ESA	Ecological Support Area
FAR	Floor Area Ratio
HIA	Heritage Impact Assessment
IDP	Integrated Development Plan
IDZ	Industrial Development Zone
IPAP	Industrial Policy Action Plan (2016/2017)
LDP	Limpopo Development Plan
LEDA	Limpopo Economic Development Agency
LEDET	Limpopo Department of Economic Development, Environment and Tourism
MSA	Municipal Systems Act, Act No. 32 of 2000
MUTASSHI	Musina to Africa Strategic Supplier Hub Initiative
SDF	Spatial Development Framework
SEZ	Special Economic Zone
STATSSA	Statistics South Africa, 2011
SPLUMA	Spatial Planning and Land Use Management Act, Act No. 13 of 2016

1 INTRODUCTION

1.1 BACKGROUND

On 9 February 2016, the Special Economic Zones Act, Act No. 16 of 2014 was promulgated in Gazette No. 39667.

According to the South African Revenue Service (SARS), Special Economic Zones (SEZs) in South Africa are defined as *'geographically designated areas of country set aside for specifically targeted economic activities to promote national economic growth and export by using support measures to attract foreign and domestic investments and technology.'*

The Limpopo Provincial Government established the Limpopo Economic Development Agency (LEDA) as a Provincial Government entity within the Limpopo Department of Economic Development, Environment, and Tourism (LEDET).

In response to a call by the Department of Trade and Industry (DTI) to the provinces to investigate and propose potential sites for SEZ development, the province identified several potential sites for the purpose. Since 2015, LEDA has investigated the feasibility of establishing an SEZ at two locations in the Musina and Makhado municipal areas. A conclusion was reached that the logistic and metallurgical sectors have potential for development at two different locations.

LEDA applied to the Minister of Trade and Industry for the designation of the Musina-Makhado SEZ, which straddles the municipal boundary between Musina and Makhado Local Municipality.

On 1 December 2017, the Minister designated the Musina-Makhado Special Economic Zone (South Africa Energy and Metallurgical Zone), in Gazette No. 41287.

The SEZ affected properties is approximately 8 020 ha in extent comprising eight previously mainly undeveloped farm portions.

The northern part of the proposed SEZ falls under the jurisdiction of the Musina Local Municipality and measures 5 539 ha in extent and is located on the following farm portions:

- The Farm Steenbok 565-MS;
- The Remaining Extent of the Farm Antrobus 580-MS;
- Farm Dreyer 526-MS;
- Farm Battle 585-MS; and
- Farm Van Der Bijl 528-MS.

The southern part of the proposed SEZ falls under the jurisdiction of the Makhado Local Municipality and measures 2 482 ha in extent, and is located on the following farm portions:

- The Farm Somme 611 MS;
- The Remaining Extent of the Farm Lekkerlag 580 MS; and
- Portion 1 of the Farm Joffre 584 MS.

A few eco-estate erven and thatched lodge developed on the Farm Joffre 584 MS by the communal property association is excluded from the proposed township boundaries. The Mulambwane Communal Property Association has a vested interest in this eco-estate.

1.2 PURPOSE

The purpose of this report is to outline the site-specific, and regional planning impact of the proposed SEZ In terms of the spatial planning development principles reflected in the Spatial Planning and Land Use Management Act, 2013.

1.3 STRUCTURE OF REPORT

The report comprises the following sections:

- Section 3: Locality and Planning Contexts of Proposed SEZ Township
- Section 4: Application Properties
- Section 5: Site-Specific Impact of the SEZ
- Section 6: Development Proposal
- Section 7: Impact on Surrounding Land Uses and Residents
- Section 8: Need for Development
- Section 9: Desirability for Development
- Section 10: SEZ Impact on Regional Planning and Human Settlement
- Section 11: Planning Impact Assessment

- Conclusion
- Appendices.

2 LOCALITY AND PLANNING CONTEXT OF PROPOSED TOWNSHIP

The proposed Musina-Makhado SEZ is located on eight farms in the Vhembe District Municipality in Limpopo Province, in the far north of South Africa. Three farms are located in the jurisdiction area of Makhado Local Municipality and five farms within the jurisdiction of Musina Local Municipality. Separate but inter-relating township establishment applications should be submitted to each municipality in order to obtain the land use rights to allow the development.

The farm Dreyer 526 MS bounds the site to the north. The N1 highway road reserve bounds the site to the east. The unsealed road leading off the N1 to Huntleigh Station bounds the site to the south. The north railway line between Louis Trichardt and Musina bounds the site partly along the west.

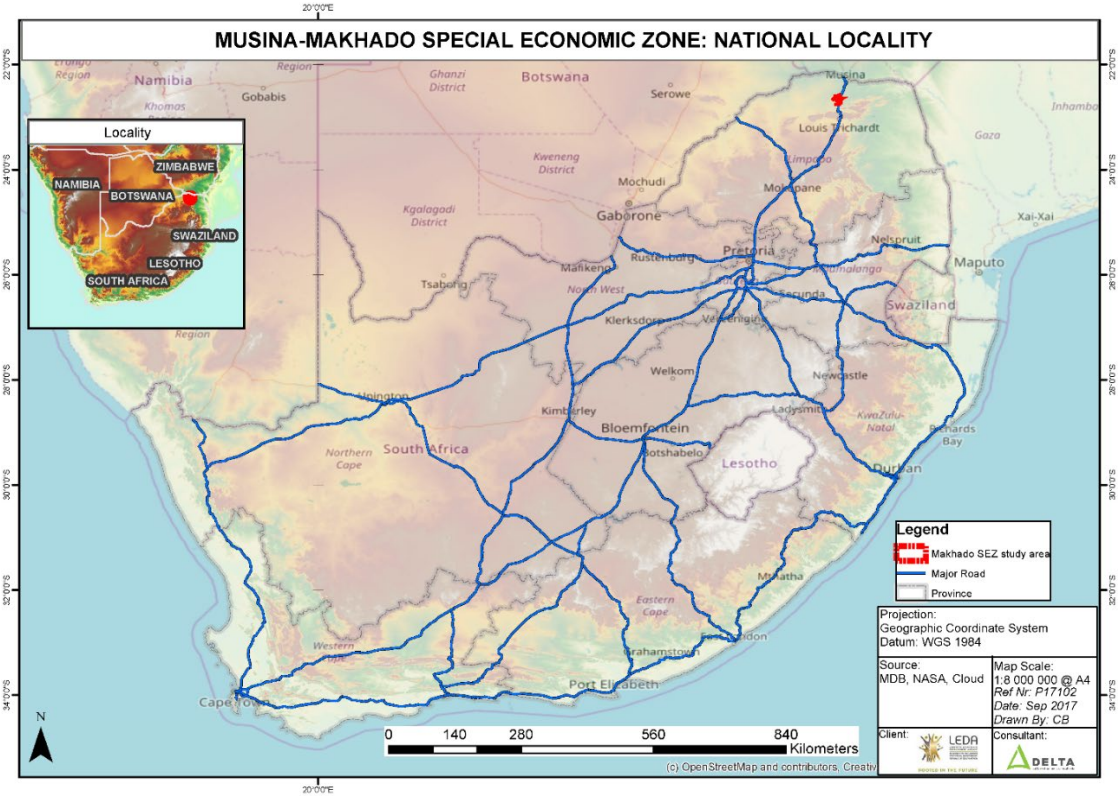


Figure 2-1: Musina-Makhado SEZ south site – national locality

The site is located in Vhembe, the northernmost district municipality in South Africa that comprises of four local municipalities, namely Makhado, Musina, Thulamela, and Collins Chabane Local Municipalities. The district administration is seated in Thohoyandou, which is located 91 km southwest of the site via the N1 and R523.

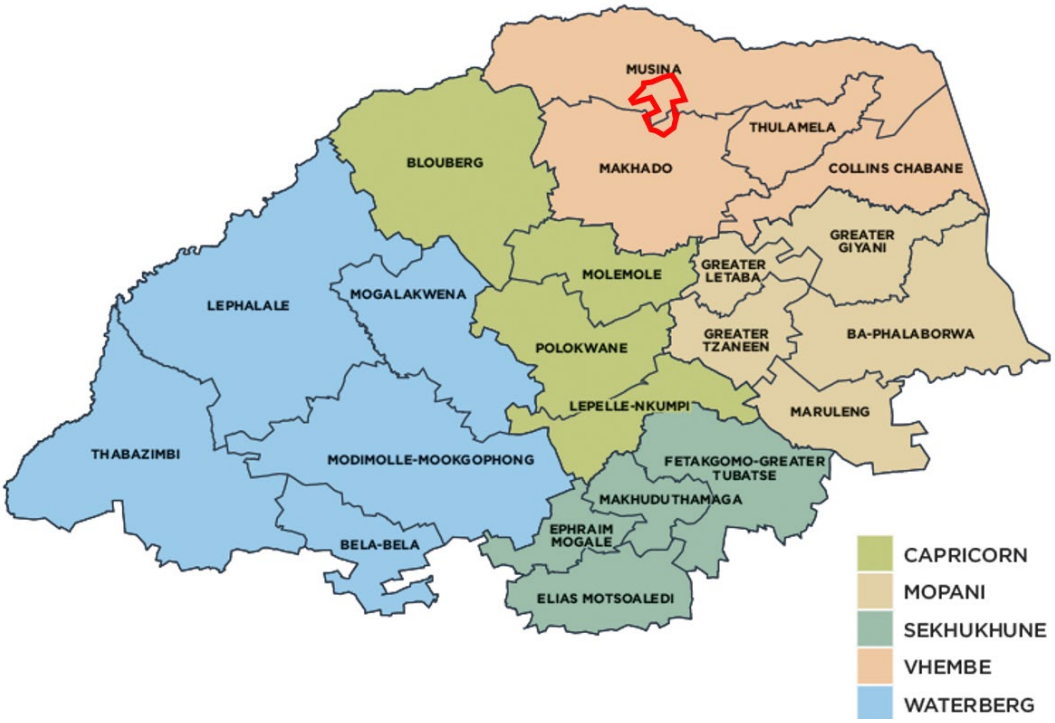


Figure 2-2: SEZ south site in relation to Limpopo's district municipalities

The road distances between the SEZ and surrounding settlements are as follows:

- 45 km from the Louis Trichardt/Makhado town centre (from the intersection of the N1 and Songozwi Street). Louis Trichardt/Makhado is a regional anchor in terms of the Draft National Spatial Development Framework.
- 37 km from the Musina town centre (Musina Mall). Musina is a regional anchor.
- 65 km from Beit Bridge border post with Zimbabwe.
- 91 km from Thohoyandou.
- 155 km from Polokwane city hall.
- The hamlet of Mopane adjoins the northwest corner of the SEZ site.

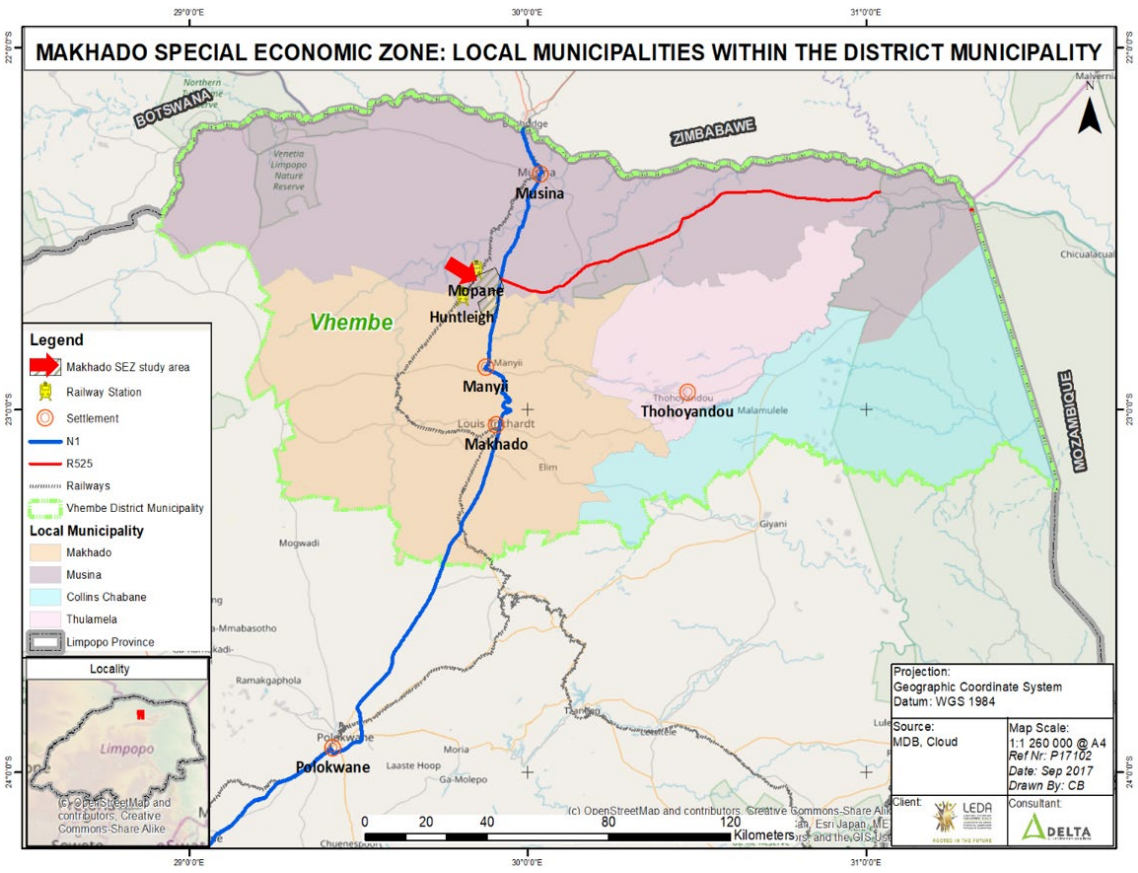


Figure 2-3: Musina-Makhado SEZ south site – Vhembe District and local municipalities locality

Access to the proposed township is proposed off the N1 along two routes. In the north access will be upgraded from the R525, and in the south access will be upgraded from the existing unsealed gravel road to Huntleigh. Access arrangements and road designs from the N1 highway to the township entrance(s) will be subject to approval from both the South African National Road Agency (SANRAL)(for national roads) and the Roads Agency Limpopo (RAL)(for provincial roads).

The Transnet northern line adjoins the northwest corner of the SEZ, with a station at Mopane. The single rail lane between Polokwane and Beit Bridge currently runs on diesel. The rail line is electrified south of Polokwane.

3 APPLICATION PROPERTIES

3.1 PROPERTY DESCRIPTIONS

The proposed SEZ township establishment is located on three farm portions located within the **Makhado Local Municipality** area of jurisdiction. The properties are registered at the Deeds Office as listed in the following table.

Table 3-1: Land ownership

PROPERTY DESCRIPTION	TITLE DEED NUMBER	OWNERSHIP	EXTENT (ha)
The farm Somme 611 MS, Limpopo Province	T51287/2008	Mulambwane Communal Property Association	992.4504 ha
The remaining extent of the farm Lekkerlag 580 MS, Limpopo Province	T51339/2008	Mulambwane Communal Property Association	868.4531 ha
Portion 1 of the farm Joffre 584 MS, Limpopo Province	T51334/2008	Mulambwane Communal Property Association	631.9138 ha
TOTAL AREA			**2 492.8173 ha**

The proposed township establishment is located on five farm portions located within the **Musina Local Municipality** area of jurisdiction. The properties are registered at the Deeds Office as listed in the following table.

Table 3-2: Land Ownership

PROPERTY DESCRIPTION	TITLE DEED NUMBER	OWNERSHIP	EXTENT (HA)
The Farm Steenbok 565-MS, Province of Limpopo	T51335/2008	Mulambwane Communal Property Association	988.8551 ha
The Remaining Extent of the Farm Antrobus 580-MS, Limpopo Province	T51337/2008	Mulambwane Communal Property Association	761.4581 ha
The Farm Dreyer 526-MS, Limpopo Province	T63278/2008	Mulambwane Communal Property Association	1310.0785 ha
The Farm Battle 585-MS, Limpopo Province	T51333/2008	Mulambwane Communal Property Association	751.2400 ha
The Farm Van Der Bijl 528-MS, Limpopo Province	T51336/2008	Mulambwane Communal Property Association	1508.7112 ha
TOTAL AREA			**5320.3429 ha**

Title deeds for the properties are attached as **Annexure A.**

3.2 PROPERTY TENURE

The Commission on Restitution of Land Rights confirmed in writing on 25 June 2019 that the Mulambwane Community Property Association's (MPCA) restitution claim for the eight farms forming the SEZ south site was successful **(Annexure B)**.

The properties are all registered in the name of Mulambwane Communal Property Association, Registration Number: 08/1105/A, registered in terms of the provision of Communal Property Association Act, Act No. 28 of 1996.

LEDA concluded a Notarial Lease Agreement with the Mulambwane Community Property Association (MCPA) for an initial period of 90 years, with an option to extend the agreement for another 30 years. The lease agreement between LEDA and the MCPA was concluded in December 2016.

4 SITE-SPECIFIC ASPECTS

In this section, the natural and manmade characteristics of the site and its surrounds are discussed.

4.1 TITLE DEEDS AND ENCUMBRANCES

Please refer to the **title deeds (Appendix A)** of the respective farm portions as well as the **conveyancer report (Appendix D)** and **land surveyor certificate (Appendix E)**. The properties are held by the same owner under separate deeds for each farm. As per the respective Deeds of Transfer, all properties are affected by the following conditions:

- The minerals vest in the state in terms of the Minerals and Petroleum Resources Development Act, Act No. 28 of 2002; and
- The application properties are further subject to the servitudes listed in the respective title deeds as described herein.

The subject conditions applicable to each specific property are discussed in detail below.

1) The farm Somme 611 MS, Limpopo Province

The property is registered in the name of the Mulambwane Communal Property Association as per Deed of Transfer T51287/2008. The property measures 992. 4505 hectares in extent.

As per the conditions in the Deed of Transfer, an ESKOM servitude was registered in 1972 under K575/1972 for electric power transmission and telecommunication related purposes.

2) The remaining extent of the farm Lekkerlag 580 MS, Limpopo Province

The property is registered in the name of the Mulambwane Communal Property Association as per Deed of Transfer T51339/2008. The property measures 868. 4531 hectares in extent.

As per the conditions in the Deed of Transfer, an ESKOM servitude was registered in 1972 under K575/1972 for electric power transmission and telecommunication related purposes.

A registered railway reserve servitude SG266/2018 traverses the southern part of the farm.

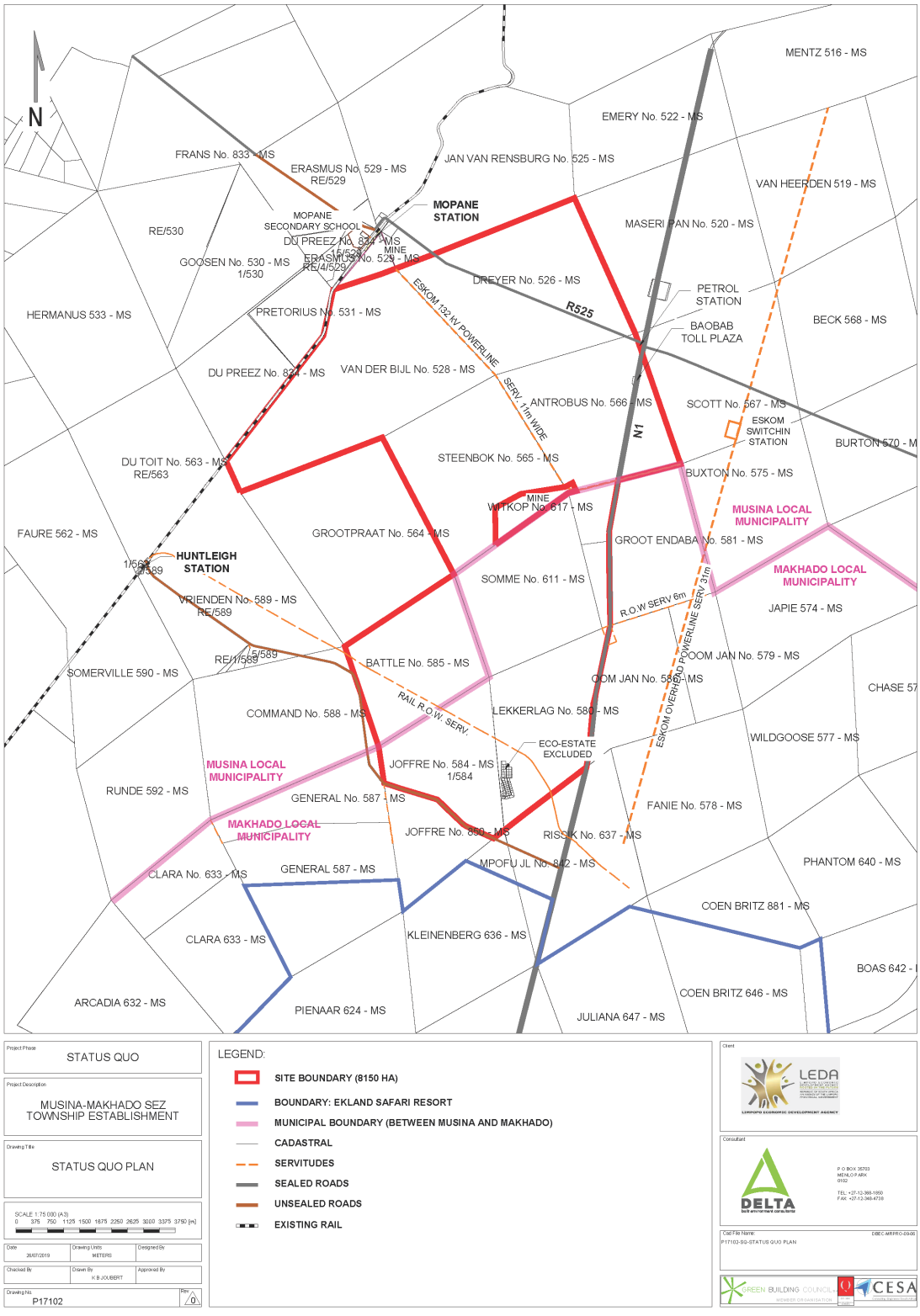


Figure 4-1: Status quo plan

3) Portion 1 of the farm Joffre 584 MS, Limpopo Province

The property is registered in the name of the Mulambwane Communal Property Association as per Deed of Transfer T51334/2008. The property measures approximately 631.9138 hectares in extent.

A registered railway reserve servitude SG266/2018 traverses the southern part of the farm. The eco estate located on part of the farm Lekkerlag 580 MS has not been severed from the farm portion. The proposed township boundaries will therefore run around the outside of the eco estate.

4) The Farm Steenbok 565-MS, Province of Limpopo

The property is registered in the name of the Mulambwane Communal Property Association as per Deed of Transfer T51335/2008. The property measures approximately 988.8551 hectares in extent.

As per the conditions in the Deed of Transfer an ESKOM servitude was registered in 1972 under K575/1972 for electric power transmission and telecommunication related purposes.

5) The Remainder of the Farm Antrobus 580-MS, Limpopo Province

The property is registered in the name of the Mulambwane Communal Property Association as per Deed of Transfer T51337/2008. The property measures approximately 761.4581 hectares in extent.

As per the conditions in the Deed of Transfer an ESKOM servitude was registered in 1972 under K575/1972 for electric power transmission and telecommunication related purposes.

6) The Farm Dreyer 526-MS, Limpopo Province

The property is registered in the name of the Mulambwane Communal Property Association as per Deed of Transfer T63278/2008. The property measures approximately 1310.0785 hectares in extent.

7) The Farm Battle 585-MS, Limpopo Province

The property is registered in the name of the Mulambwane Communal Property Association as per Deed of Transfer T51333/2008. The property measures approximately 751.2400 hectares in extent.

8) The Farm Van Der Bijl 528-MS, Limpopo Province

The property is registered in the name of the Mulambwane Communal Property Association as per Deed of Transfer T51336/2008. The property measures approximately 1508.7112 hectares in extent.

4.2 EXISTING MUNICIPAL ZONING

The application properties are undeveloped farm portions and the current zoning of the land is "Agricultural". The zoning certificates from the respective municipalities are attached as **Annexure F.** According to the Makhado (2009) and Musina (2010) Local Municipality Land Use Management Schemes, an agricultural zoning is defined as:

'Land used or a building designed or used for the purposes such as, but not limited to ploughing, pasturing, horticulture, poultry farming, dairy farming, breeding and keeping of livestock, aviaries, forestry, mushroom and vegetable production, flower production, orchards and any other activity commonly connected with farming or associated therewith, and includes the sale of own produced goods. It includes one main dwelling unit and associated farm settlement.'

The purpose for which buildings may be erected or used or land used is as follows:

- Uses/rights permitted only with the special consent of the local municipality:
  - Animal Care Centre;
  - Art Dealer and Gallery;
  - Bed and Breakfast;
  - Guest House;
  - Farm Stall;
  - Institution;
  - Nursery;
  - Place of Instruction;
  - Place of Public Worship;
  - Place of Refreshment;
  - Social Hall;
  - Tea Garden; and
  - Telecommunication Mast.

The purpose for which buildings may be erected or used or land may be used with the consent of the municipality is as follows:

- Uses/rights permitted only with the written consent of the local municipality (Clause 23):
  - Additional Dwelling Unit;
  - Household Enterprise; and
  - Rural General Dealer.

According to both Land Use Management Schemes, the land use parameters for agricultural zoning are as follows:

Use Zone: Agricultural
Primary Rights: Dwelling Unit, Agricultural Use, Farm Settlement

Height:	2 Storeys
FAR:	Existing right – 0.3; 0.5 with a relaxation in terms of Clause 23.
Building Lines:	Rear and side are 5 m and 10 m street boundary

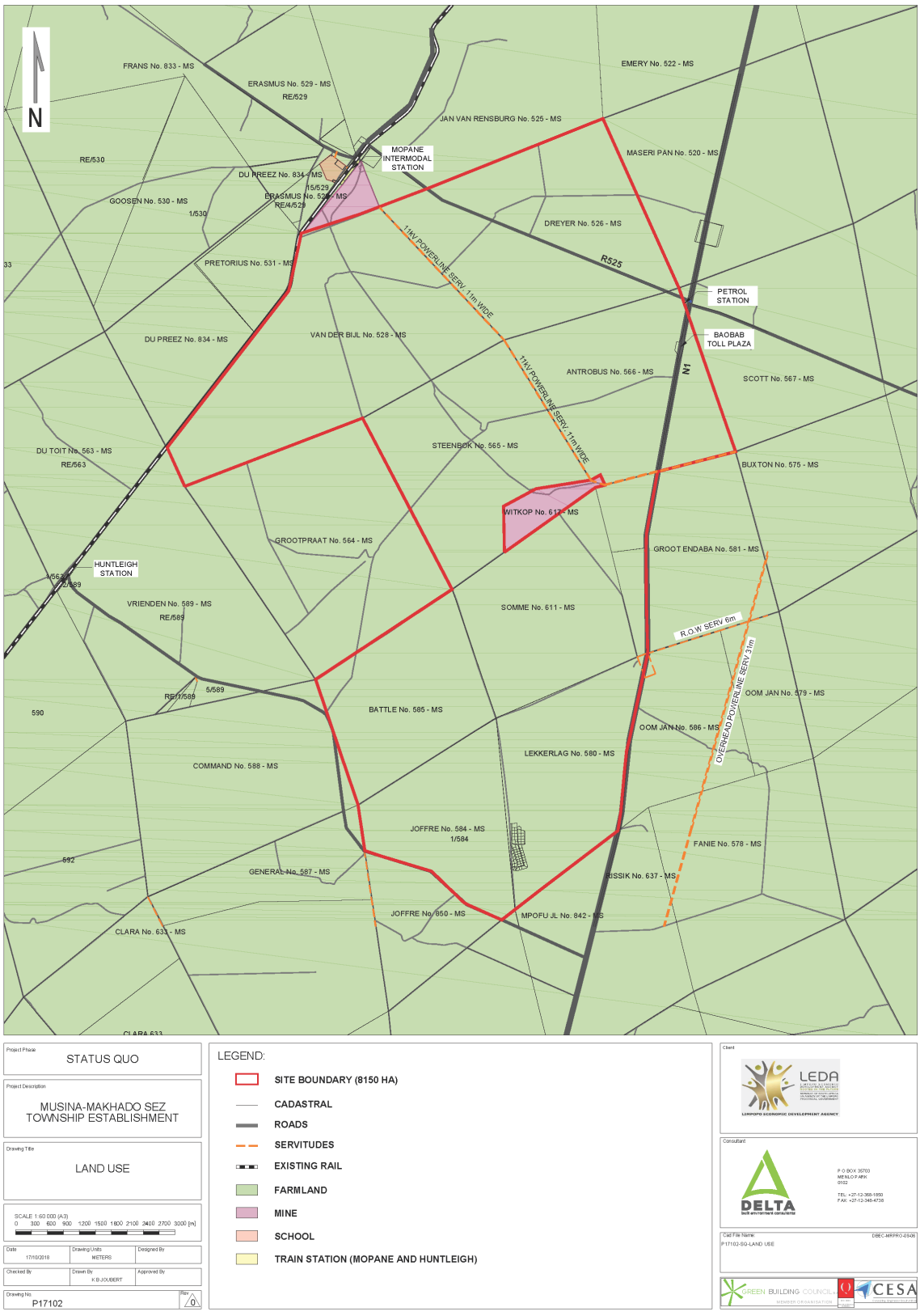


Figure 4-2: Existing zoning plan

4.3 ON SITE LAND USES

The SEZ properties are predominantly undeveloped bushveld farmland that was previously used for game farming .

[redacted] HERITAGE RESOURCES

According to Digby Wells Environmental that conducted a heritage impact assessment the following built heritage resources older than 60 years were identified on site.

The alteration or demolition of these resources requires permission from the Limpopo Provincial Heritage Resources Authority (LIHRA).

Table 4-1 : Heritage Resources

SITE NAME	DESCRIPTION	PHOTO
STE-001	Structural remains, including what appear to be deep foundations or dipping trough made of brick and cement, currently being used to deposit rubbish. The age of this structure has not been determined. This structure is in close proximity to STE-002.	
STE-002	Building in a state of disrepair. The building appears to have been a residence with a wraparound veranda. All exterior windows and doors, except for the entrance have been bricked up. The roof is present over the main structure, but has collapsed over the veranda. One florescent light was attached to the ceiling. The age of this structure has not been verified, but it is assumed to be older than 60 years.	 

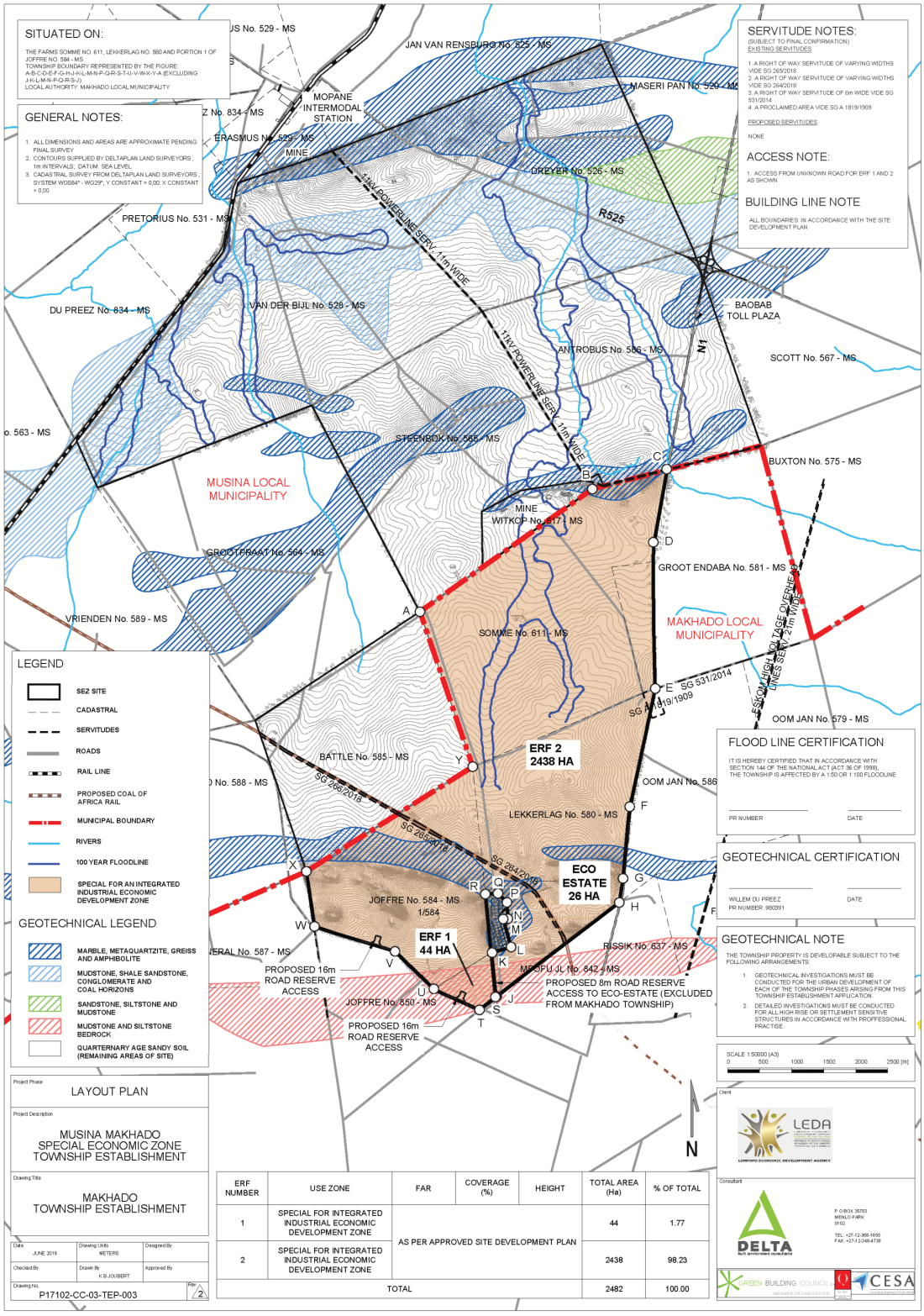
SITE NAME	DESCRIPTION	PHOTO
BGG-001	Small burial ground with three visible graves, although there is space within the burial ground for more. The graveyard is demarcated with a white wire fence with a gate and is in good condition, although it was overgrown at the time of the survey. All three graves belong to the De Bruin family and date between 1960 and 1961. The date on the third headstone was not legible. One child grave is included.	
BGG-002	Single grave belonging to a member of the Manganya family, dated 1945. The grave was not fenced off and had a granite headstone and brick fittings. The graveyard is near abandoned buildings on a *werf* of unknown age. The area near the grave has been used to deposit construction rubble and metal rubbish.	

SITE NAME	DESCRIPTION	PHOTO
SA-001	Isolated single MSA flake with flake scars and a snap fracture. Recovered from within a watercourse and as such is ex situ with limited contextual information.	

[redacted]ECO ESTATE AND OTHER DEVELOPMENTS

Other developments within the project site area include:

- An uncompleted eco-housing estate is located on the southern part of the farm Lekkerlag 580 MS. This estate is excluded from the proposed SEZ township boundaries. The boundary of the estate is denoted by points J-K-L-M-N-P-Q-R_S on the township layout plan.



ERF NUMBER	USE ZONE	FAR	COVERAGE (%)	HEIGHT	TOTAL AREA (Ha)	% OF TOTAL
1	SPECIAL FOR INTEGRATED INDUSTRIAL ECONOMIC DEVELOPMENT ZONE	AS PER APPROVED SITE DEVELOPMENT PLAN			44	1.77
2	SPECIAL FOR INTEGRATED INDUSTRIAL ECONOMIC DEVELOPMENT ZONE				2438	98.23
TOTAL					2482	100.00

Figure 4-3: Eco estate excluded from SEZ

- Further north, at the centre of farm Lekkerlag 580 MS, is another two-storey thatched dwelling house and four outbuildings. This house is not older than 60 years and does not require heritage permission to demolish.
- A third dwelling house with 19 outbuildings, including several rondavels, is located in the north east corner of farm Lekkerlag 580 MS, which is advertised as Mulambwane Accommodation and is in current residential use. This house is not older than 60 years.
- A group of four single-storey houses is located 220 m north of the Mulambwane Accommodation entrance gate. These homes are fenced in their own compound and access is currently from the N1 via a separate vehicle gate. These houses are not older than 60 years.
- A narrow strip of land along the south boundary of the farm Somme 611 MS is disturbed for passive cultivation.
- A railway reserve servitude SG266/2018 traverses the southern part of the farm Lekkerlag 580 MS in favour of CM Mining Limited (former Coal of Africa). Construction of the rail line has not yet commenced.
- The disused dolomite mine located at the centre of the SEZ south site, on the farm Witkop 617 MS, adjoins the proposed township, but is excluded from the SEZ.
- Three houses are located along the north boundary of the Remaining Extent of Farm Antrobus 566 MS. An outbuilding and kraal is located 70 m north of these houses on the Farm Dreyer 526 MS. These houses are not older than 60 years and permission is not required from the Limpopo Provincial Heritage Resources Authority (LIHRA) for their alteration or demolition.
- Further west, at the centre of the Farm Steenbok 565 MS, is a group of seven houses, which is not older than 60 years.
- A house with extensive outbuildings is located adjacent to the R525 on the Farm Dreyer 526 MS. This house is also not considered older than 60 years.
- An 11 kV ESKOM powerline in a 11 m-wide servitude runs diagonally from north to south through the properties along the boundaries of Farm Dreyer 526 MS and the Remaining Extent of Farm Antrobus 566 MS. This powerline crosses the N1 Highway and connects with the ESKOM high voltage overhead powerlines 1.5 km east of the SEZ.

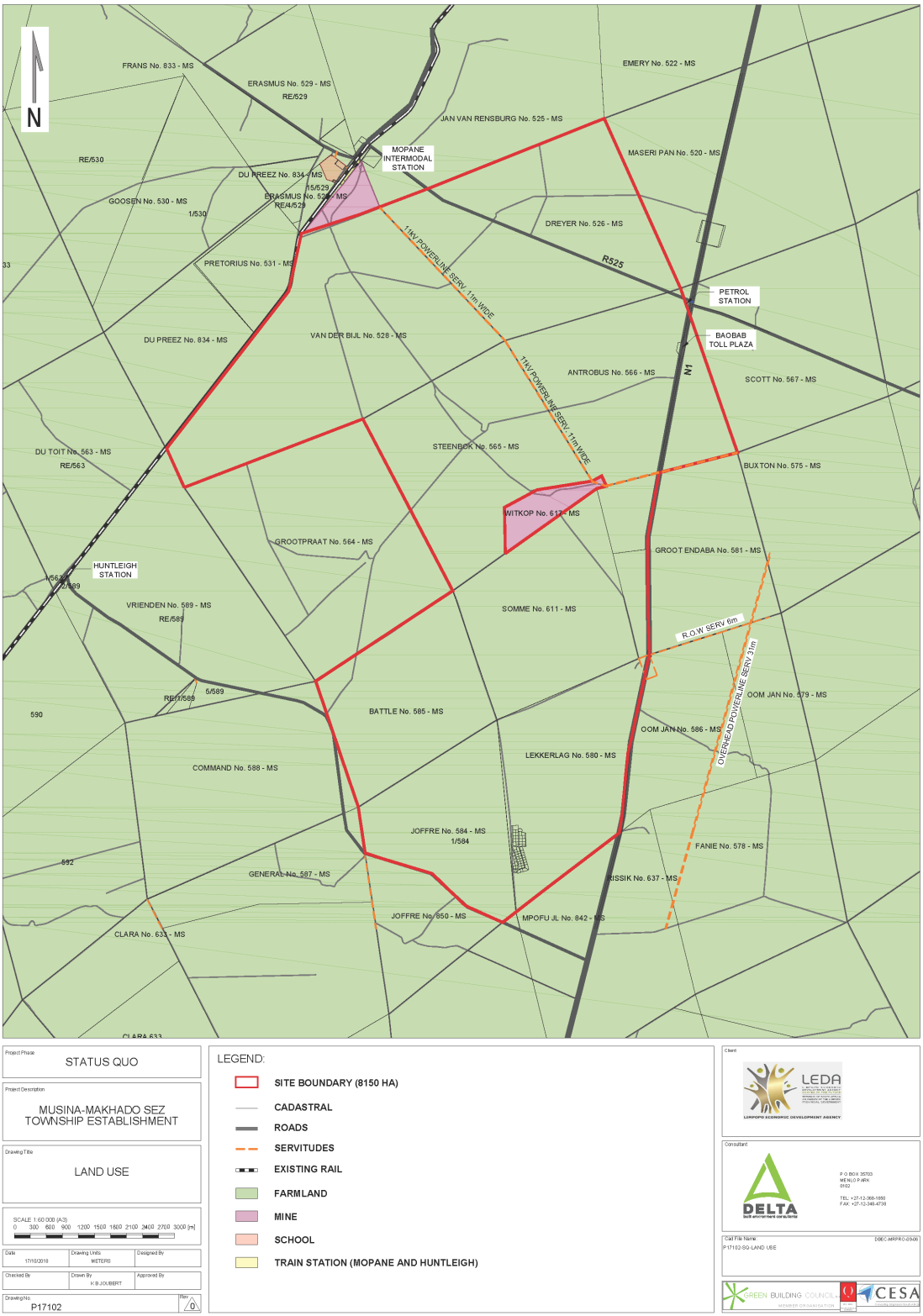


Figure 4-4: Existing land use plan

4.4 ENVIRONMENTAL FEATURES

The site slope is reflected in the figure below.

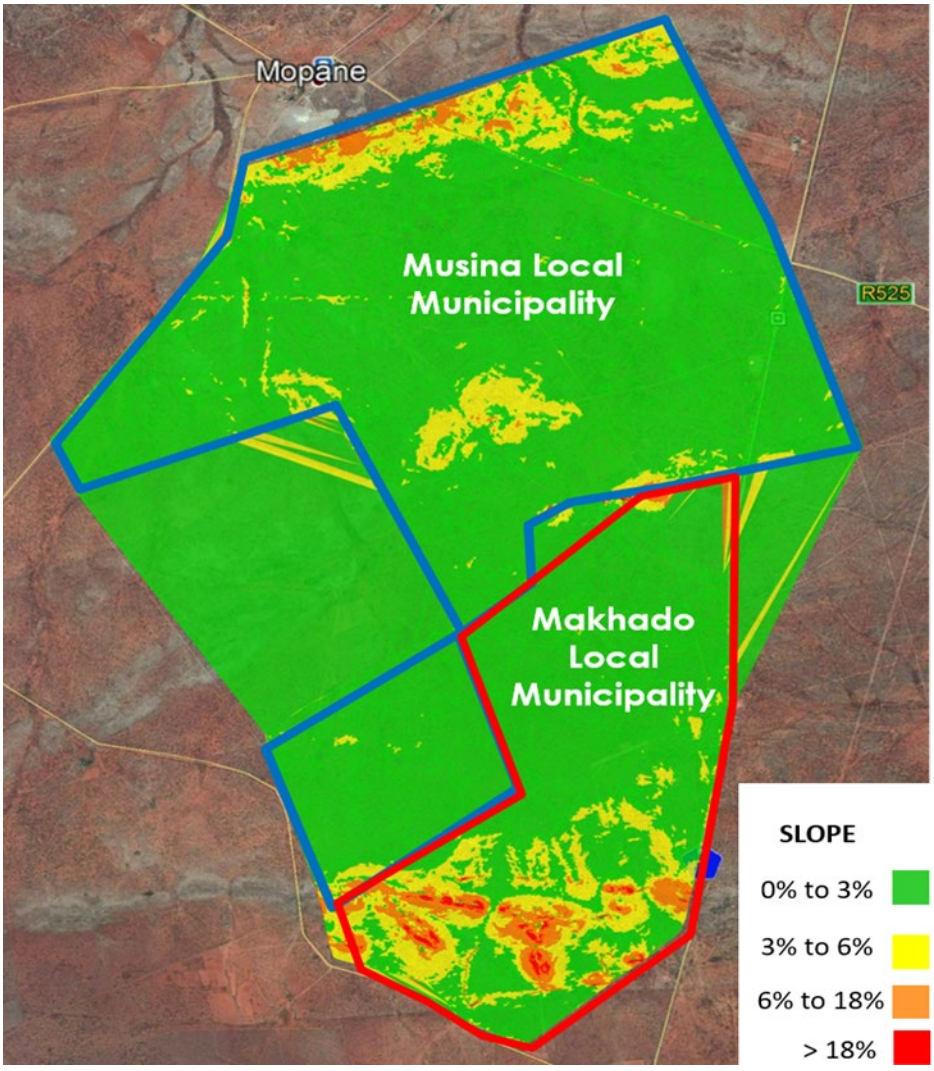


Figure 4-5: Musina-Makhado SEZ south site slope and development suitability
Courtesy iX Engineers, 2019

The hills running east-west through the southern part of the proposed township (farms Joffre 584 Ms and Lekkerlag 580) are indicated as Critical Biodiversity Area 2 According to the South African National Biodiversity Institute (SANBI)[1], CBA 2 areas are the best option for meeting biodiversity targets in the smallest area while avoiding conflict with other land uses. SANBI recommends that this land should be maintained in natural or

[1] South African National Biodiversity Institute, Using CBA Maps to Support Land-Use Planning and Decision-Making, 2018

near-natural ecological condition. Compatible uses include open space and low impact ecotourism and recreation uses.

The majority of the farm Somme 611 MS is indicated as Ecological Support Area 1, which is designated around the tributaries of the Sand River. SANBI considers ESA 1 less sensitive than CBA 2 areas, but supports the ecological functioning of the CBA 2, or which provides an important ecological infrastructure. SANBI recommends that this land be maintained in at least semi-natural ecological condition. Compatible uses include open space and low impact ecotourism and recreation uses, sustainably managed rangelands and certain forms of housing.

A smaller triangular land area of the farm Somme 611 MS adjoining the N1 highway is designated as Other Natural Areas (ONA). SANBI considers ONA as a critical biodiversity target as it does not support natural ecological processes. SANBI recommends that the best use of this land should be determined through a multi-sectoral planning process. From a biodiversity perspective, these areas can be used for a range of intensive land uses.

The nature of the proposed development is such that it would have significant impact on the CBA 2 area as well as the ESA 1. Please refer to the biodiversity specialist report by Digby Wells Environmental In the biodiversity report, the impact the development would have on fauna and flora is assessed in detail.

Digby Wells Environmental also completed a soil and land capability assessment.[2]

The general soil pattern of the proposed township area is classified as Class VI (Moderate Grazing/Wilderness wildlife land) and Class VIII (Wilderness). Based on the chemical characteristics the soils have limited potential for crop growth without additional management practises such liming or fertilisation.

Areas that may be affected by floods with a return period of 1: 100 years were also delineated on the site in terms of which approximately 1 370.43 ha (or 25%) of the site area is affected.

Water drains naturally in three directions on site:

- The area north of the hills on the Farm Dreyer 526 MS (northern tip of proposed Erf 3) drains northwards towards the Sand River;
- The central eastern part of the site on Farms Antrobus 566 MS and Steenbok 565 MS drains towards the valley where the R525 runs; and
- Water on the Farm Battle 585 MS (proposed Erf 1) and Van der Bijl 528 MS drains in a north westerly direction towards the Sand River.

[2] Digby Wells Environmental, Musina Makhado SEZ Soil and Land Capability Assessment, 2019

Given the heavy industrial nature of land uses and the large floorplates associated with this type of development, the SEZ site will in all likelihood be levelled and the streams channelled northwards across the site thereby significantly reducing the areas subjected to seasonal shallow flooding.

5 DEVELOPMENT PROPOSAL

5.1 INTRODUCTION

Township establishment is required for this heavy industrial complex.

The establishment of SEZs in South Africa represents the direct spatial application of core national economic and infrastructure growth policies and legislation, including:

- The National Development Plan 2030 (2012);
- The Final Draft National Spatial Development Framework (2019);
- The National Infrastructure Plan (2012);
- Industrial Policy Action Plan (2018/19 – 2020/21); and
- Special Economic Zones Act, Act No. 16 of 2014.

A township establishment application should be submitted for the energy , industrial metal and minerals beneficiation complex, which includes a thermal power plant with a maximum energy generating capacity of 3 300 MV per annum. The vision is that the Musina-Makhado SEZ will attract foreign and domestic direct investment that in turn promote industrial development and job creation in the second poorest province in South Africa.

Other land uses envisaged to complement the energy and metallurgical complex will comprise, amongst other things, bulk infrastructure, light industries, intermodal facilities, business uses, telecommunication infrastructure, offices, and retail and government functions such as SARS, the latter which will cater specifically to customs and excise of goods entering and leaving the SEZ south site.

The purpose of the beneficiation complex is to produce metals for value-added goods for markets in the Southern African Development Community (SADC) and for export to international markets.

The land will be leased to investors. The development of bulk infrastructure upgrades and the construction of heavy industrial plants in the SEZ will be funded through substantial public-private partnership arrangements between the parties involved.

5.2 TOWNSHIP ESTABLISHMENT

Township establishment applications should be submitted to the respective municipalities to change the use of land and secure the proposed land use rights.

The township establishment process is the process by which the existing land use rights are changed from agricultural land to urban development land comprising erven within a municipal approved township of which the general plan is surveyed and approved by the Surveyor General, and the township register is opened at the Office of the Registrar of Deeds once the conditions pertaining to the township approval have been complied with.

The main outcomes of the township establishment process are:

- A township establishment approval with conditions of establishment;
- An approved general plan,
- Approved land use zoning and applicable zoning scheme controls, and
- Municipal service delivery arrangements for the township.

5.3 PROPOSED LAND USES AND DRAFT INTERNAL MASTERPLAN

The SEZ operator, MCC, appointed South African-based iXEngineers to design a draft internal masterplan for the SEZ. The core land uses are indicated in the table below.

Table 5-1: Proposed core land uses and land areas of draft masterplan (entire SEZ south site)

ZONE	PROPOSED LAND USES	TYPICAL LAND USE SCHEME DESCRIPTION	LAND AREA APPROX. (ha)
1	Thermal power plant (and ash yard)	Industrial 2	600
2	Coal washery	Industrial 2	110
3	Coke (coking coal) plant	Industrial 2	420
4	High vanadium steel plant	Industrial 2	130
5	High manganese steel	Industrial 2	280
6	Ferromanganese plant	Industrial 2	100
7	Silicon manganese plant	Industrial 2	100
8	Domestic waste transfer area	Industrial 2	4
9	Cement plant	Industrial 2	108
10	Refractories factory	Industrial 2	30
11	Stainless steel plant	Industrial 2	300
12	Ferrochrome plant	Industrial 2	500
13	Lime plant	Industrial 2	160
14	Vanadium titanium magnetite plant	Industrial 2	1 000

ZONE	PROPOSED LAND USES	TYPICAL LAND USE SCHEME DESCRIPTION	LAND AREA APPROX. (ha)
15	SEZ administrative centre east of the N1 Highway (including essential government uses (SARS, Department of Home Affairs, Department of Foreign Affairs, SA Post Office, SAPS, Department of Health, etc. directly associated to SEZ south site operations))	Business 2/Government	110
16	Logistics centre (internal operations)	Business 3	50
17	Bonded area (open parking, container area, warehousing)	Industrial 1	300
18	Machinery zone	Industrial 1	400
19	Light industrial processing zone	Industrial 1	400
20	Sewage treatment plant	Industrial 2	20
21	Water treatment plant	Non-Municipal	10
22	Environmental conservation	Private Open Space	2 020
23	Fuel storage facility	Industrial 2	6
24	Gas storage facility	Industrial 2	2
25	Reservoirs	Non-Municipal	TBC
26	Visitors guest lodge (excluded from township)	Rural Residential (lifestyle estate)	TBC
27	Existing dolomite mine (farm Witkop 617 MS)	Excluded from township layout plan	66
TOTAL APPROXIMATE LAND AREA			**8 021**

In addition to the above-mentioned main heavy industrial land uses, the infrastructure reflected in the table below will potentially also is developed on site in support of the core land uses.

Table 5-2: Complimentary Spaces and Infrastructure Development

INFRASTRUCTURE
• **Access control points and security fencing**
• **Staff and visitor drop off and pick up, public transport intermodal zone and parking areas, heli – pad.**
• **Freight truck queuing and parking facilities – logistics hub**
• **Internal road system**
• **Internal rail system**
• **Bulk potable water treatment and connections and internal water reticulation**
• **Internal process (non-potable) water reticulation network**
• **Bulk sewer treatment works connections and internal sewer reticulation**
• **Internal stormwater system**
• **Domestic waste and recycling**
• **Industrial waste management sites (tailings)**
• **Hazardous waste management site**
• **Electrical Substations and reticulation network**
• **Stormwater infrastructure and attenuation dams**
• **Information and telecommunication infrastructure**
• **Fire station/first aid**

Due to the increase in the demand for engineering services, extensive bulk services, roads and rail transport services, the proposed township development will generate, a substantial need for external bulk services, which are currently unavailable or underdeveloped at the site.

Apart from key personnel accommodation, a human settlement will not form part of the designated SEZ south site.

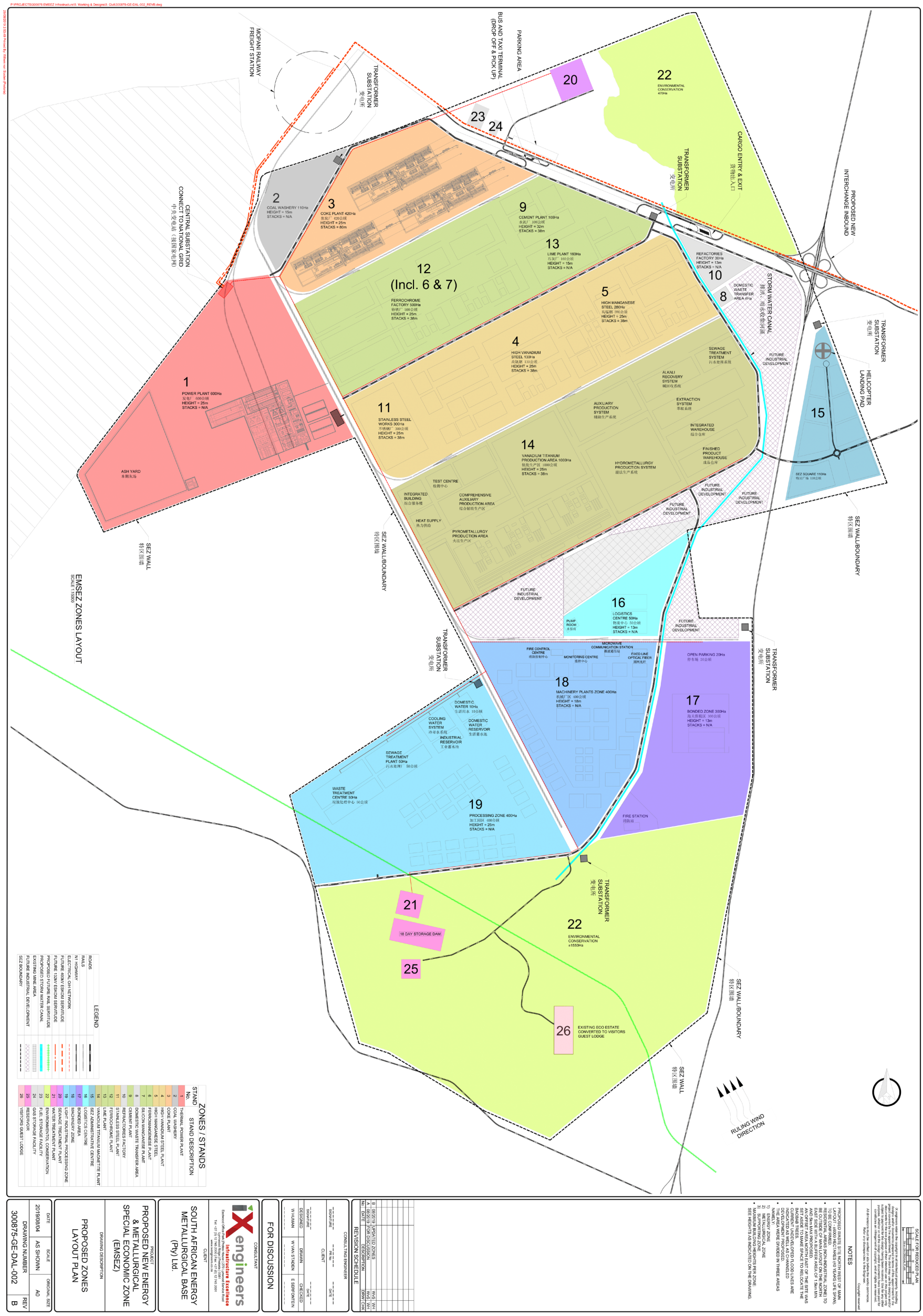


Figure 5-1: Draft internal masterplan
Courtesy: iXEngineers

5.4 PROPOSED ZONING

Based on the variety of land uses outlined in the previous section, the proposed SEZ is a mixed-use development that comprises a variety of land use zones represented in the current municipal land use scheme. The SEZ include eight land use classes in terms of the municipal land use scheme. A special zoning that provides for a basket of land use rights that can be limited/controlled in terms of the floor area as indicated in the table below, so as to ensure these uses do not compete with the rural anchors of Musina and Makhado, should be considered:

Table 5-3: Proposed zoning description

LAND USE SCHEME USE CLASSES	PARAMETERS	PROPOSED USE CLASS FOR ENTIRE SEZ SOUTH SITE
Residential 3	Limited floor areas (basket of rights) as agreed with local municipality	*"Special" for integrated industrial economic development zone.*
Business 2		
Business 3		
Government		
Industrial 1	Table A, B, C, D and E as per Land Use Table, 2009	
Industrial 2		
Municipal		
Private Open Space		

Table 5-4: Proposed development parameters

DEVELOPMENT PARAMETERS	
Coverage	As per the approved site development plan
Height	As per the approved site development plan
FAR	As per the approved site development plan
Building Lines	As per the approved site development plan
Parking	As per the approved site development plan
Access	As per approved site development plan
Landscaping	As per approved site development plan

The proposed special zoning (i.e '*special for an integrated heavy industrial development zone')* will comprise a basket of land use rights, broadly proportional to the land uses reflected in the above tables, and as to be agreed with the local municipality as part of the township approval and conditions of establishment.

A "Special" zoning should be applied for, due to the proposed phasing of the overall development, which will rely on details of potential investors' developments and plans that will only become clear over time. The development coverage, height, Floor Areas

and building lines will be determined in accordance with an approved development phasing and site development planning, which will be submitted for every development phase. The proposed application approach will allow for greater flexibility in implementing and managing the SEZ south land development over time.

Aspects such as the topography, slope, watercourses, environmental considerations, access, infrastructure, and timing of an investment will greatly influence the spatial arrangement of the proposed basket of land use rights across the SEZ south site.

5.5 ARTISTIC IMPRESSIONS OF THE TOWNSHIP

The images below provided by the SEZ operator, MCC[3], illustrates what the proposed development within the SEZ could possibly look like.

Figure 5-2: Illustrative aerial view of SEZ south site
Source: MCC

[3] South African Energy Metallurgical Special Economic Development Plan, MCC, May 2019

Figure 5-3: Illustrative impression of SEZ south site entrance
Source: MCC

Figure 5-4: Illustrative impression of ferrochrome plant
Source: MCC.com

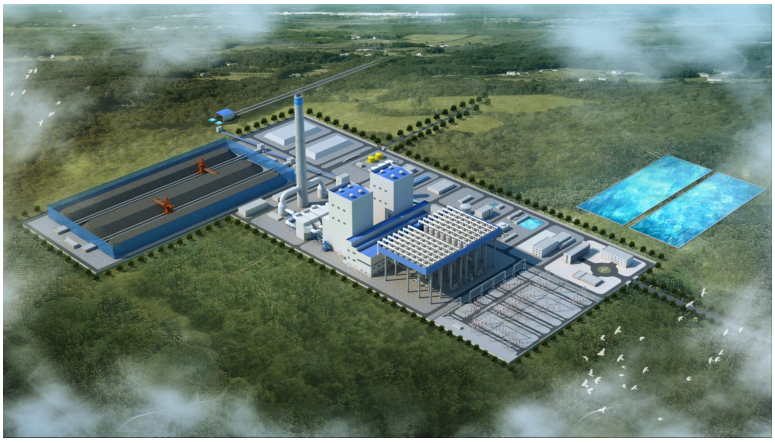


Figure 5-5: Schematic illustration of Phase 1 of thermal power plant
Source: MCC.com

Figure 5-6: Schematic illustration of coking and lime plant
Source: MCC

Figure 5-7: Coal washing plant, Vele Colliery
Courtesy: Limpopo Mirror, 2019

5.6 A PHASED APPROVAL AND DEVELOPMENT APPROACH

Planning permission and Environmental Authorisation for the SEZ south site will be obtained through a phased approach.

Detailed requirements and guidelines for environmental mitigation and compliance will be set out in the SEZ EMP, which will guide and limit, for example the air emissions estimated for all of the industrial plants to be developed in the proposed township.

The EMP will contain detailed requirements and guidelines for mitigation and compliance in terms of all subsequent environmental authorisations and licences the investors would need to acquire in order to develop a particular industrial plant and or the engineering services associated therewith.

The EIA authorisation, if authorised, will set out the environmental thresholds and minimum standards for the overall development of the SEZ south site.

A condition should be attached to the draft conditions of establishment that requires the submission of township phases and site development plans (SDP) that illustrate the internal layout of the streets and the land portions intended to be leased and/or developed in more detail.

It is expected that the SDP will follow a phased approach similar to the development of the Coega SEZ. Detailed SDPs will be submitted once investors enter into an agreement with the SEZ management and details of the investor's development proposals become available.

Detailed SDPs will show the layout of structures on site, access and transport design, the location, height and mass of buildings on site, and land use. The SDPs will show the management of incoming and outgoing goods and materials on site, and engineering infrastructure connections. Each of the envisaged heavy industrial plants must develop their own SDP and the plans will be subject to their own site-specific full scoping and environmental authorisation.

5.7 CONDITIONS OF ESTABLISHMENT

Conditions of establishment are a legally binding document that sets out the approved land-use rights and development parameters. The conditions outline arrangements for phasing and layout of the development. The amounts for financial contributions towards bulk water, sewer, stormwater, electrical services upgrades, and the legal agreement associated with these upgrades are also listed as a pre-requisite that should be complied with prior to the development of said infrastructure.

6 SPLUMA DEVELOPMENT PRINCIPLES

Spatial Planning and Land Use Management are governed by the Municipal Systems Act, 2000 (Act 32 of 2000) (MSA) and the Spatial Planning and Land Use Management Act, 2013, Act 16 of 2013 (SPLUMA).

Accordingly, municipalities (as the principal authority responsible for land-use management and spatial planning at the local level/area) must ensure that land development within the area of jurisdiction adheres to the principles outlined in the Act.

Planning proposals should adhere to the Development Principles listed in Section 7 of SPLUMA. The five development principles are:

- The principle of spatial justice;
- The principle of spatial sustainability;
- The principle of efficiency;
- The principle of spatial resilience, (i.e. flexibility in spatial plans, policies and land-use management systems to ensure sustainable livelihoods in communities most likely to suffer the impacts of economic and environmental shock); and
- The principle of good administration.

7 IMPACT ON SURROUNDING LAND USES AND RESIDENTS

A variety of land use activities are present in the wider area surrounding the proposed SEZ. The area is predominantly within and area used for private game farming and agricultural use, that has tourism guest accommodation as well as existing and planned mining activities. The nearest residential settlement and school is in the hamlet of Mopane, adjoining to the northwest of the SEZ. There is also a filling station at the north eastern corner of the SEZ site

7.1 VHEMBE BIOSPHERE

The Vhembe Biosphere Reserve (VBR) is the sixth South African Biosphere Reserve and the third in Limpopo Province. The VBR aims to conserve the area's uniquely biodiverse environment, which is considered to support the Kruger National Park[4]. The biosphere area is made up of a dense patchwork of Critical Biodiversity 1 (CBA 1) Areas along the Soutpansberg mountain range, which runs east-west through the Vhembe District Municipal area. CBA 1 Areas are also clustered north-south along the Sand and Mogalakwena rivers, both of which feed the Limpopo River.

[4] www.vhembebioshere.org

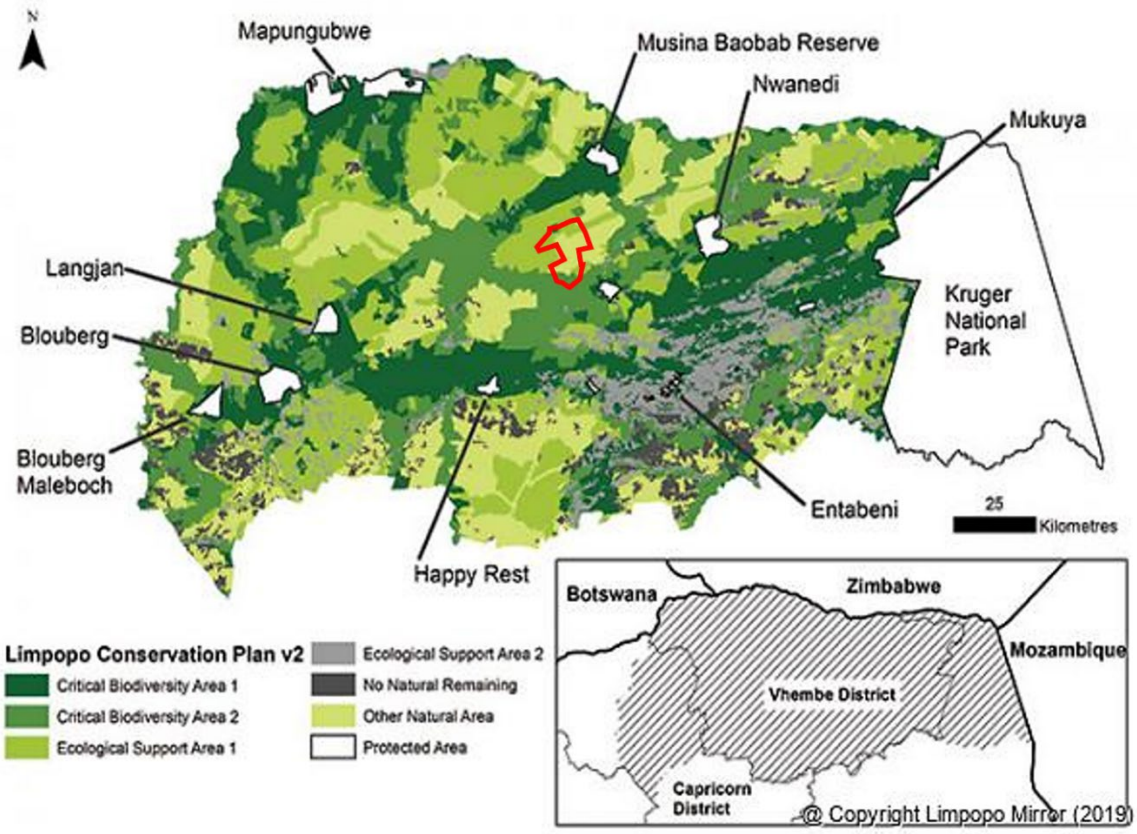


Figure 7-1: Position of SEZ south site (Red) within Vhembe Biosphere
Courtesy: Limpopo Mirror, 2019

The spatial zonation of the Vhembe Biosphere comprises the following zones:

- Transitional zones: The proposed SEZ south site falls within the Vhembe transitional zone, which should ideally be used for a range of sustainable activities that support the core Vhembe Biosphere areas;
- Buffer zones: Areas usually surrounding or adjoining core areas; and
- Core zones: Areas that must have a legal/long term protection status in terms of national laws (i.e. the Kruger and Mapungubwe National Parks).

Only the southern part of the proposed township falls within the Critical Biodiversity Area 1 (the hill range). The proposed SEZ township is located 66 km from Mapungubwe National Park and 105 km from the Kruger National Park.

7.2 LAND USES TO NORTH

A disused dolomite mine located on the farm Witkop 617 MS adjoins the site to the north, which falls within Musina Local Municipality. The nearest hamlet, Mopane, with its station, dwelling homes, general store, intermediate school and mine, is located 8 km northwest of the application properties.

.

Figure 7-2: Mopane human settlement plan
Courtesy of Musina Local Municipality

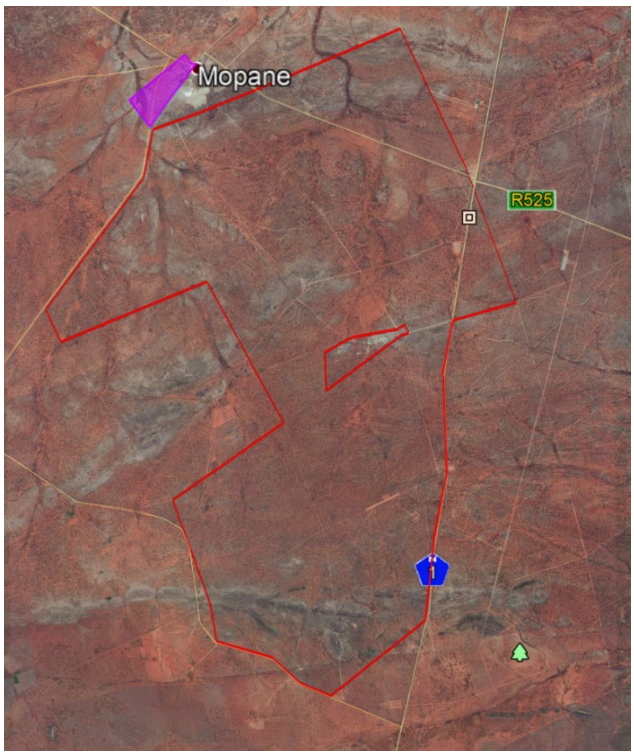


Figure 7-3: Planned human settlement in Mopane (purple) in relation to SEZ (red)

A number of private game farms with catered and self-catering guest accommodation are located within a 2 km radius of Mopane Station. These farms include Volharding Game Ranch, Marumbi Hunting Safaris, Mopanie Game Safaris and Avarel Private Nature Reserve.

A petrol filling station is located at the intersection of the N1 highway and the R525, 3 km north of the site, north of the Baobab Toll Plaza (also within Musina Local Municipality). This filling station property will be impacted by N1 Highway and R525 road upgrades.

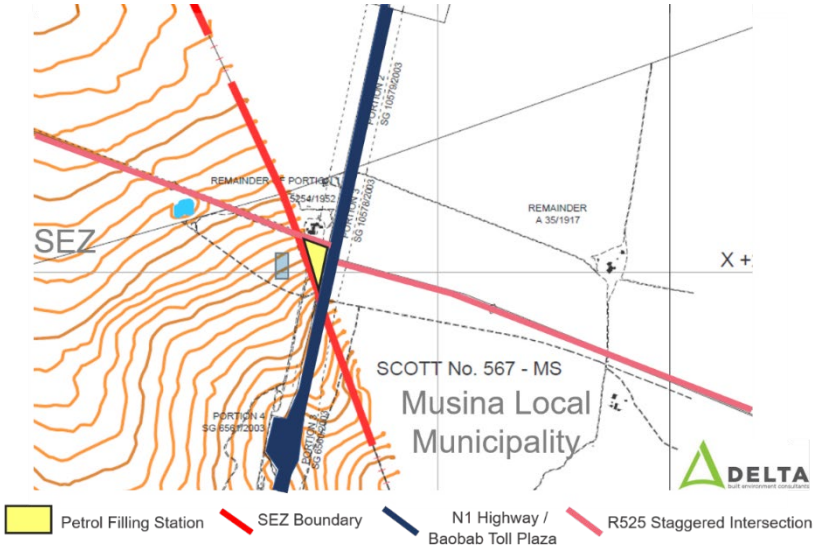


Figure 7-4: Filling station outside Musina-Makhado SEZ south site boundary

7.3 LAND USES TO EAST

The land surrounding the site is sparsely developed and primarily used for game and extensive farming with lodges and homesteads. Fanie se Plaas and Bakstaan Game Lodge are located east of the site, east of the N1 highway on the farms Fanie 578 and Oom Jan 586. Further to the east, along the R525 in proximity to Bonjane and along the Nzhelele River intensive citrus farming is practiced.

7.4 LAND USES TO SOUTH

The unsealed road to Huntleigh bounds the site along the south. South of the Huntleigh Road is the extensive Ekland Safari Resort, located on several farm portions on the east and west side of the N1 highway. The Ekland estate is approximately 15 500 ha in extent. A sealed landing strip, also within the grounds of Ekland, is located 4 km west of Mayii. A concrete palisade wall and a second wire fence surround the entire Ekland Safari resort grounds.

7.5 LAND USES TO SOUTHWEST

There are very few signs of land disturbance for cultivation purposes on farms surrounding the proposed townships. Clearance of land for cultivation purposes are found on farm General 587 MS and the south part of Joffre 850 MS, both of which are located south west of the application properties.

7.6 LAND USES TO WEST

Private game farms in single residential use are located west of the proposed SEZ on the remainder of Joffre 850, farms General 587, Command 588, Battle 585 MS, Grootpraat 564 and Vriendin 589.

An application for environmental authorisation was submitted for the development of the Munthso coal-fired thermal power plant on the farm Du Toit 563 MS, 12 km west of the proposed SEZ.

8 NEED FOR DEVELOPMENT

In this section, the need for the establishment of a township for an industrial complex in this location is motivated. Government share a singular vision that the Musina-Makhado SEZ, and the south site in particular, be developed as an industrial complex and force that compels action which will lead to radical economic transformation in the Vhembe District and the Limpopo Province. The need for the proposed development is discussed under the following headings:

- Provincial and District Social Outlook;
- Provincial and District Economic Outlook;
- Diversification of the Limpopo Economy;
- Minerals Beneficiation as Growth Alternative; and
- Re-Industrialisation as Spatial Justice.

8.1 PROVINCIAL AND DISTRICT SOCIAL OUTLOOK

Socio-economic statistics reveal the current human condition of a place. It is the most valuable tool in development planning as it illustrates, in measured, scientific means, the current population, population growth and the economic reality of the population. It also informs the level at which employment should be created to cater to the needs of the population. In this section of the report, the focus is placed on the social need for the proposed development.

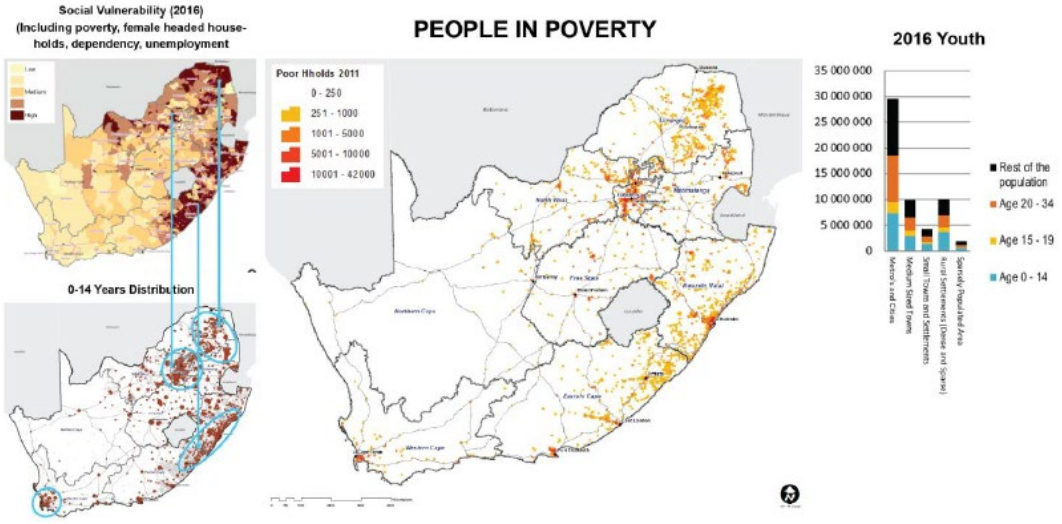


Figure 8-1: Concentration of young and economically vulnerable people (yellow)

Stats SA estimated the South African population in 2018 Q4 at 57.7 million. According to the 2016 Community Survey the population of Limpopo Province is estimated at 5 799 090 (7.5% of the South African population)[5]. In the 2011 census,

[5] Provincial Profile: Limpopo Community Survey 2016, Stats SA Report number 03-01-15

the population of Vhembe District (in which the towns of Makhado and Musina are located) was counted as 1 294 722.

The population of the Vhembe District Municipality grew by 7.7% between 2010 and 2016 (Figure 8-2). The population of Vhembe District was calculated in 2016 as 1 393 949 persons, the most populous of all the districts in Limpopo Province[6].

The official unemployment rate in South Africa was estimated in 2018 Q4 at 27.1%. The official unemployment rate in Limpopo is 16.5%. The expanded unemployment rate is 37.3% in South Africa and 38.8% in Limpopo Province[7].

According to the Living Conditions Survey 2014/2015, Limpopo Province has the highest headcount of adult poverty in South Africa (67.5%), followed closely by the Eastern Cape Province (67.3%)[8]. The population of each province was weighed against its poverty findings to reflect the true extent of poverty in each province.

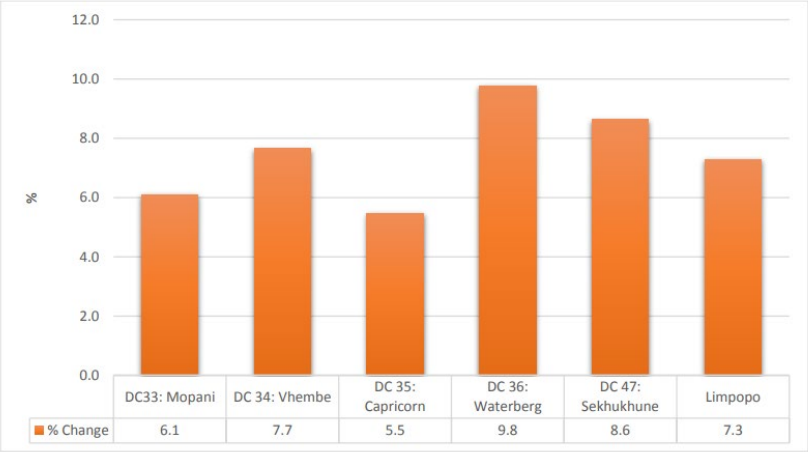


Figure 8-2: Population increase by Limpopo District 2010-2016, Community Survey 2016

The demographic statistic to note in the Limpopo Province is the size of its economically active population (EAP) of 15 to 64 year-olds, as shown in **Table 8-2** below. The Limpopo Province work force numbers 3 575 773 persons, or 61.6% of the provincial population[9]. This rate is affected by the migration of persons born outside South Africa, who migrated from, predominantly, the Southern African Development Community (SADC). An estimate is drawn in the Limpopo Community Survey that 121 089 persons migrated from the SADC to Limpopo Province (90.7% of migrants).

[6] Provincial Profile: Limpopo Community Survey 2016, Stats SA Report number 03-01-15
[7] Quarterly Labour Force Survey, Quarter 4: 2018, Stats SA
[8] Men, Women and Children: Findings of the Living Conditions Survey 2014/15, Stats SA
[9] Provincial Profile: Limpopo Community Survey 2016, Stats SA Report number 03-01-15

Table 8-1 Distribution of population in Limpopo by age group, Community Survey 2016

Age group	Male	Female	Total	Sex ratio
0–4	361 334	353 065	714 399	102
5–9	319 676	322 393	642 069	99
10–14	289 441	281 033	570 474	103
15–19	343 215	327 589	670 804	105
20–24	305 797	295 256	601 052	104
25–29	265 105	275 518	540 623	96
30–34	198 554	234 807	433 362	85
35–39	135 214	179 330	314 544	75
40–44	116 736	151 079	267 815	77
45–49	104 765	132 686	237 451	79
50–54	85 357	117 152	202 509	73
55–59	69 453	95 875	165 328	72
60–64	59 639	82 646	142 285	72
65–69	34 519	65 204	99 723	53
70–74	24 092	56 840	80 932	42
75–79	13 519	36 614	50 133	37
80–84	5 991	23 139	29 130	26
85+	6 139	30 317	36 456	20
Limpopo	**2 738 547**	**3 060 543**	**5 799 090**	**89**

Source: Stats SA, CS 2016

The cohort of children aged 0 to 14 is of particular significance in socio-economic terms. According to the 2016 Community Survey, the child population of Limpopo is estimated at 1 926 942, which accounts for 33% of the total population. This number also gives an indication of the number of adults that will enter the Limpopo provincial workforce between 2017 and 2030.

The cohort of children aged 0 to 14 is approximately 34.2% in Vhembe District, 30.5% in Musina LM and 33.9% in Makhado LM. Between 2017 and 2030, the potentially economically active segment (aged 15 to 64) of the population could gain a potentially large segment of population (depending on death rates and out-migration). On average, it is estimated that:

- 42 083 people enter into the potentially economically active population segment annually in the Limpopo province;
- 12 741 in the Vhembe District;
- 1 299 people in the Musina LM; and
- 4 231 people in the Makhado LM.

The potentially economically active market segment could achieve a proportional size of between 62% to 65% of the total population by 2030.

Another statistic to note with regard to the future socio-economic prospect of the youth of Limpopo is the number of orphaned children. Provincially, there are 57 194 maternal orphans, 119 736 paternal orphans and 26 067 double orphans[10], which

[10] Provincial Profile: Limpopo Community Survey 2016, Stats SA Report number 03-01-15

totals 203 000 potentially vulnerable children, or children raised in households with marginal financial means, either from one parent or family members.

Table 8-2: Household headship by sex and district, Community Survey 2016

District Municipality	Census 2011			CS 2016		
	Male	Female	Total	Male	Female	Total
Mopani	145 437	150 876	296 313	171 993	166 434	338 427
Vhembe	158 885	176 390	335 275	187 378	194 980	382 357
Capricorn	171 600	171 236	342 836	192 685	185 616	378 301
Waterberg	103 060	76 798	179 858	125 085	86 386	211 471
Sekhukhune	124 206	139 593	263 799	141 853	148 674	290 527
Limpopo	**703 188**	**714 893**	**1 418 081**	**818 994**	**782 090**	**1 601 083**

Totals for Census 2011 exclude 'Unspecified' (3).

The number of orphans is compounded further by the number of children already raised in female-headed households. The total number of female-headed households in Limpopo is estimated at 782 090 (of which 187 378 are located in Vhembe District). Because of this high level of interdependence, creating economic opportunities and permanent employment for women is of utmost importance.

The results of the 2011 census and 2016 community surveys illustrate the current socio-economic outlook for Limpopo and pervasive poverty. Despite a decline in the fertility rate, the Provincial populace is predominantly children and young people who grew up, and are currently raised, in an environment with soaring unemployment. This young populace has, since 2016, become economically active. Based on the statistics outlined in this section, it is expected that the number of job seekers will increase between 60 and 70% within the next 11 years.

8.2 PROVINCIAL AND DISTRICT ECONOMIC OUTLOOK

The Limpopo Development Plan was published in 2015 and its economic growth projections were largely based on an expected increase in production in the mining sector. Since this document was published, mining output was reduced and mines were restricted or closed on account of local and global economic factors. The reduction in mining has had a devastating effect on regional economic growth in the Limpopo Province.

The effect of changes in the mining sector in South Africa is magnified in Limpopo Province, which has a disproportional reliance on this industry. The economies of all district of Limpopo Province, including Vhembe District, in which the SEZ is proposed have been contracting since 2015[11].

[11] Limpopo Socio-Economic Review and Outlook 2018/19, Limpopo Treasury

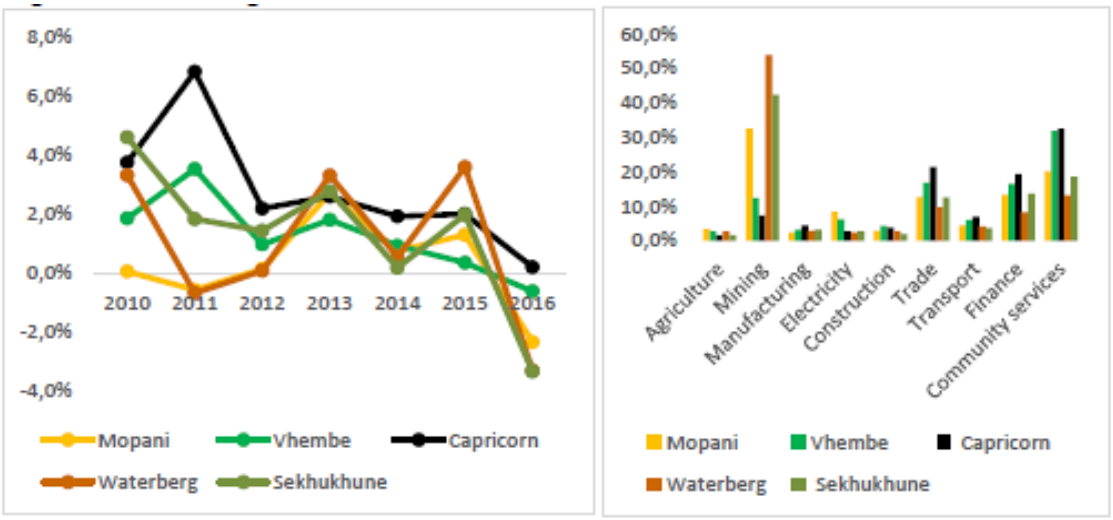


Figure 8-3: Relative growth in Limpopo districts
Source: Limpopo Socio-Economic Review and Outlook 2018/19

The regional Gross Domestic Product for Limpopo Province amounted to R223.1 billion in 2012. This represented 7.3% of the national GDP. The majority of this contribution was attributed to mining. Though mining's contribution to the national GDP has fallen from 21% in 1970 to 6% in 2011, it still represents almost 60% of exports. Despite this high figure, the mining sector accounts for up to 9% of value addition.

The contraction in the mining sector in Limpopo Province is directly related to the increase in unemployment in South Africa and Limpopo, which relies heavily on this sector for employment. When the expanded definition of unemployment is used, the rate of unemployment in Limpopo is slightly higher than the national unemployment rate. According to the Stats SA Quarterly Labour Force Survey, the expanded unemployment rate in Limpopo increased to 38.8% in 2018 Q4[12].

In terms of the national economic outlook, despite marginal increases in total employment (0.8%)[13], the manufacturing sector continues to shed jobs on a year-by-year basis (Figure 8-4)[14]. The purchasing power of the populace has also reduced noticeably as gross earnings and average monthly earnings drop quarterly from 2018 to 2019. Total earnings paid to employees amounted to R688 billion in March 2019, down from R728 billion in December 2018. This is a quarterly decrease of R40 billion or 5.6%[15].

[12] Quarterly Labour Force Survey, Quarter 4: 2018, Stats SA
[13] Stats SA, Quarterly Employment Statistics, June 2019
[14] Department of Trade and Industry, Industrial Action Policy Plan, 2018/2019
[15] Stats SA, Quarterly Employment Statistics, June 2019

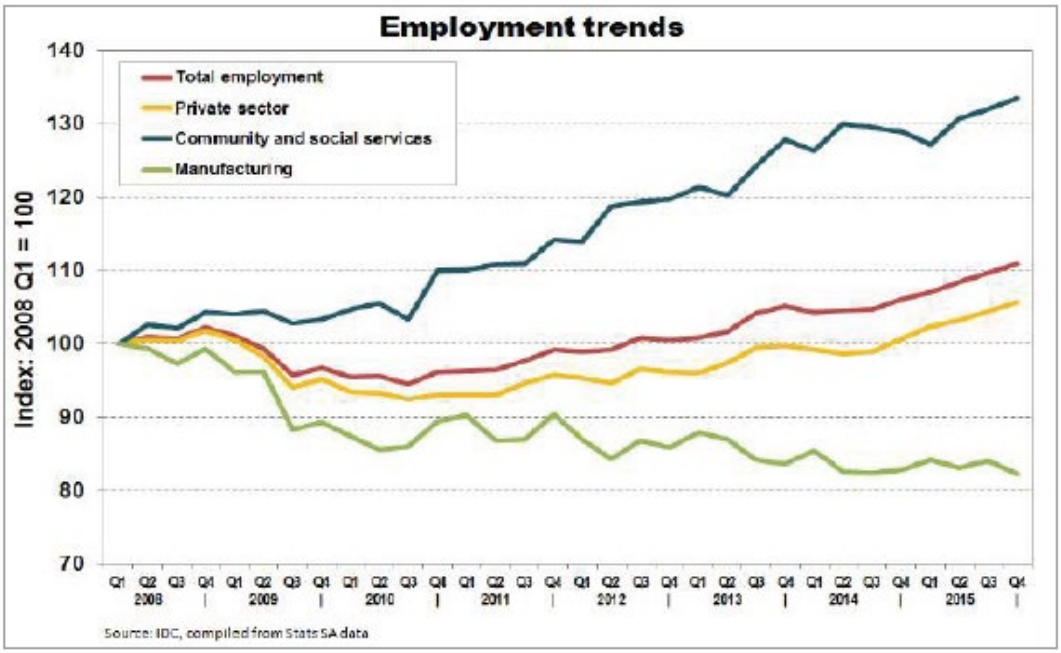


Figure 8-4: Manufacturing employment downward trend
Source: Industrial Action Policy Plan 2018/2019

8.3 DIVERSIFICATION OF THE LIMPOPO ECONOMY

Limpopo's rich mineral deposits include the platinum group metals, iron ore, chromium, high and middle-grade coking coal, diamonds, antimony, phosphate, and copper, as well as mineral reserves like gold, emeralds, scheelite, magnetite, vermiculite, silicon and mica. Commodities such as black granite, corundum and feldspar are also found. Mining currently contributes to over a fifth of the provincial economy.

The gross value-added sectoral composition in Limpopo, which is illustrated below, shows the province's dependence on the mining sector. The chart also shows the relatively small contribution made by the manufacturing, electricity, construction and transport sectors in the province. On a national level, the manufacturing sector contributed 13% to the economy in 2016, whilst the contribution of the sector in Limpopo was only 3%[16].

[16] Limpopo Socio-Economic Review and Outlook 2018/19, Limpopo Treasury

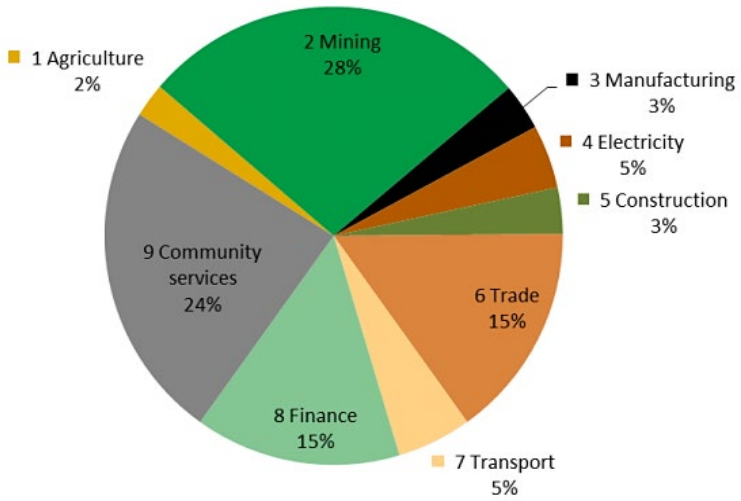


Figure 8-5: GVA-R Sectoral Composition Limpopo, 2016
Source: Limpopo Socio-Economic Review and Outlook 2018/19

It is clear, from Figure 9-3 and Figure 9-5, that expansion and diversification in the following underperforming sectors is considered essential to attain sustainable provincial economic growth, and is the core elements of the proposed industrial development complex in the proposed SEZ south site:

- Manufacturing, including beneficiation, machine production and light industrial activities;
- Electricity generation and reticulation;
- Construction of large labour-intensive noxious industrial plants, railways, roads and civil infrastructure; and
- Transport, freight, logistics and distribution activities.

The current Limpopo Development Plan (LDP) 2015-2019, focuses largely on the continuing growth in the mining sector, which, at the time of the publication of this document, was growing from year to year between 2000 and 2012.

Despite the presence of these resources, Limpopo is also one of the poorest regions of South Africa with the second lowest GDP (by region and per capita) of the nine provinces.

The growth performance of the provincial economy can, to a large extent, be explained by the volatile growth performance in the mining industry and its relative contribution, as a specific sector, to the provincial economy[17]. Contractions in growth due to the global recession of 2009 and subsequent mining restructuring in 2016 are shown below in Figure 8-6. GDP annual growth is expected to remain under 1% in 2019 and 2020.

[17] Limpopo Socio-Economic Review and Outlook 2018/19, Limpopo Treasury

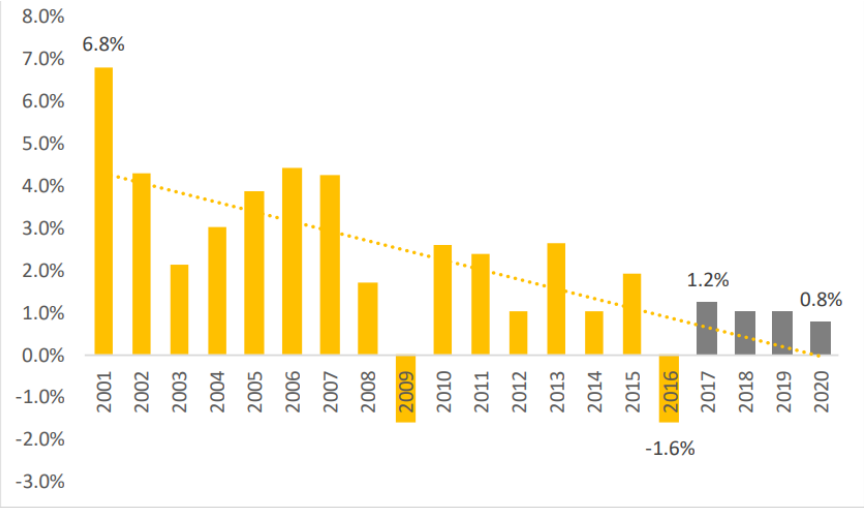


Figure 8-6 Limpopo GDP average annual growth
Source: Limpopo Socio-Economic Review and Outlook 2018/19

The LDP identified both Musina and Makhado as two of the ten growth points in the province where high-priority developments are needed and should be co-ordinated. The proposed SEZ south site is located equidistant from the two growth points.

In Chapter 3.1.1 of LDP, it is mentioned that '*the mining sector could become even more dominant in the production structure of the Limpopo provincial economy in the foreseeable future.'*[18]

8.4 MINERALS BENEFICIATION AS GROWTH ALTERNATIVE

Since 1980 to date, there has been a steady decline in the mining, manufacturing and agriculture sectors' contribution towards the gross domestic product (GDP) as shown in Figure 8-7. The contribution by mining dropped the most dramatically by 13% during this period, followed by manufacturing shirking by 9%.

[18] Limpopo Development Plan, 2015-2019,

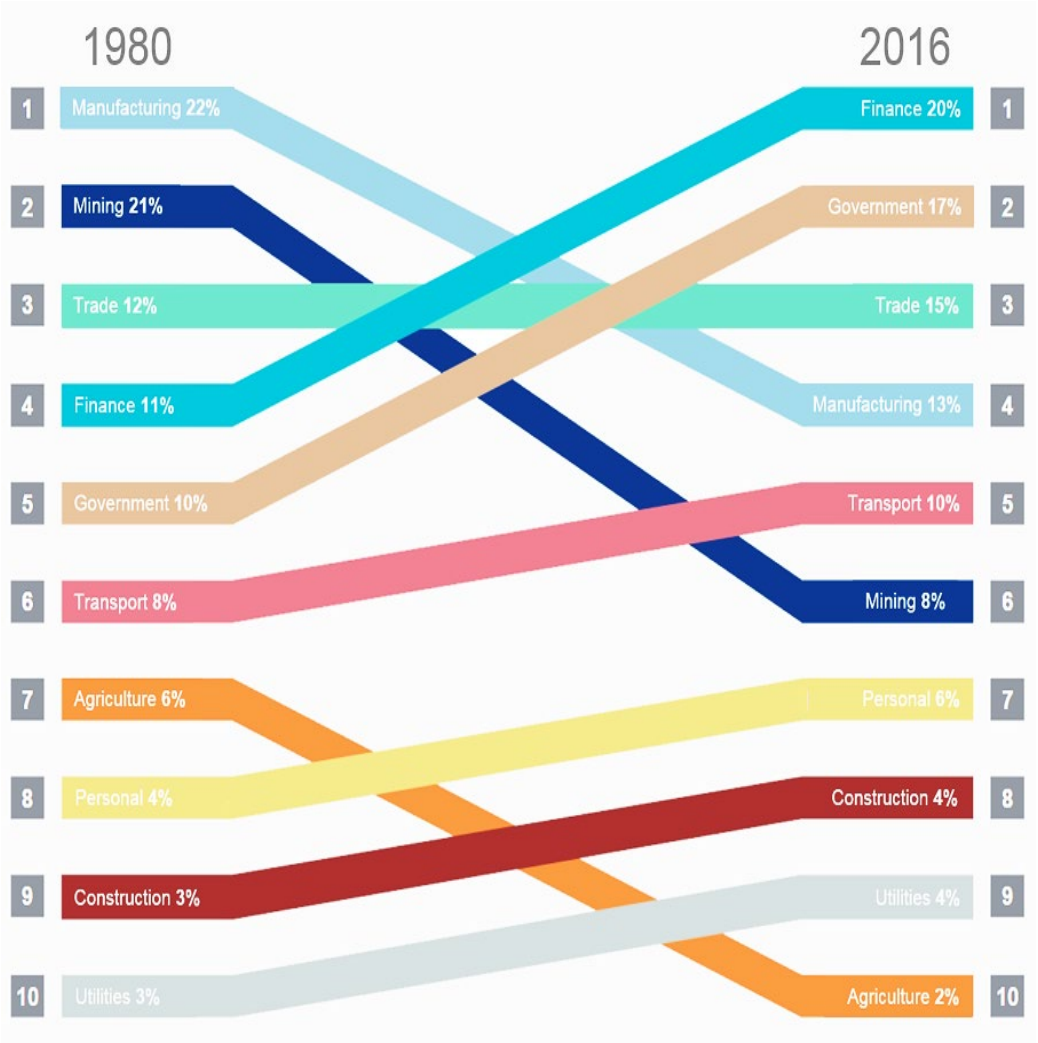


Figure 8-7: The fall of mining and manufacturing in South Africa
Source: Stats SA

The Beneficiation Strategy for the Mineral Industry in South Africa (2011) is a document published by the Government to advance the beneficiation of minerals as a strategy for economic growth.

Beneficiation entails the transformation of a mineral (or combination of minerals) to a higher value product, which can either be consumed locally or exported. The term value-addition is also used.

South Africa has been a resource economy in excess of a century. An independent evaluation of South Africa's non-energy in-situ mineral wealth is estimated at US $2.5 trillion (Citibank report, May 2010)[19], making the country the wealthiest mining jurisdiction in Africa. However, a considerable amount of South Africa's mineral resources is exported as raw ores or only partially processed (i.e. at its lowest value). The NGP identifies mineral beneficiation as one of the priority growth nodes for job creation.

[19] Beneficiation Strategy for the Minerals Industry of South Africa, 2011, Department of Mineral Resources

From this data, it is clear that a switch should be made nationally to not simply extract and export raw minerals, but to add value to our resources prior to export to achieve higher export margins. The proposed township is located within an identified National Resource Production Region, shown in blue hatching in Figure 8-8.

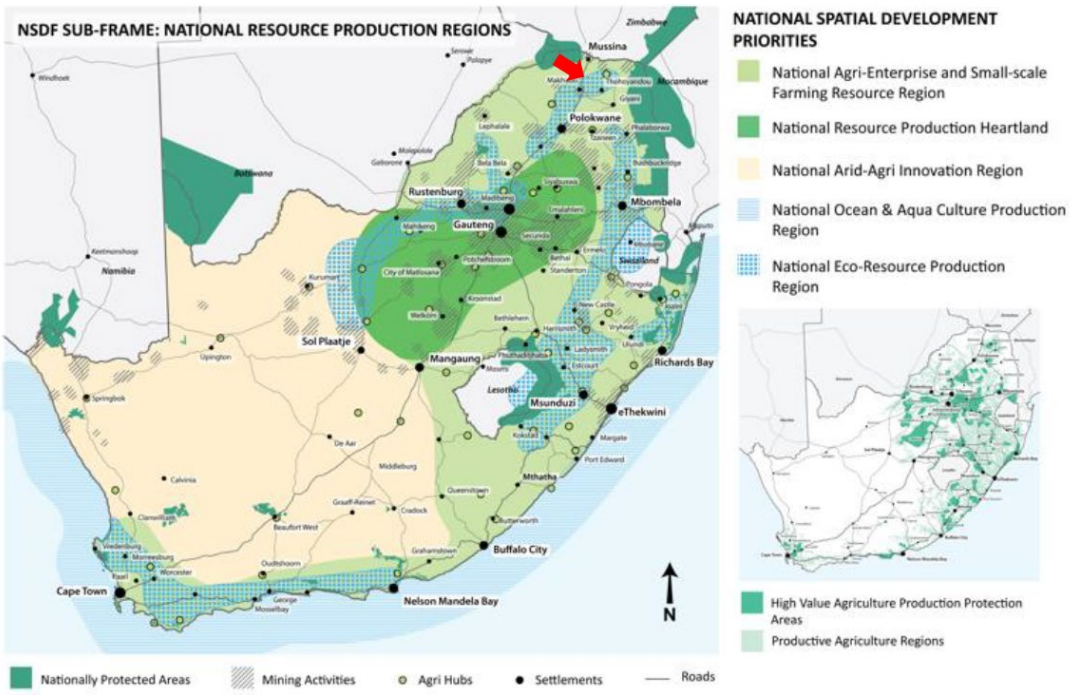


Figure 8-8: Position of SEZ south site in National Resource Production Region (blue)
Source: Final Draft National SDF, 2019

Beneficiating minerals to intermediate or finished consumer goods not only increases the revenue gained from the exploitation of the mineral resource, but also significantly increases labour absorptive capacity of the industry.

The strategy outlines ten strategic mineral commodities and five value chains. Of the five value chains, the two chains that will be actively pursued in the Musina-Makhado SEZ south site are:

- **Energy commodities (in particular coal)**

Energy is essential to poverty alleviation. All fuel sources will be needed but, as the most abundant and affordable of all the fossil fuels, the role of coal will be vital. Coal will continue to play a significant role in meeting energy demands worldwide. The world currently relies on coal for 40% of its electricity, while 66% of steel production is dependent on coal. Many countries rely on coal for much greater proportions of their electricity, for example, South Africa, China and India use their large, indigenous supplies of coal to generate most of their electricity.

Given environmental pressures, it might be necessary to capture harmful gases at source and have them sequestrated in rocks (geological formations) at depths in an attempt to mitigate their contribution to global warming. The process of **carbon capture and storage** is illustrated below.

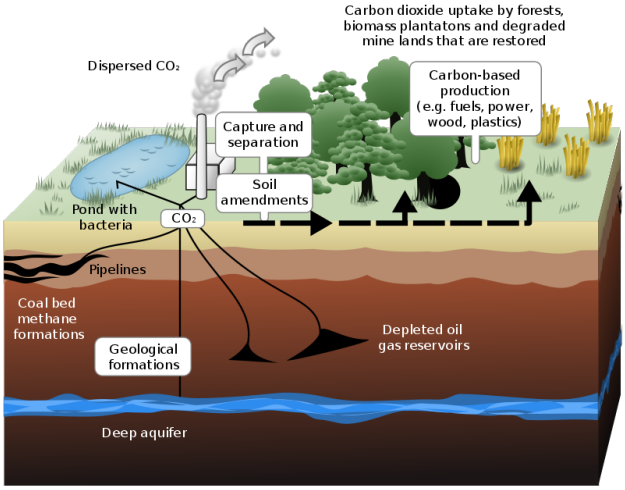


Figure 8-9: Carbon capture and storage
Source: Wikipedia

- Iron and steel

Steel and stainless-steel production is major consumers of iron ore, manganese, chromium, etc. and South Africa is a major producer of these ferrous minerals. Access to these raw materials will therefore be essential to increasing levels of local partial and full beneficiation of these minerals at the SEZ. Access to competitively priced iron ore, manganese, chromium, nickel and vanadium is essential for the projects to be viable and compete with existing players. The development of the plants would also assist in creating an environment for competitive pricing in the domestic market. The strategic outcome of iron and steel production at the SEZ to the final stages of the value chain is shown on the following page[20].

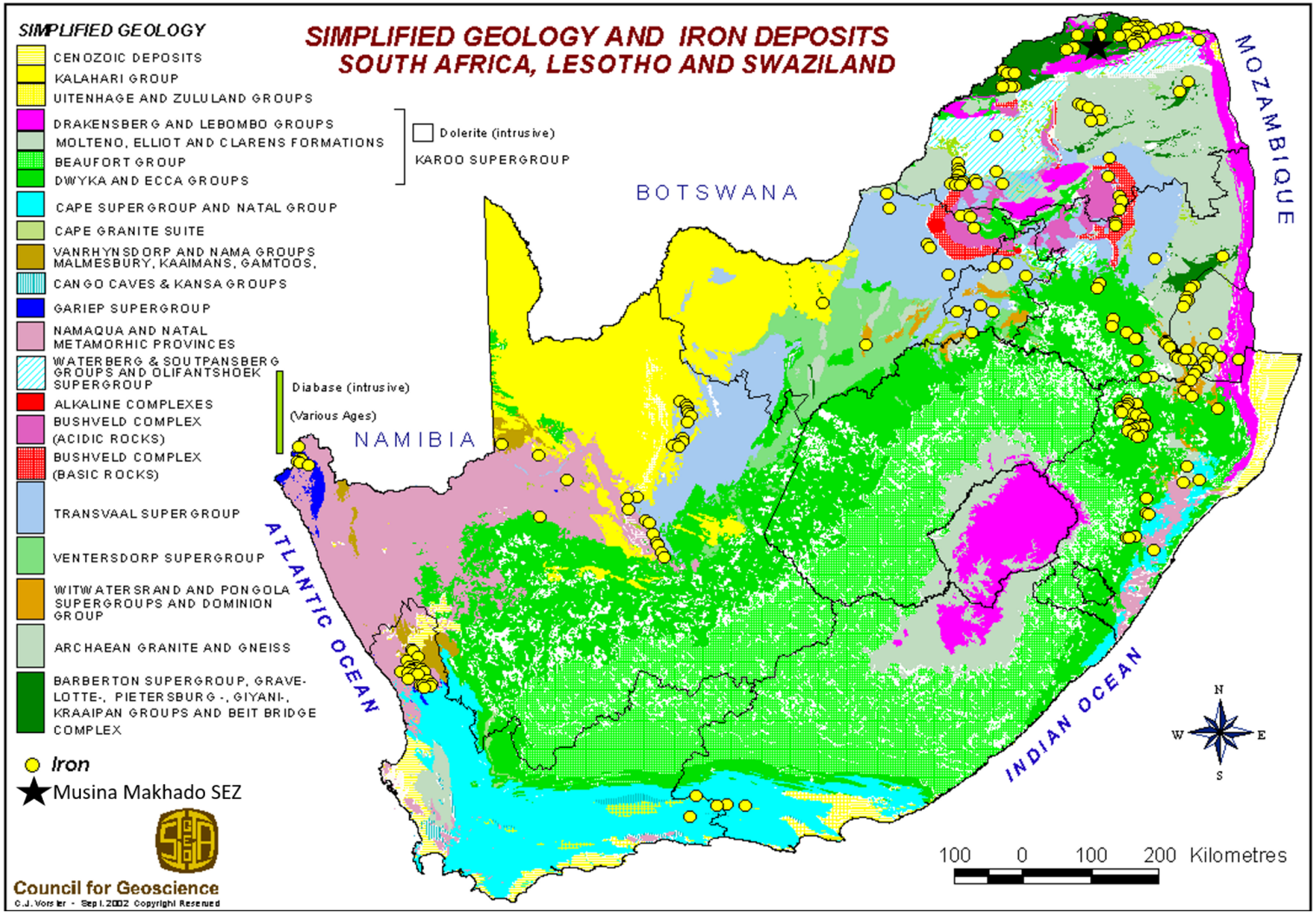


Figure 8-10: Iron deposits in South Africa

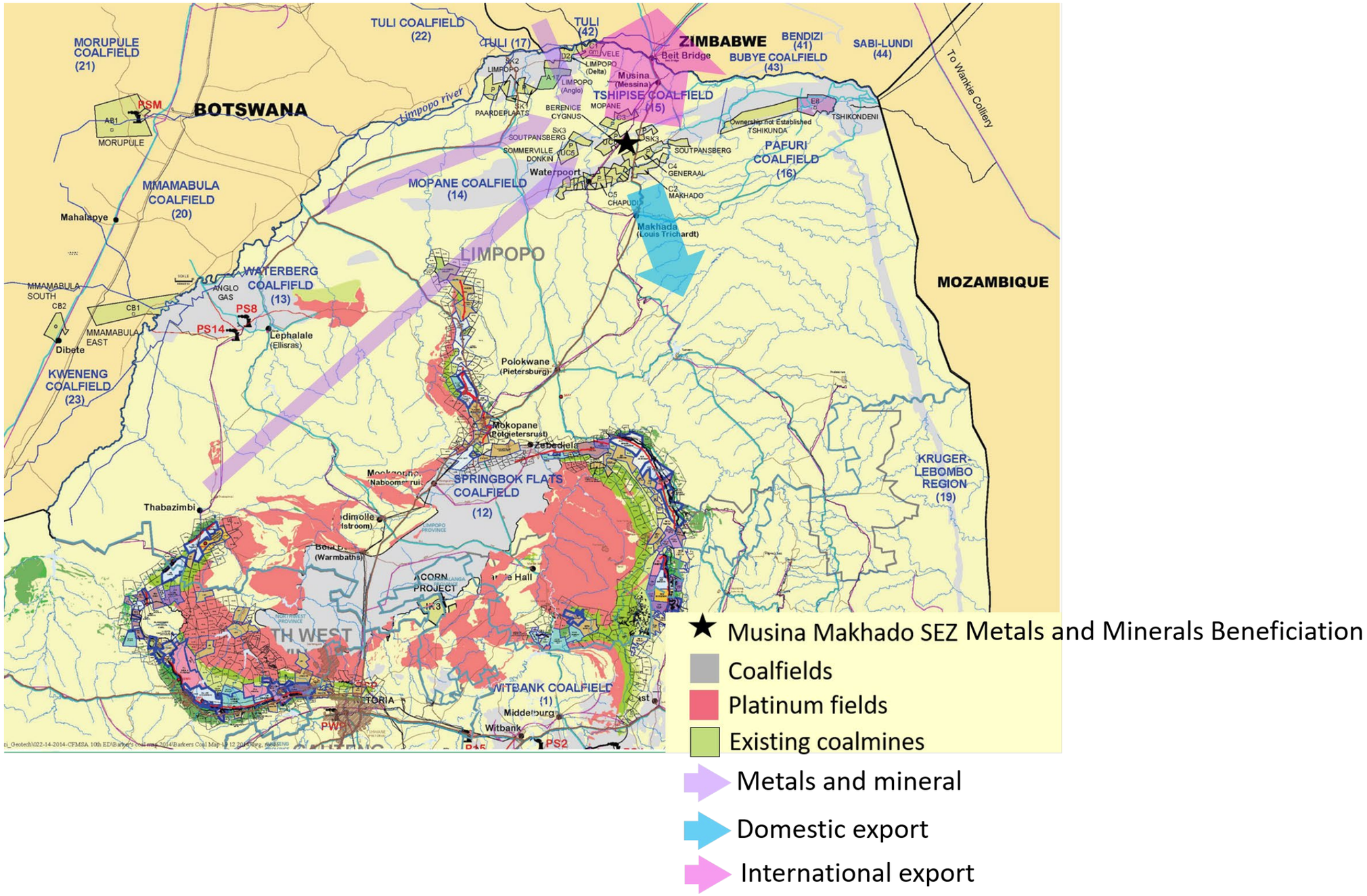


Figure 8-11: Coalfields and coalmines in Limpopo Province

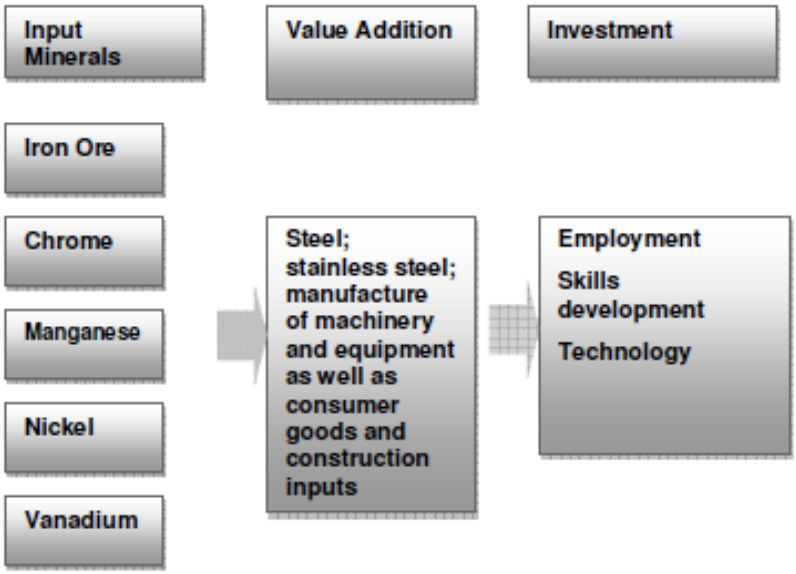


Figure 8-12: Strategic outcome of iron and steel production
Source: The Beneficiation Strategy for the Mineral Industry in South Africa (2011)

The beneficiation of minerals is a costly and long-term economic strategy that relies heavily on direct foreign investment (DFI).

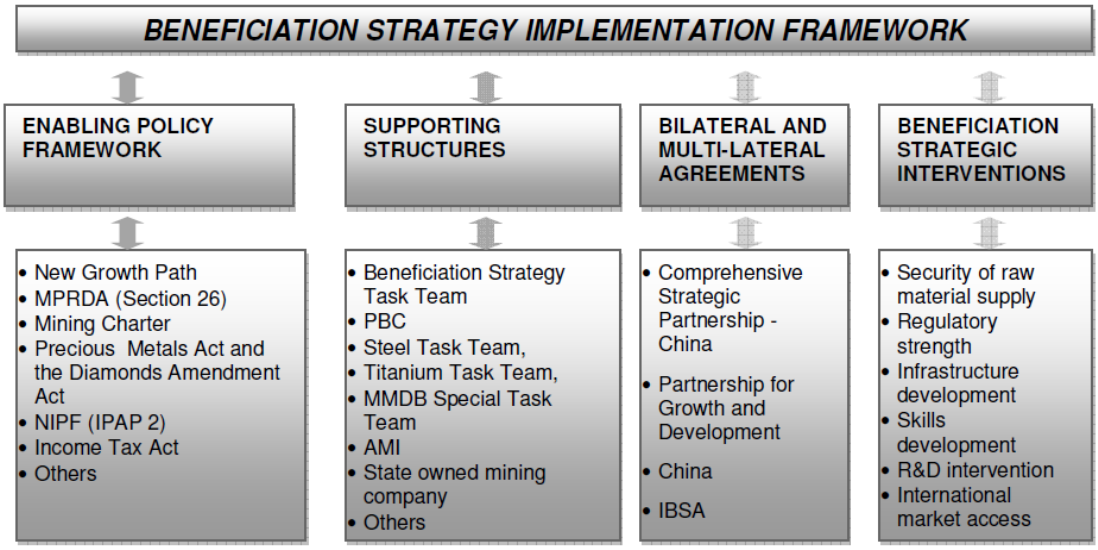


Figure 8-13: Beneficiation strategy implementation framework
Source: The Beneficiation Strategy for the Mineral Industry in South Africa (2011)

[redacted]COAL

As of the end of 2014, the world's proven coal reserves totalled 891.31 billion tons. The United States has the largest coal reserves, accounting for 26.6% of the global total, followed by Russia (17.6%) and China (12.8%). South Africa ranks fifth in the world, accounting for 7.5% of these reserves[21].

[21] MCC.com

BLACK METAL AND MINERALS

Total ferrous metal production in South Africa increased by 13.0% to 108 848 kilotons (kilotons). Iron ore continues to be a major contributor to the production of ferrous metals, accounting for 74.5% of the total black minerals, followed by chrome ore and manganese ore, at 13.0% and 12.5% respectively[17].

The planned Musina-Makhado SEZ will focus on smelting and processing of metallurgical resources mined in the Limpopo, Northwest and Northern Cape provinces.

CHROMIUM

Global chromium ore reserves in 2014 are estimated at 9 297 million tonnes (Table 67), South Africa at 73.7%, followed by Zimbabwe and Kazakhstan at 10.2% and 4.2% respectively. In 2014, global chromium ore production reached 23 million tons, down 17.4% from 2013, with South Africa leading 43.5%, followed by Kazakhstan and India at 19.3% and 8.3% respectively[17].

MANGANESE

According to the latest data from the U.S. Bureau of International Reconciliation, the global manganese ore reserves in 2014 were 570 million tonnes (Mt). South Africa, Ukraine, Australia, Brazil and India are among the top five manganese producers in the world, reaching 490 million tons, accounting for 86% of the total reserves worldwide [17].

The Musina-Makhado SEZ will also be developed as an energy cluster, where the Limpopo Province's coal resources will be beneficiated in two processes. In the first process, thermal (non-coking) coal will be used locally in the production of electricity in a coal-fired power plant. In the second process, metallurgical (coking) coal (Figure 8-14) will be used both as fuel and reducing agent in steel smelting and steel making.

Figure 8-14: Raw coke

Coke (anthracite) is a porous, hard black rock of concentrated carbon that is created by heating bituminous coal without air to extremely high temperatures. The coal is

baked in a coke oven, which forces out impurities to produce coke, which is almost pure carbon. These kinds of coal are usually low in ash, sulphur and phosphorous content. It is an important industrial product, used mainly in iron ore smelting.

Coke is an essential fuel and reactant in the blast furnace process for primary steelmaking. The proposed SEZ is located within the Mopane coalfield belt, which has been prospected for thermal and coking coal. Australian-owned MC Mining (formerly Coal of Africa) is currently developing their Makhado Project.

According to The Australasian Code for Reporting of Exploration Results (JORC), MC Mining is obliged to disclose the mineable reserves in situ to determine feasibility of the project. According to MC Mining's studies, 344.7 metric tonnes of coal resources are estimated *in situ.*

According to LEDA internal mineral's availability study produced in 2018, 17 new mines were established in the greater Tubatse/Burgersfort/Steelpoort area between 2001 and 2016, and a further 22 new mines are planned. The completion of the large new De Hoop Dam makes these plans possible.

The development plan of the SEZ operator lists 21 mines that are considered sources for the proposed SEZ south site energy and metallurgical cluster[22].

8.5 RE-INDUSTRIALISATION AS SPATIAL JUSTICE

Since 1986, the secondary (or manufacturing) sector in South Africa has fallen from 30% to about 21% of gross domestic product (GDP), and the mining sector has fallen from about 13% to 7%. In the meantime, the tertiary sector has grown from 51% to 69% of GDP[23]. While this trend is normal in developed economies with a rapidly growing standard of living, it is non-representative of the socio-economic reality of the country. The skewed growth toward the government and services sectors and inadequate growth of goods-producing sectors have resulted in a structural account deficit with insufficient exports and higher imports.

The decline in the rate of economic growth, the balance of payment deficits and the low increase in the rate of employment, particularly for less skilled workers and youth, are structural problems that require fundamental changes in the way jobs are created through domestic and foreign investment.

Due to the soaring unemployment and large numbers of youth entering the job market in Limpopo Province (see Sections 8.1 and 8.2), a radical solution is required for employment creation.

In light of the socio-economic prospects of Limpopo Province, discussed in the previous sections, it is evident that there is a great need and demand for employment opportunities in the Limpopo Province including for for less-skilled workers and the youth.

[22] South African Energy Metallurgical Special Economic Development Plan, MCC, May 2019
[23] Reindustrialisation will get South Africa out of its socioeconomic mess, Mail&Guardian, 13 October 2016

Since the 2008 global recession, the situation has worsened, with GDP growth falling to below 2%. Growth in mining and manufacturing has been negligible, and agricultural growth has averaged only 1% a year. Financial services and personal service growth have averaged 2.4% and 2.8% a year respectively and government services 3.3% a year.

International credit ratings agencies have clearly stated that the sovereign rating of South Africa will be lowered unless the economic growth rate is raised, the balance of payments improves, and employment increases. One way for this to occur would be for the country to reindustrialise less developed regions of the country as a form of spatial justice. Economic transformation through re-industrialisation seeks to redress the industrial and manufacturing sectoral gaps prevalent outside of South Africa's metropolitan areas.

According to the National Development Plan, by 2030 there should be:

- A reduction in the number of people who live in household poverty with a monthly income below R419.00 per person from 39% to 0%. Limpopo Province has the highest headcount of adult poverty in South Africa, which signifies the extent to which radical economic transformation proposals should aim to reduce poverty; and
- A reduction in inequality as measured by the Gini coefficient, from 0.69 to 0.6.

9 DESIRABILITY OF DEVELOPMENT

In this section, the desirability of a heavy industrial complex is motivated in terms of the following strategic factors:

- Geographical centre of the coal producing area of Limpopo Province;
- Giving form to the Eastern Escarpment Transformation Corridor;
- Infrastructure clustering and cross-subsidising;
- Direct foreign investment;
- Job creation and human development; and
- Strengthening Limpopo Province's international economic presence.

9.1 CENTRE OF THE COAL PRODUCING AREA OF LIMPOPO PROVINCE

The proposed SEZ south site is powered by a coal thermal energy plant, which is proposed in the township to be established on the section of the SEZ located on the Musina Local Municipality side of the project.

The proposed township is located at the centre of the greater Mopane Soutpansberg coal mining cluster (Figure 9-1), which will supply the southern SEZ with various grades of coal. The following coal mining projects are located north of the Soutpansberg, within a 50 km radius of the coal thermal energy plant, proposed as part of the SEZ:

- Vele Project;
- Generaal project;
- Makhado Project;
- Chapudi Project; and
- Mopane Project.

Various grades of coal are located in this area, including energy coal, used in the thermal plant, and high-grade coking coal, which is purer and burns at higher temperatures needed for the metallurgical processes to be carried out in the industrial township.

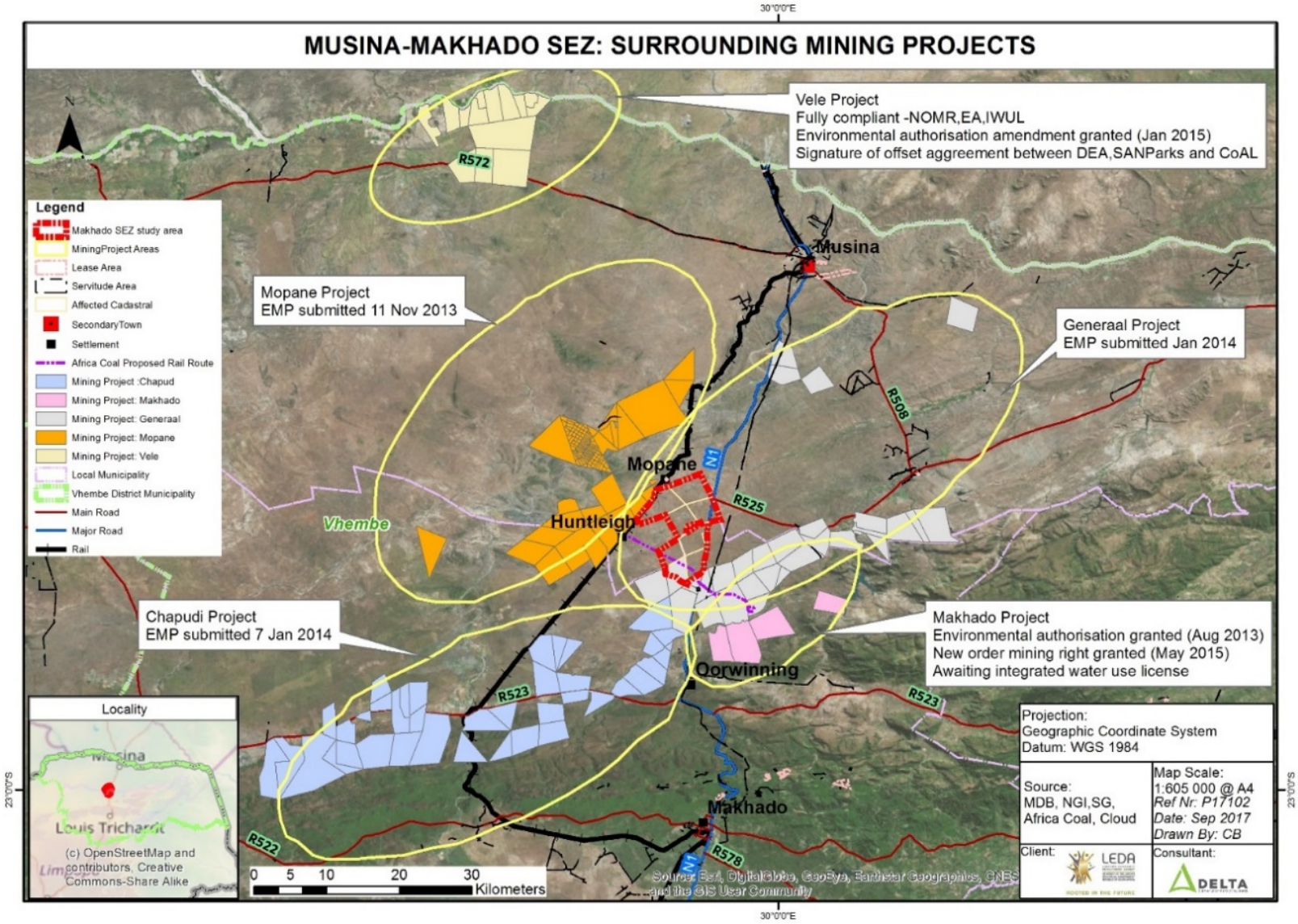


Figure 9-1: Musina-Makhado SEZ south site – Locality within Greater Mopane Soutpansberg Coal Mining Cluster

9.2 GIVING FORM TO THE EASTERN ESCARPMENT TRANSFORMATION CORRIDOR

Transformation corridors are large stretches of densely-populated human settlements where intense economic activity should be concentrated along roads and/or railway lines. Combined with National Highway improvements, these corridor areas link regional anchors with larger urban nodes, and ultimately to cities with harbours and airports. The intention is to concentrate land uses that create jobs along these corridors to enhance the local and national economy, through manufacturing, small scale and commercial farming and the export of goods for local and international consumption.

The proposed township is located 45 km from the Makhado/Louis Trichardt town centre and 35 km from the Musina town centre, both of which are designated in terms of the Final Draft National Spatial Development Framework (National SDF) as Regional Development Anchors[24]. East of these Regional Anchors, Limpopo is characterised by a dense network of rural settlements stretching from Giyani, through Thoyondou, to Bushbuckridge/Hazyview in Mpumalanga Province.

Along the Southern Cape coast, a similar corridor is proposed that links Port Elizabeth and Coega IDZ with East London and its harbour. The dense human settlements, the road/railway links and the intensive economic activities mutually support each other in a synergistic way.

The proposed township is located within the Eastern Escarpment National Transformation Corridor. This geographical area is home to a large concertation of economically vulnerable people who have been marginalised to these areas as a result of unjust spatial planning policies of the past. National Transformation Corridors act as incubators and drivers of existing underdeveloped, and new, economies, and form the backbone along which quality human settlements should be developed.

While such corridors often develop organically over long periods of time, they can be supported and strengthened. Their development can be fast-tracked through well-considered and targeted state interventions, such as the Musina-Makhado Special Economic Zones.

The proposed township could form a vital part in the spatial realisation Eastern Escarpment National Transformation Corridor. The goal of this corridor is to structure urban development around National Eco-Resources, such as mining, minerals beneficiation and eco-tourism. To address the great need for employment and service delivery in the region, employment generating economic activities

[24] Department of Planning, Monitoring and Evaluation; Department of Agriculture, Land Reform and Rural Development, Final Draft National Spatial Development Framework, April 2019

should be concentrated in the urban nodes of Polokwane, Tzaneen, Hazyview and Mbombela, as well as in Regional Development Anchors such as Musina and Makhado.

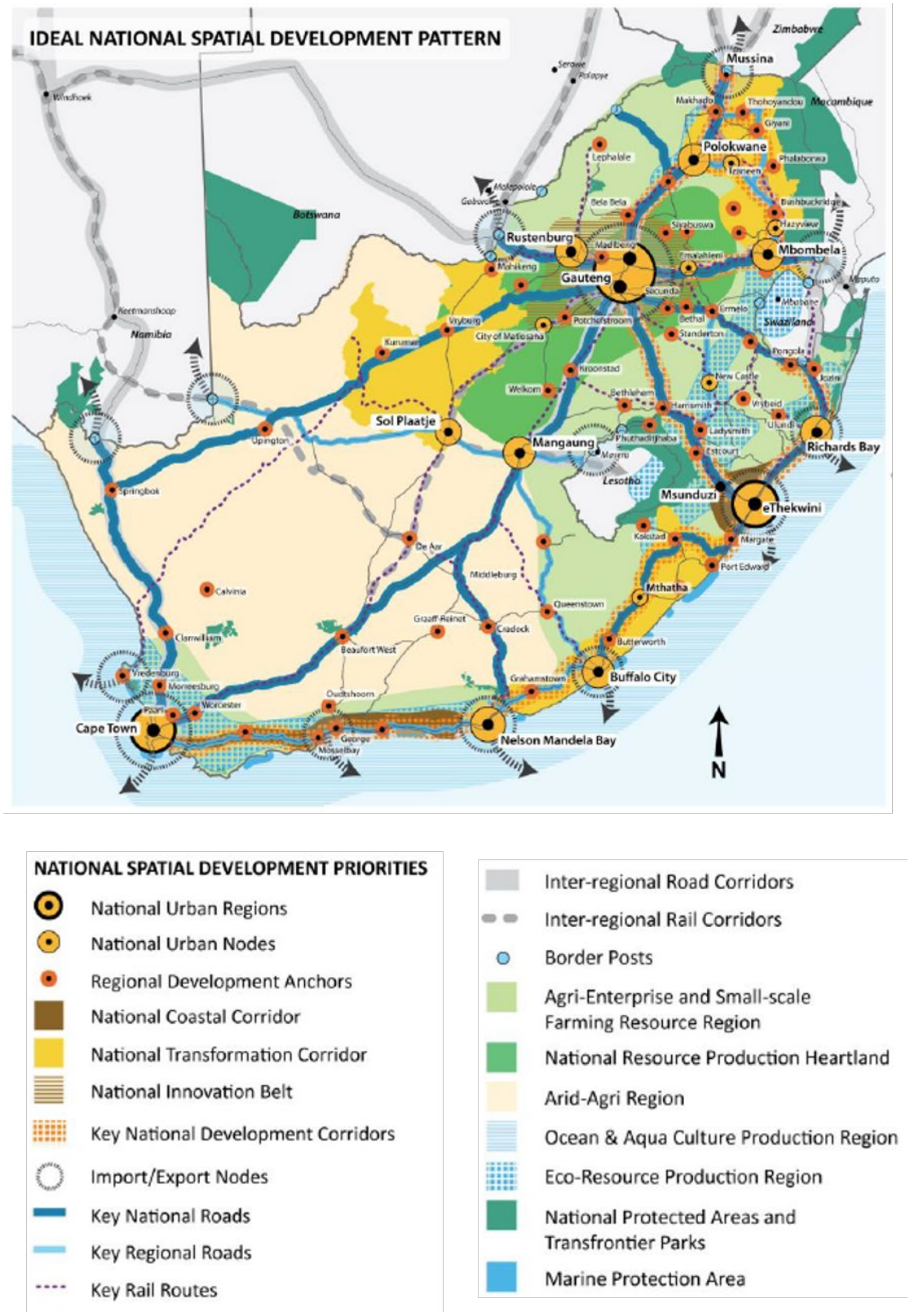


Figure 9-2: Ideal national spatial development pattern, Final Draft National Spatial Development Framework, April 2019

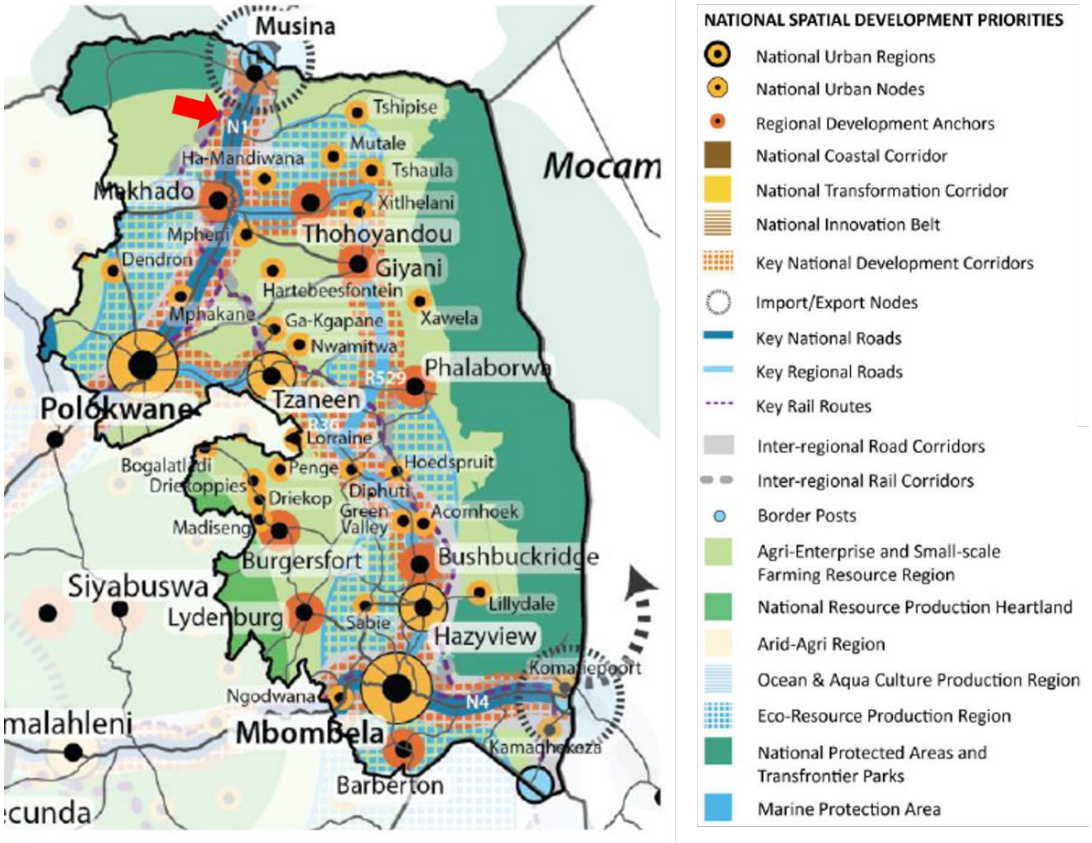


Figure 9-3: Eastern Escarpment National Transformation Corridor,Final Draft National Spatial Development Framework, April 2019

The proposed position of the township also aligns with the Regional-Rural Development Model in the Section 4.4.3 of the Final Draft National Spatial Development Framework (Figure 9-4). The Regional-Rural Development Model is one of the six National Spatial Development Levers, and this model focuses on regional and rural development planning, institutional economics, agglomeration economics, and ecological resource planning and management. Development levers are tools that intended to spread economic benefit from the place/tool of investment to the surrounding region.

The SEZ south site is a large scale, intensive development of national and international importance, which is induced in this particular locality to facilitate the distribution of socio-economic benefits between Regional Development Anchors and their rural edges (Figure 9-4).

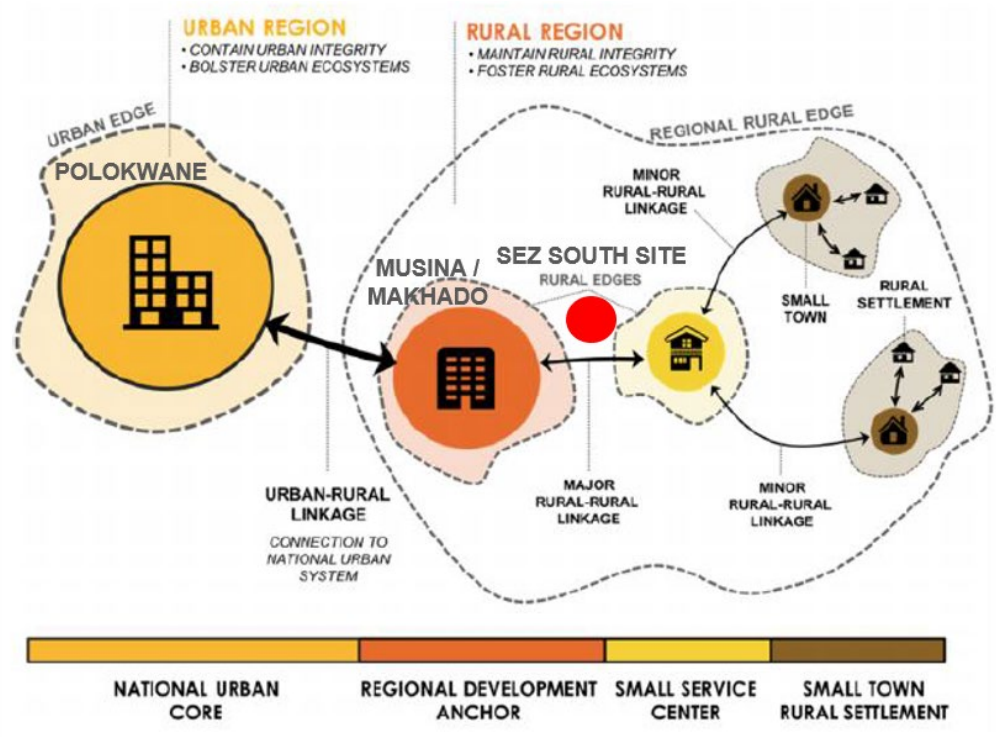


Figure 9-4: SEZ south site in relation to regional – rural development model

This linkages model to spatial planning aligns with the ordered provision of social services set out in the social service wheel, which suggests scale-appropriate social services delivery for each type/size of settlement.

Initial analysis of the human settlement component of this project revealed that, in terms of the Final Draft National SDF it would prove spatially prudent to locate human settlement at both, towns in order to bolster the economic importance of both regional anchors and also serve as motivation for the provision of larger, consolidated social services in these regional anchors and along the corridor.

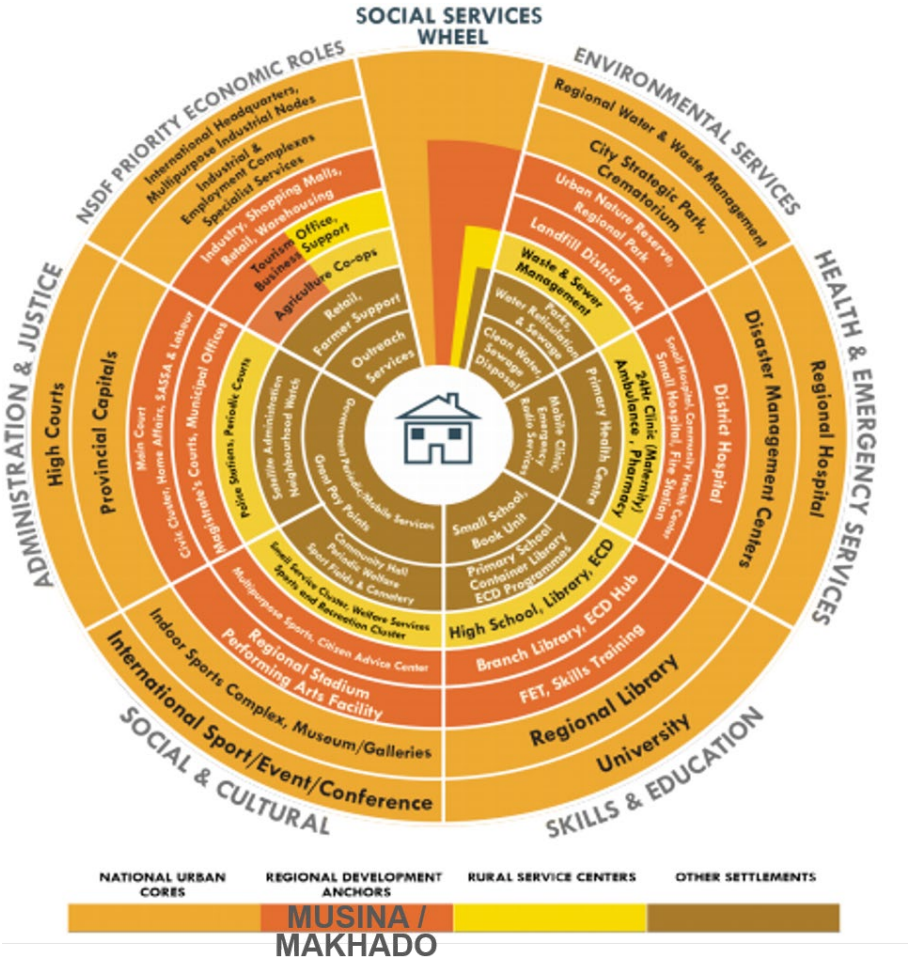


Figure 9-5: Wheel of social services
Source: Final Draft National SDF, 2019

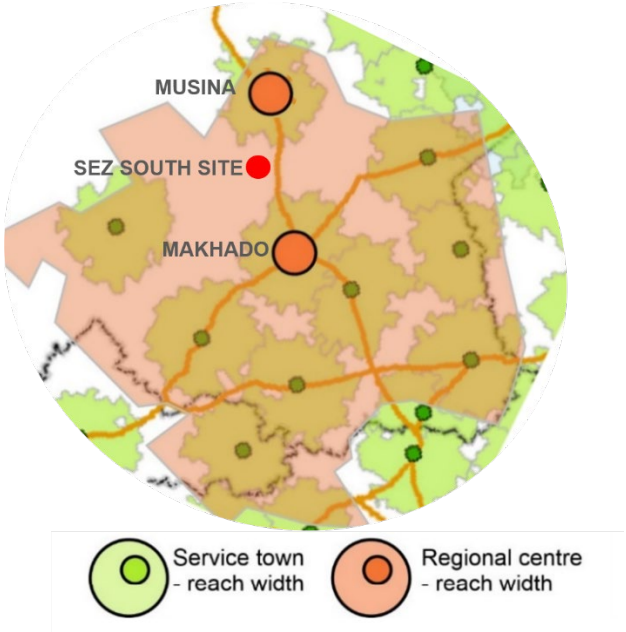


Figure 9-6: Towns service reach
Source: Final Draft National SDF, 2019

9.3 INFRASTRUCTURE CLUSTERING AND CROSS SUBSIDISING

The application properties are located adjacent to the N1 Highway Musina, and Makhado region is part of The Eastern Escarpment Transformation Corridor designated in the National Spatial Development Framework, 2019 (Final Draft) (National SDF). In terms of the National Development Plan, the northern mineral belt in Limpopo Province should be developed as a catalytic project for economic growth and job creation. In both the National Infrastructure Plan[25] and Limpopo Provincial Development Plan[26], a strategy is suggested, whereby economic transformation in the northern part of South Africa could be achieved in a more financially viable way by clustering infrastructure projects along the N1 Highway and Eastern Escarpment Transformation Corridor.

The South African Government adopted a National Infrastructure Plan (NIP) in 2012. The plan aims to transform the economic landscape while simultaneously creating a significant number of new jobs and strengthening the delivery of basic services. The plan also supports the integration of African economies.

The **Strategic Integrated Projects (SIPs)** include catalytic projects that can fast-track development and growth. Work is being aligned with key cross-cutting areas, namely human settlement planning and skills development. The proposed SEZ south site is a direct spatial application of the following SIPs:

- SIP 1: Unlocking the northern mineral belt with Waterberg as the catalyst.

On 20 February 2019, the Minister of Finance, Tito Mboweni, delivered the 2019 Budget Speech and confirmed the government's programme of action to achieve five presidential tasks set for Treasury[27]. The same tasks were again echoed in President Cyril Ramaphosa's State of the Nation Address in June 2019. The five tasks are:

- Accelerate inclusive economic growth and create jobs;
- Improve the education system and develop the skills that we need now and, in the future;
- Improve the conditions of life for all South Africans, especially the poor;
- Fight corruption and state capture; and
- Strengthen the capacity and capability of the state to address the needs of the people.

Inclusive economic growth cannot occur without transformative infrastructure upgrades that would make South Africa globally competitive.

[25] Presidential Infrastructure Co-ordinating Commission, National Infrastructure Plan, 2012
[26] Limpopo Provincial Government, Limpopo Development Plan, 2015-2019
[27] Treasury, Budget Speech, 20 February 2019

In the Industrial Policy Action Plan (IPAP), one of the most ambitious strategies by which Government is seeking to achieve radical economic transformation is through the re-industrialisation of South Africa. The SEZ programme is one of the projects by which the South African government can leverage proposals in the IPAP to boost the country's industrialisation and manufacturing capacity.

According to the Minister of Trade and Industry, Rob Davies, the proposed SEZ designation is in line with the Industrial Policy Action Plan (IPAP), which has identified SEZs as strategic interventions designed to accelerate economic development through greater investment, export volumes and job creation.

Key strategies in support of this include the rehabilitation of strategic infrastructure and the mobilisation of private sector investors to assist in the implementation of the strategic economic development projects.

Government's Infrastructure Fund (GIF) is set to receive a R100 billion over the next decade (2019-29) as the state steps up its infrastructure programme by partnering with the private sector[28]. The Presidential Infrastructure Coordination Commission will steer this endeavour, which is predominantly based on projects financed by blending public expenditure and private sector investment. The goal of the GIF is to improve the speed and quality of spending on infrastructure upgrades and to reduce the cost associated with delivering these large-scale schemes.

The SEZ south site can contribute positively to also address the region's demand for infrastructure services and service upgrades. These upgrades could possibly include:

- Upgrades to the N1 highway;
- Water bulk infrastructure;
- Railway upgrades,
- Human settlement and social services

Based on the concept of clustering of labour-intensive manufacturing activities related directly to minerals beneficiation, and the indirect increase in manufacturing and services sectors economy that will support these clusters, the proposed township can be advantageous.

9.4 INVESTMENT

The development of mines and beneficiation infrastructure are costly large scale, long term projects. Due to the large scale and complexity of the SEZ development proposal outlined in Section 6 of this report, it is expected that the SEZ will likely provide a significant number of employment opportunities over the medium term and significant direct and indirect full-time employment opportunities over the long term.

In Figure 9-7 below, the total investment for the SEZ south site and the human settlement component is estimated at R287.5 billion when fully developed.

[28] South African Government News Agency, 20 February 2019

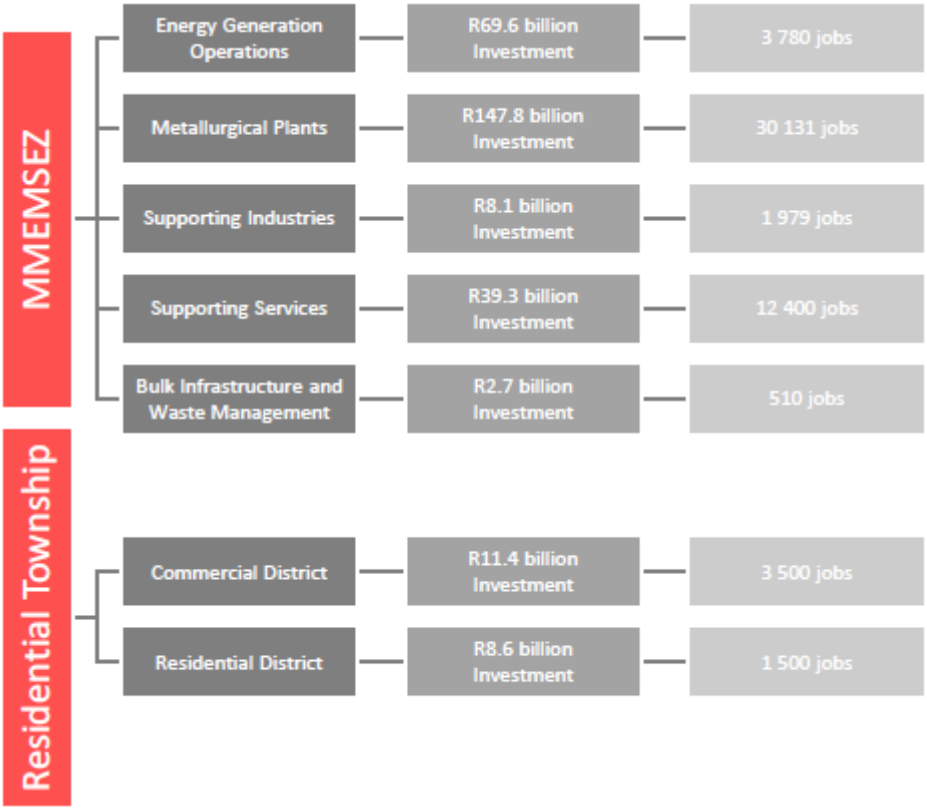
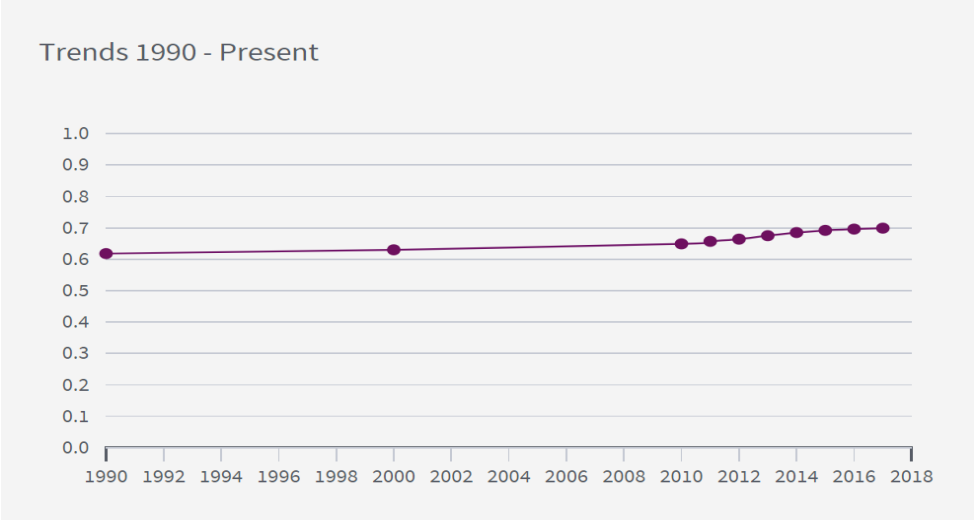


Figure 9-7: Overview of capital investment at SEZ south site
Source: Musina-Makhado SEZ Socio Economic Study, 2019

9.5 JOB CREATION AND HUMAN DEVELOPMENT

According to the United Nations Human Development Indicators (HDI)[29], South Africa has seen a 0.1 rise in human development since 1990 to 0.699, where 1.0 represents the pinnacle of human development. Despite this increase, income inequality in South Africa was estimated at 56.44%. It is also estimated that 16.4% of the working poor survives on US$3.10 (R44.44) a day.



[29] United Nations Development Programme, Human Development Reports, 2018

Figure 9-8: Human development plateauing Since 2015, UN HDI, 2018

The UN has estimated, in terms of work, employment and vulnerability, the rate of youth (15 to 24-year-olds) not in school or employment is 31.1%. As mentioned in Section 8.1, 70% of the Limpopo population is currently 0 to 14 years-old, which could cause a dramatic rise in the employment vulnerability rate if employment opportunities are not generated on a large (even unprecedented) scale within the next 14 years.

According to the employment creation estimate received from the licensee, 48 800 workers are required by operational entities within the SEZ at full operational status and 5 000 labourers in the residential township. A total of 53 800 labourers are required by the SEZ.

According to the draft internal masterplan generated by iXEngineers (September 2019) based on information provided by the licensee:

- 60% of executive positions are to be filled from the local labour market while the remaining 40% of positions are to be filled from the investor's labour market.
- 75% of professional positions are to be filled from the local labour market while the remaining 25% of positions are to be filled from the investor's labour market.
- 95% of ordinary staff positions are to be filled from the local labour market while the remaining 5% of positions are to be filled from the investor's labour market.

Job opportunities that will be created at the SEZ south site include:

- Electricians
- Welders
- Forklift, hoist, crane operators
- Signal command work
- Mechanics
- Climbing High Frame construction
- Furnace operators
- Lab technicians
- Logistics operators
- QC/QA inspectors
- Driver/loader
- Compressor operators
- Refrigeration operator
- Security personnel
- Rescue workers
- Hazardous materials operator

- Controllers
- Metallurgical technicians
- Mining technicians
- Environmental technicians/engineers
- Administrative staff.

In addition to the employment opportunities estimated for the SEZ south site and associated human settlements, it is implied that the semi-skilled to skilled labour provided at the SEZ could possibly involve some level of in-service vocational training and acquired skill-sets that would not be available in the Vhembe District if the SEZ were not developed.

9.6 STENGTHENING LIMPOPO'S INTERNATIONAL ECONOMIC PRESENCE

In this section of the report, the desirability of the proposed township and its development for heavy industrial use are motivated in light of the strategic opportunity the DTI has given the Limpopo Province to grow its economy, whilst functioning as a linchpin in the South African metals trade with Africa's Regional Economic Communities (RECs) and globally with other BRICS member states.

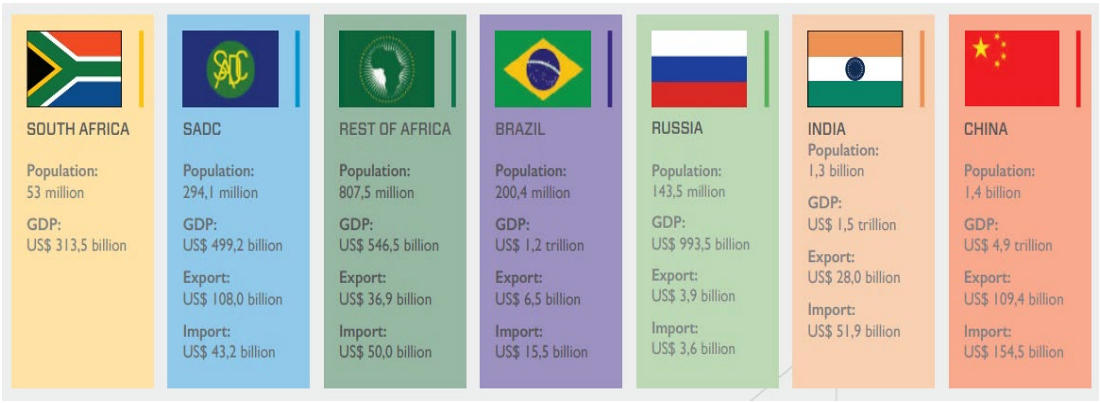


Figure 9-9: South Africa and BRICS member states
Source: Coega IDZ Brochure

The application properties are located in the most strategic geographical location, 50 km from the Beitbridge border post with Zimbabwe, which is considered the gateway to trade partners in the Southern African Development Community (SADC). Existing South African national road and rail infrastructure link the application properties to this gateway. A portion of the steel products output at the southern SEZ will be transported by rail through Zimbabwe to Zambia.

The Musina-Makhado SEZ northern site, which is earmarked for manufacturing, is located between Musina and the Zimbabwe border, and the intention is that a proportion of the metallurgical outputs beneficiated at the southern SEZ site (the subject of this township establishment application) will be processed further at this zone.

[redacted]LIMPOPO PROVINCE AND BRICS

BRICS is a group of states comprising the Federative Republic of Brazil, the Russian Federation, the Republic of India, the People's Republic of China and the Republic of South Africa. All BRICS states are also G20 member states. The G20 focuses on meetings between high representatives from the respective countries' ministerial departments to develop eco-political relations.

BRICS was formed in 2009 on the basis of the economic might of BRICS countries, their significance as one of the main driving forces of global economic development, their substantial population and abundant natural resources form the foundation of their influence on the international scene.

In 2013, BRICS accounted for about 27% of the global GDP (in terms of the purchasing power parity of their national currencies). The total BRICS population is 2.88 billion (42% of the entire global population), and the five countries cover 26% of the planet's land mass[30].

The value of metallurgical goods at the SEZ south site will contribute directly to strengthen BRICS trading capacity in a global economy. It is estimated that the value of total annual output of the SEZ south site, when developed to capacity, could total US $30.478 billion.

Project Type	Total Output Value	
	USD / Million	R / Million
Total Energy Generation Output	$3 636	R51 956
Total Metallurgical Plant Output	$20 756	R296 600
Total Supporting Industries Output	$1 315	R18 791
Total Supporting Services Output	$3 200	R45 727
Total Bulk Infrastructure Output	$171	R2 444
Total Commercial District Output	$900	R12 861
Total Residential District Output	$500	R7 145
Total MMEMSEZ Output	**$29 078**	**R415 518**
Total Residential Township Output	**$1 400**	**R20 006**
Total Output Value	**$30 478**	**R435 523**

Figure 9-10: Limpopo Province and BRICS

[30] History of BRICS, 2019, www.infobrics.org

[redacted] LIMPOPO PROVINCE AND AFRICAN REC'S

The African Union (AU) is a continental body consisting of the 55 member states that make up the countries of the African Continent. The AU was officially launched in July 2002 in Durban, South Africa, and has since conveyed several reforms and treaties that seek to promote unity and solidarity amongst African States. One of the chief goals of the AU is to coordinate and intensify co-operation for development among member states[31]. One of the mechanisms through which the AU is structuring regional economic co-operation is the system of African Regional Economic Communities (RECs).

As South Africa is the only African member state of BRICS and the G20, the proposed township and industrial land uses plays a strategic part in connecting the African Regional Economic Communities (RECs) in the African Union to the global market. According to information received from the licensee, approximately 10% of good produces at the SEZ south site will be exported to AU member states.

[31] The African Union, Overview and In a Nutshell, 2019, www.au.int

10 SEZ IMPACT ON REGIONAL PLANNING AND HUMAN SETTLEMENT

10.1 MUSINA-MAKHADO SEZ POTENTIAL POPULATION INCREASE

Based on the information provided in terms of the internal masterplan of the SEZ, it is estimated that when fully developed and operating at capacity, the SEZ will employ 53 800 people directly. This total number of employees has been stratified further according to high, medium and low-income categories, and the anticipated split between permanent (post-construction) South African and Chinese employees.

According to labour estimate in the Internal Masterplan, the income group and nationality split for full time employees is as per the table below.

Table 10-1: Musina-Makhado SEZ labour figures

EXECUTIVES (NO. AND %)		PROFESSIONALS (NO. AND %)		SKILLED/SEMI-SKILLED STAFF (NO. AND %)		TOTAL/ COUNTRY	AVERAGE (%)
6 994 (13%)		4 842 (9%)		41 964 (78%)		**53 800**	**100%**
85%	594	85%	4 115	95%	39 865	**44 574 South Africa**	**88%**
15%	105	15%	727	5%	2 099	**2 476 China**	**12%**

In order to determine the population size, the average household size of both nationalities was considered. According to the 2016 Community Survey[32], the average household size in Vhembe District is 3.7 persons per household, and this factor is applied to the above 88% South African labour component. According to ArcGIS[33], the national average household size in China is 3.1 persons per household, and this factor is applied to the above 12% expat labour component.

The number of households and the estimated population increase as a direct result of the Musina Makhado SEZ is calculated as per the table below.

Table 10-2: Musina-Makhado SEZ direct household and population increase

MUSINA-MAKHADO SEZ DIRECT	PROPORTION (%)/FACTOR	TOTAL		MUSINA-MAKHADO SEZ DIRECT	PROPORTION (%)/FACTOR	TOTAL
Total SEZ Employees		53 800				
High Income	13%	6 994				

[32] StatsSA, Community Survey Limpopo Province, 2016
[33] ArcGIS, China Average Household Size, 20 December 2019

MUSINA-MAKHADO SEZ DIRECT	PROPORTION (%)/FACTOR	TOTAL		MUSINA-MAKHADO SEZ DIRECT	PROPORTION (%)/FACTOR	TOTAL
Medium Income	9%	4 842				
Low Income	78%	41 964				
South African	88%			**International/ Expat**		
Assumption 1.5 SEZ Employees per Household				Assumption 1 SEZ Employee per Household		
High Income	13%	4 103		High Income	13%	2 448
Medium Income	9%	2 841		Medium Income	9%	1 695
Low Income	78%	24 619		Low Income	78%	14 687
Total Households		31 563				18 830
Avg. Vhembe District Household Size (applied to all)	3.7			Avg. Int. Household Size (applied to high and medium income only)	3.1	
				Assumption low income employees are single persons	1	
High Income	3.7	15 182		High Income	3.1	7 588
Medium Income	3.7	10 510		Medium Income	3.1	5 254
Low Income	3.7	91090		Low Income	1	14 687
Total Population		116 782				25 529
Total Households		31 563		Total Households (High and Medium Income)		4 143
				Total Single Person Households (Low Income)		14 687

MUSINA-MAKHADO SEZ DIRECT	PROPORTION (%)/FACTOR	TOTAL		MUSINA-MAKHADO SEZ DIRECT	PROPORTION (%)/FACTOR	TOTAL
Total combined direct population increase: 144 311 persons						
Total combined direct household increase: 50 393 (35 706 multiple households, 14 687 single households)						

10.2 MUSINA-MAKHADO SEZ HUMAN SETTLEMENT LAND REQUIREMENT

The following table shows further development of the population and household estimates outlined in the sections above for the purposes of a simplified estimation of the housing types that different income groups would occupy. The following assumptions were made:

- Low-income households: It is considered likely that households in this group will likely rent apartments in the social housing market, or buy apartments or residential units either through the Finance Linked Individual Subsidy Programme (FLISP, or GAP-housing), or apartments/units with entry-level finishes in the commercial housing market. Provision is not made for detached single family home in this category, which is characterised by low density sprawl, low housing yield and financially unsustainable infrastructure layout and maintenance cost. It is expected that a large number of low income international SEZ employees with permanent residency permits or long-stay visas would also reside in apartments either developed by SEZ investors, or the commercial rental market.
- Medium-income households: Households in this income group have larger or joint incomes, which would bring a larger variety of housing types within reach. Larger or joint incomes mean greater affordability, and the possibility of qualifying for a home loan. While a segment of this population might still opt for apartments with a higher level of finishes, it is assumed that single residential row housing could prove financially feasible for developers in the commercial market. In this segment, joint/multiple income households with lower means could qualify, together, for FLISP row housing.
- High-income households: One or two members in these households are likely to hold professional, managerial, or executive positions in the SEZ and in the professional and service sectors developing indirectly in the settlement as a result of the SEZ. The households would likely rent or buy housing in the commercial market and these units could range from luxury apartments and row houses, to detached or semi-detached single-family houses built by developers. It is likely that a segment of this income group would live in houses built to the owners' own design preferences.

The following table sets out the differentiation of housing typologies in relation to household income and the estimated number in each typology.

Table 10-3: Number of housing units per typology

RESIDENTIAL TYPOLOGY	DETACHED AND SEMI-DETACHED SINGLE-FAMILY HOUSES (NO. OF UNITS)	ROW HOUSES OR 20 du/ha UNITS (NO. OF UNITS)	APARTMENTS 100 du/ha (NO. OF UNITS)
Local households	4 103	2841	24 619
International households	2 448	1695	14 687
Total units	6 551	4535	39 306
Residential land requirement			
Size or density	500 m²	200	100 du/ha, four-storey walk-ups, avg. unit size 45 m²
Land area (stands only) ha	275	190	329
Land for units (res stands only)			
Housing units	6 551	4 535	32 900
Local total units	433	300	2 600
Residential land requirement			
Size or density	500 m²	200	100 du/ha, four-storey walk-ups, avg. unit size 45 m²
Land area (stands only) ha	21	15	26
Housing units	433	300	2 600
Total housing per typology	6 984	4 835	35 500
Total combined housing typologies	**47 320 units**		

Table 10-4: Land requirement per housing typology

DESCRIPTION	HIGH-INCOME HOUSING (ha)	MEDIUM-INCOME HOUSING (ha)	LOW-INCOME HOUSING (ha)
Land requirement per typology (residential stands only, excl. public roads) (ha)	296	205	355
Total land requirement (residential stands only, excl. public roads) (ha)	**856**		

In addition to the above land area dedicated to residential development, an integrated human settlement would also consist of non-residential land uses such as commercial, retail and light industrial uses, as well as public and social services, such as schools, clinics, potentially a public and private hospital, hard open spaces (squares and informal trade areas) and urban parks and recreation facilities.

In terms of the *Guidelines for Human Settlement Planning and Design*[34], and industry practice, approximately 70% of the land area of a human settlement is devoted to the above-mentioned residential and non-residential land uses and approximately 25% of land is utilised for movement networks, transportation facilities, water, sanitation, stormwater management systems and energy generation and distribution infrastructure. The remaining 5% of land is protected as open space systems, usually in the form of rivers, wetlands, ridges and dense vegetation or indigenous trees that benefit from statutory protection.

In Table 10-5, the utilisation of land for various uses is set out, for residential, non-residential and infrastructure uses.

Table 10-5: Land utilisation index

LAND UTILISATION INDEX	LAND USE CATEGORIES (ha)	TOTAL LAND AREA (ha)	PROPORTION OF SETTLEMENT
Residential	856	1 043	70%
Commercial, retail and industrial (1/4 of existing Louis Trichardt)	25		
Public and social services and parks	146		
Hard open spaces (squares and informal trade areas)	8		
Urban parks	8		
Movement networks	372	372	25%
Transport facilities			
Water			
Sanitation			
Stormwater management			
Energy			
Open space systems	75		5%
Total SEZ human settlement land area required		**1 491 ≈ 1 500**	**100%**

The land area required for the development of a human settlement, as a direct result of the Musina-Makhado SEZ, totals 1 500 ha. This calculation is based on a conservative estimate for a compact human settlement with a substantial high-density residential component similar to more urbanised areas of Gauteng Province.

[34] CSIR Building and Construction Technology, Adam, A Et. al, Guidelines for Human Settlement Planning and Design 2000

It must be noted the calculation does not allow for discounting existing human settlements and amenities.

10.3 MUSINA-MAKHADO SEZ HUMAN SETTLEMENT SOCIAL SERVICES AND URBAN AMENITIES LAND REQUIREMENTS

In addition to the residential, non-residential and infrastructure land areas required for a human settlement for the Musina-Makhado SEZ, a human settlement should also include the entire range of social services and community amenities for the 53 726 households in line with published *Guidelines for Human Settlement Planning and Design* and the guidelines for service delivery standards.

The table below provides a summary of the basic social services and community amenities needed for the 53 726 households of the Musina-Makhado SEZ settlement. Estimates are shown for all levels of education and healthcare, emergency response services, parks and recreation facilities and complimentary government land uses. A total of 189 facilities may be required (excluding public parks and squares, sport fields, and play spaces), and a land area of 284 ha (all uses).

The estimated land area required for social services and urban amenity equates to 18% of the human settlement residential/non-residential/infrastructure land area.

Table 10-6: Musina Makhado SEZ Human Settlement Social Services and Community Amenities 53 726 Households

TYPE OF USE	NUMBER OF FACILITIES	LAND REQUIRED (ha)
Creche	37	5.4822
Grade R (ECD)	4	1.2000
Primary Schools	46	127.9190
Secondary Schools	18	87.6861
Colleges	1	4.8000
Religious	0	0.0000
Clinics	37	7.3097
Hospital	8	4.0950
Library	4	0.5480
Community Centre	18	9.1340
Fire and EMS Station	2	0.5480
Police Station	2	0.9134

TYPE OF USE	NUMBER OF FACILITIES	LAND REQUIRED (ha)
Home Affairs Office	1	0.2000
Thusong Centre	2	0.3000
Community Hall	0	0.0000
Post Office	2	0.6000
Cemetery	7	31.5193
Tertiary Facility	0	0.0000
R&D Site	1	2.0000
Recreational Facilities		
Public Parks and Squares		106
Sports Fields		
Children's Play Areas		
Total	189	284

10.4 Musina-Makhado SEZ Human Settlement subsidised Housing and INFRASTRUCTURE

Table 10-7: Local Housing and SEZ Township Infrastructure

COMPONENT OF SEZ HUMAN SETTLEMENT	UNIT
Local Employee's Low-Income Housing Units	6 551 Units
Township Infrastructure*	449 Erven (low income housing and social services/amenity stands)
International Low-Income Housing Infrastructure ‡	393

10.5 MUSINA-MAKHADO SEZ HUMAN SETTLEMENT LOCALITY OPTIONS

The section below provides an indicative outline of strategic options for human settlement development in support of the SEZ.

[redacted] SEZ HUMAN SETTLEMENT OPTION 1

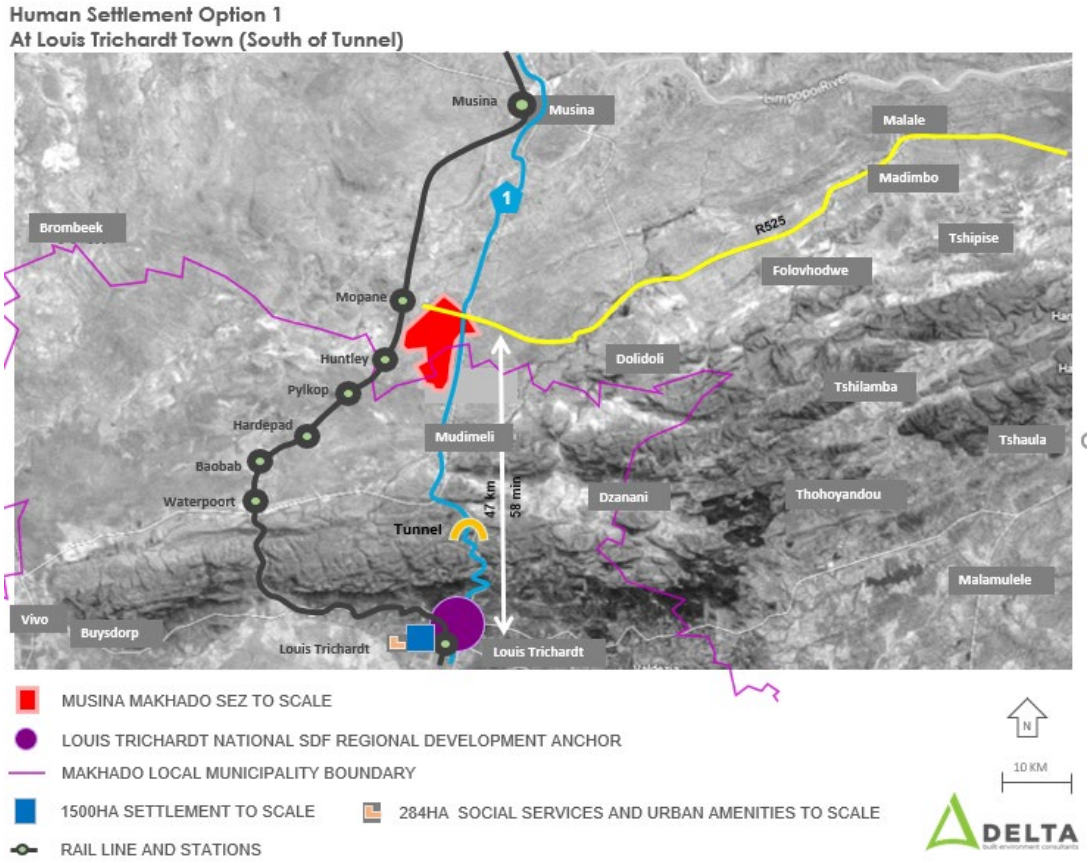


Figure 10-1: Musina-Makhado SEZ human settlement Option 1

Table 10-8: Musina-Makhado SEZ human settlement Option 1 SWOT

STRATEGIC ASPECT	SUMMARY
Strengths	Strengthening the Louis Trichardt regional anchor. Transit-oriented design around existing rail station. Triggers provision of larger social services and urban amenities. Integration of new and old urban fabric. Climate more temperate than north of Southpansberg. Makhado settlements north of mountain not integrated into new development.
Weaknesses	Mass commute through bottle-neck tunnel likely reach LOS saturation point in long term. Settlement entirely benefits Makhado LM.
Opportunities	Catalyst to develop the town of 25 360 into fully-fledged city with population of 196 692.
Threats	Sprawl and informal settlements likely to continue north of mountain, closer to SEZ. Traffic conditions through tunnel will hamper transit efficiency. Unplanned market-driven development at R525 and N1 interchange.

[redacted] SEZ HUMAN SETTLEMENT OPTION 2

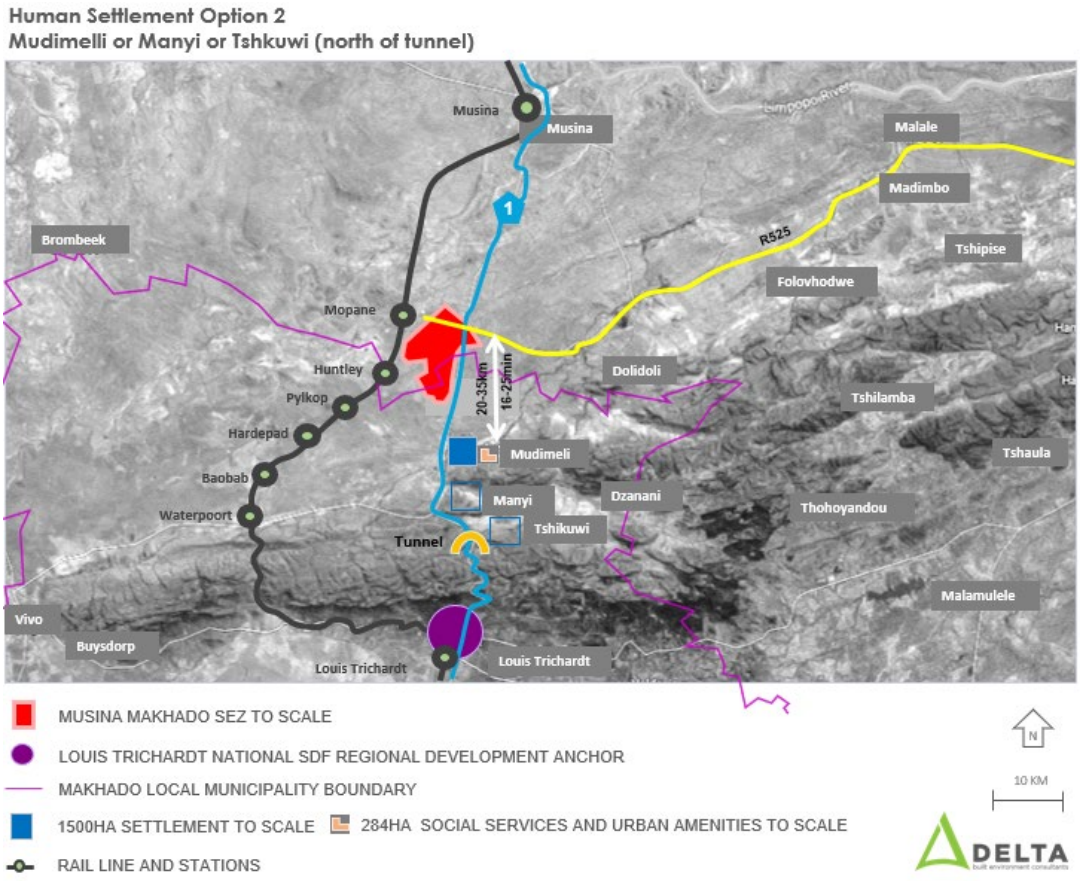


Figure 10-2: Musina-Makhado SEZ human settlement Option 2

Table 10-9: Musina-Makhado SEZ human settlement Option 2 SWOT

STRATEGIC ASPECT	SUMMARY

Strengths	Development and integration of Makhado settlements in the valleys north of Louis Trichardt. Mudimeli is N1 adjacent with short 16-25 min. travel distances. Compact urban form ideal to kerb sprawl and modernise area.
Weaknesses	Further degradation of the Thathe Vondo Forest if new development sprawls up the Holy Forest valley. Duplication of social services rather than consolidation into larger and more valuable centralised services. Settlement entirely benefits Makhado LM.
Opportunities	Mudimelli located in ESA of Soutpansberg, but not as environmentally sensitive as Manyi and Tshikuwi valleys higher up the mountain range.
Threats	Manyi and Tshikuwi both located in CBA2 where development is not supported. Unplanned market-driven development at R525 and N1 interchange.

[redacted] SEZ HUMAN SETTLEMENT OPTION 3

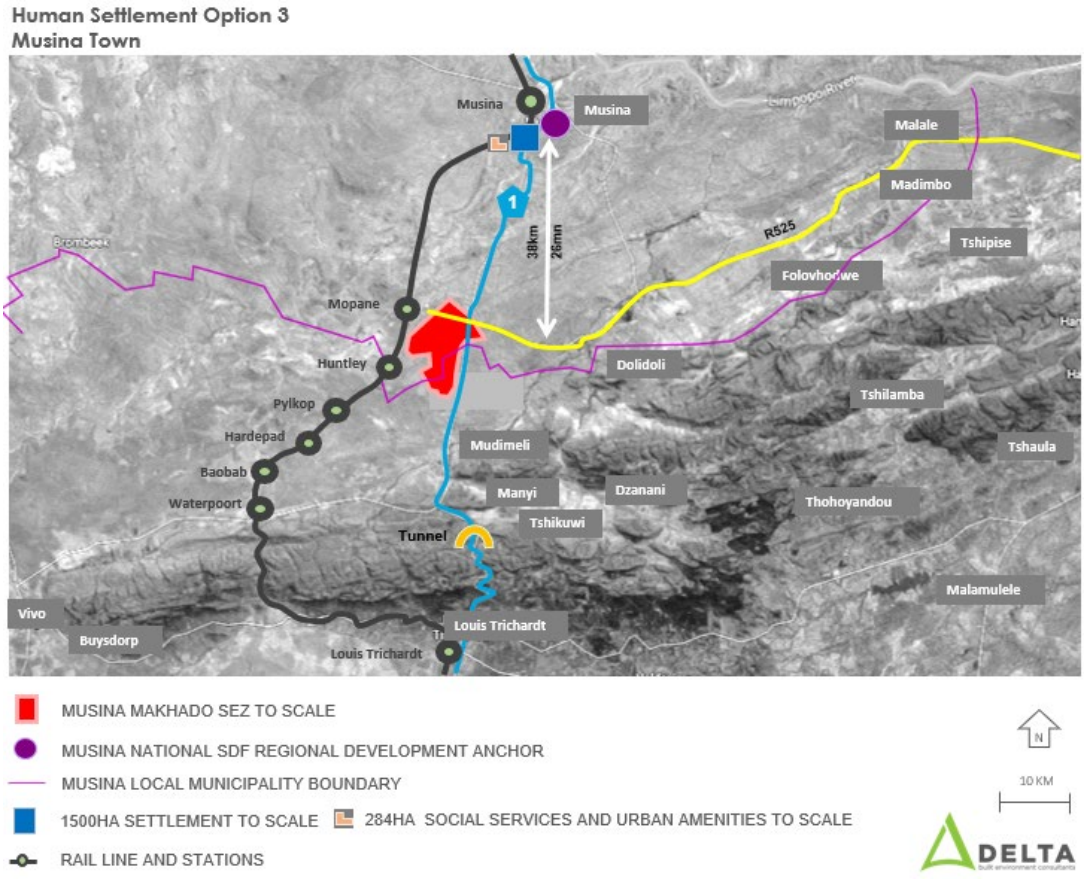


Figure 10-3: Musina-Makhado SEZ human settlement Option 3

Table 10-10: Musina-Makhado SEZ human settlement Option 3 SWOT

STRATEGIC ASPECT	SUMMARY

Strengths	Strengthening the Musina regional anchor. Transit-oriented design around existing rail station. Triggers provision of larger social services and urban amenities. Integration of new and old urban fabric.
Weaknesses	Urban settlement development in Limpopo Valley in a CBA 1 and 2. Environmental impact on highest order tributaries of the Limpopo River and catchment area. Settlement entirely benefits Musina LM.
Opportunities	Creating sense of place in a settlement with frontier town quality lacking in character. Consolidation into larger and more valuable centralised services.
Threats	Extreme summer temperatures and climate change could render locality uninhabitable in the future. Lack of drinking water and development and sprawl leading to rapid desertification. Unplanned market-driven development at R525 and N1 interchange.

[redacted] SEZ HUMAN SETTLEMENT OPTION 4

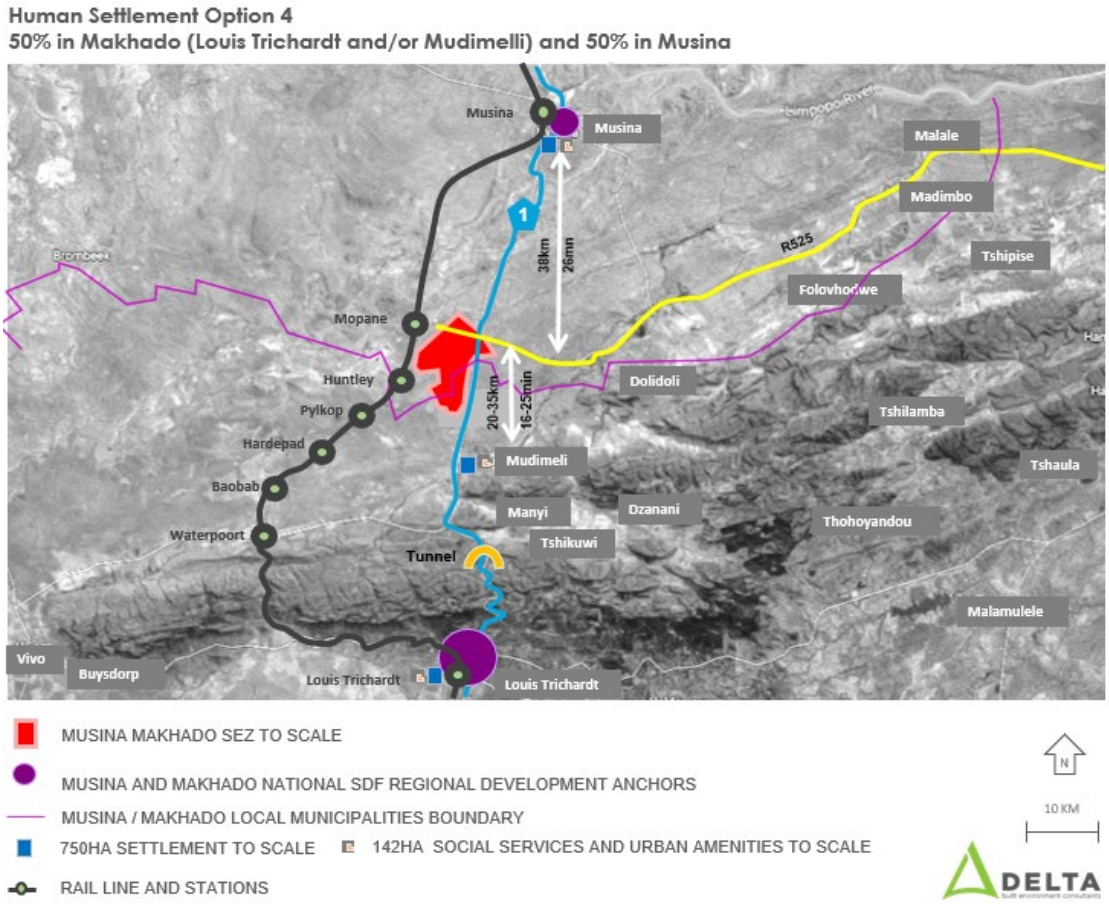


Figure 10-4: Musina-Makhado SEZ human settlement Option 4

Table 10-11: Musina-Makhado SEZ human settlement Option 4 SWOT

STRATEGIC ASPECT	SUMMARY
Strengths	An equitable solution that divides settlement, investment, and increased population benefits evenly between Musina and Makhado LM.

Weaknesses	Duplication of social services rather than consolidation into larger, more valuable services.
Opportunities	Opportunity to re-settle Mopane residents in either Musina or Makhado, closest to home hamlet.
Threats	Unplanned market-driven development at R525 and N1 interchange.

[redacted] SEZ HUMAN SETTLEMENT OPTION 5

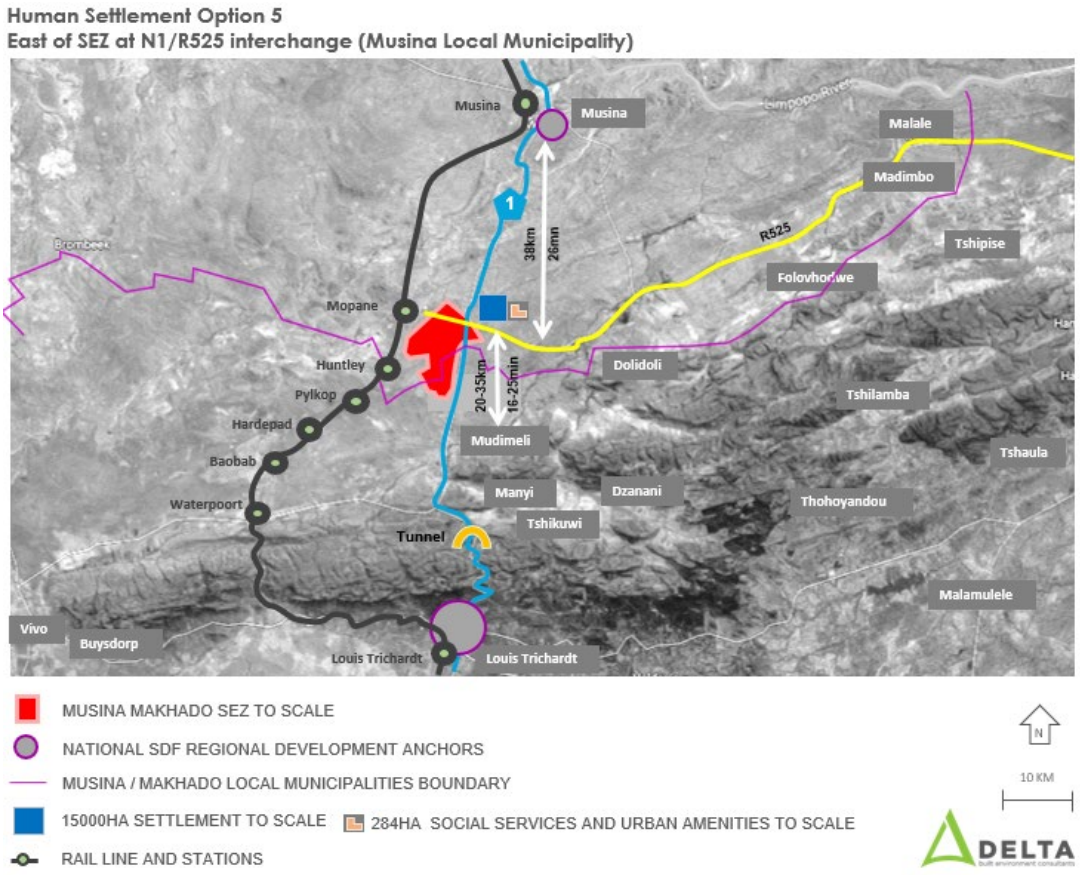


Figure 10-5: Musina-Makhado SEZ human settlement Option 5

Table 10-12: Musina-Makhado SEZ human settlement Option 5 SWOT

STRATEGIC ASPECT	SUMMARY
Strengths	Locational benefit closest to SEZ. Closest locality to resettle Mopane residents from nearby hamlet. Prevailing wind direction is north eastward, away from settlement.
Weaknesses	New mining-based settlements not supported in NSDF. Disregard of NSDF aims to enhance regional development anchors (Musina and

	Louis Trichardt). NSDF Regional-Rural Development model not achieved as rural settlements are 30 km away. Settlement entirely benefits Musina LM.
Opportunities	Opportunity to plan a settlement at the N1/R525 interchange instead of unplanned market-driven ad hoc development.
Threats	New settlement directly challenges livelihood and commercial sustainability of both Musina and Louis Trichardt town centres. Changeable or often recurring wind direction changes from the SEZ towards the settlement could prove hazardous for human settlement. Human health risks associated with air borne pollution from SEZ emissions. Dust and soot from ultra-scale heavy and noxious industrial activity 2 km away from settlement.

[redacted] SEZ HUMAN SETTLEMENT OPTION 6

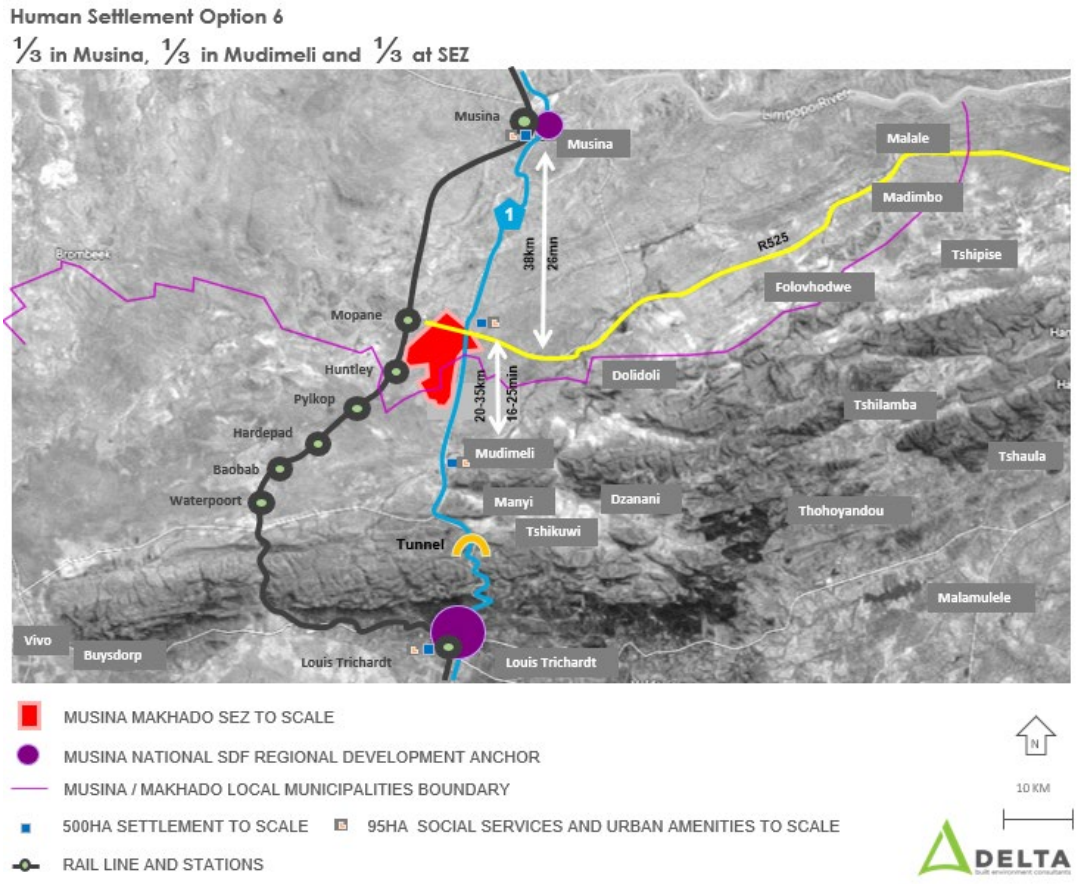


Figure 10-6: Musina-Makhado SEZ human settlement Option 6

Table 10-13: Musina-Makhado SEZ human settlement Option 6 SWOT

STRATEGIC ASPECT	SUMMARY
Strengths	Evenly distributed settlements with third in Musina town, third at the N1/R525 interchange and third at Makhado valley.
Weaknesses	Triplicate and minor order social services instead of consolidation that will see larger, higher value social services and urban amenities investment that will benefit Vhembe District. NSDF Regional-Rural

	Development model not achieved at N1/R525 interchange locality, as Dolidoli is located 30 km away.
Opportunities	Closest locality to resettle Mopane residents from nearby hamlet.
Threats	Unplanned market-driven ad hoc development encouraged at N1/R525 interchange. Air quality and human health concerns at N1/R525 settlement.

11 PLANNING IMPACT ASSESSMENT RATING

The spatial and regional planning impact of the proposed development is assessed in terms of the criteria in the following table.

Table 11-1: Planning impact assessment

PLANNING PHASE								
SITE-SPECIFIC IMPACT								
Aspect	**Mitigation Measures**	**Status**	**Mitigation**	**Intensity (I)**	**Extent (E)**	**Duration (D)**	**Probability (P)**	**Significance (I+E+D)xP**
Impact of proposed land use on the property tenure of restituted owners	Tenure and lease arrangement between the parties must be implemented in accordance with the terms of the lease agreeement and appropriate re-settlement plan. The land develoment exit strategy and arrangements should be formalised.	-	Without	16	4	4	1	24
		-	With	8	4	4	1	16
Aspect	**Mitigation Measures**	**Status**	**Mitigation**	**Intensity (I)**	**Extent (E)**	**Duration (D)**	**Probability (P)**	**Significance (I+E+D)xP**
Authority to act in terms of the land lease and tenure agreements and any other land use.	Legally compliant company resolution and power of attorney should be in place. Department of Mineral Resources issuing of prospecting permits to third parties must be confimred. All servitudes on the subject property must be	-	Without	8	2	3	0,75	9,75
		-	With	8	2	3	0,1	1,3
Aspect	**Mitigation Measures**	**Status**	**Mitigation**	**Intensity (I)**	**Extent (E)**	**Duration (D)**	**Probability (P)**	**Significance (I+E+D)xP**
Proposed zoning	Correct zoning of the propsed development must conform with the land use management scheme of municipality.	-	Without	8	3	2	0,2	2,6
		-	With	1	3	1	0,1	0,5

Aspect	Mitigation Measures	Status	Mitigation	Intensity (I)	Extent (E)	Duration (D)	Probability (P)	Significance (I+E+D)xP
Heritage resoures	All heritage resources must be addressed legally and protected and managed in accordance with the law.	-	Without	8	1	5	1	14
		-	With	2	1	2	0,5	2,5
Aspect	Mitigation Measures	Status	Mitigation	Intensity (I)	Extent (E)	Duration (D)	Probability (P)	Significance (I+E+D)xP
Non-heritage resources	All residential non-heritage resources must be handled in terms of an approved site development plan and resettlement plan	-	Without	8	3	5	1	16
		-	With	2	1	2	0,5	2,5
Aspect	Mitigation Measures	Status	Mitigation	Intensity (I)	Extent (E)	Duration (D)	Probability (P)	Significance (I+E+D)xP
Change of agricultural land	The sustainable end land use must be determined and agreed.	-	Without	16	3	5	1	24
		-	With	16	3	4	1	23
Aspect	Mitigation Measures	Status	Mitigation	Intensity (I)	Extent (E)	Duration (D)	Probability (P)	Significance (I+E+D)xP
Critical biodiversity area 2	Incorporation of naturla elements found on site as far as practicable and assign appropriate zoning to the remaining undesturbed natural areas and measures to protect such areas.	-	Without	16	3	5	1	24
		-	With	16	3	5	0,75	18

Aspect	Mitigation Measures	Status	Mitigation	Intensity (I)	Extent (E)	Duration (D)	Probability (P)	Significance (I+E+D)xP
Soil and land capability	A sustainable land end state must be determined and agreed interms of an approved rehabilitation plan, and alternative uses for disturbed areas.	-	Without	16	1	4	1	21
		-	With	16	1	4	0,75	15,75

Aspect	Mitigation Measures	Status	Mitigation	Intensity (I)	Extent (E)	Duration (D)	Probability (P)	Significance (I+E+D)xP
Flood lines, rivers and buffers	Developoment should be located outside of river and wetland buffers and managed in accordance with the law.	-	Without	16	3	5	1	24
		-	With	16	3	5	0,5	12

DEVELOPMENT PROPOSAL

Aspect	Mitigation Measures	Status	Mitigation	Intensity (I)	Extent (E)	Duration (D)	Probability (P)	Significance (I+E+D)xP
Heavy industriual land uses	Land uses must be managed in terms of the zoning and environmental management plan	-	Without	16	1	5	1	22
		-	With	8	1	5	0,75	10,5

Aspect	Mitigation Measures	Status	Mitigation	Intensity (I)	Extent (E)	Duration (D)	Probability (P)	Significance (I+E+D)xP
The physical scale and land use intensity of development	Limiting the scale of the development and intensity of noxious industrial uses directly influences the impact of the development	-	Without	16	1	5	1	22
		-	With	16	1	5	0,75	16,5

Aspect	Mitigation Measures	Status	Mitigation	Intensity (I)	Extent (E)	Duration (D)	Probability (P)	Significance (I+E+D)xP
Spatial Planning and Land Use Managament Act Priciple 1: Spatial Justice	Ensure that the land, socio-economic and infratsructural improvement benefits materialise for the local community	-	Without	16	4	5	1	25
		-	With	2	3	5	0,75	7,5

Aspect	Mitigation Measures	Status	Mitigation	Intensity (I)	Extent (E)	Duration (D)	Probability (P)	Significance (I+E+D)xP
Spatial Planning and Land Use Managament Act Priciple 2: Spatial Sustainability	Ensure that the development is within the fiscal, institutional and administartive means of the republic. Implement and implement the enviromental management plan.	-	Without	16	4	5	1	25
		-	With	8	4	5	1	17

Aspect	Mitigation Measures	Status	Mitigation	Intensity (I)	Extent (E)	Duration (D)	Probability (P)	Significance (I+E+D)xP
Spatial Planning and Land Use Managament Act Priciple 3: Efficiency	Ensure in trms of the develpoment management plna, and environmental management plans that: i) optimises the use of existing resources and infrastructure, ii) decision-making procedures that minimise negative financial, social, economic or environmental impact, iii) development applilcation procudures that are efficient and streamlined with timeframes adhered to by all	-	Without	16	4	5	1	25
		-	With	8	4	5	0,75	12,75

Aspect	Mitigation Measures	Status	Mitigation	Intensity (I)	Extent (E)	Duration (D)	Probability (P)	Significance (I+E+D)xP
Spatial Planning and Land Use Managament Act Priciple 4: Spatial Resilience	Ensuring diversity in terms of inductrial activity in line with and agreed develpoment plan, that ensures enabling oppertunities for the regional community.	-	Without	16	4	5	1	25
		-	With	8	4	5	0,75	12,75
Aspect	**Mitigation Measures**	**Status**	**Mitigation**	**Intensity (I)**	**Extent (E)**	**Duration (D)**	**Probability (P)**	**Significance (I+E+D)xP**
Spatial Planning and Land Use Managament Act Priciple 5: Good administration	Ensure compliance with SDF, IDP, land use schemes and other plans, and timous determination of land use and building plan applications, in accordance with national codes. And	-	Without	16	3	5	1	24
		-	With	2	3	5	0,75	7,5
IMPACT ON SUROUNDING LAND USES								
Aspect	**Mitigation Measures**	**Status**	**Mitigation**	**Intensity (I)**	**Extent (E)**	**Duration (D)**	**Probability (P)**	**Significance (I+E+D)xP**
Surrounding land use inlcuding agriculture, game farming, protected areas, biospehere	Manage the land use in accordance with the spatial development framework and zoning plans as well as the applicatble environmental management plans	-	Without	16	4	5	1	25
		-	With	8	4	5	1	17
Need for Development								
Aspect	**Mitigation Measures**	**Status**	**Mitigation**	**Intensity (I)**	**Extent (E)**	**Duration (D)**	**Probability (P)**	**Significance (I+E+D)xP**
Socio-economic development	To implement the NDP in terms of mineral beneficiation, re-industrialisation and other rleveant strategies and plans.	-	Without	16	3	5	1	24
		-	With	2	3	5	0,75	7,5

Desirability of Development								
Aspect	**Mitigation Measures**	**Status**	**Mitigation**	**Intensity (I)**	**Extent (E)**	**Duration (D)**	**Probability (P)**	**Significance (I+E+D)xP**
Desirability of Development	To implement the development in accordacne with approved plans, land use management and environemtal management policies and plans. Ensure that the planned benefits must acrue to the national economy in accordance with the development plan. To maximise the	-	Without	16	4	5	1	25
		-	With	8	4	5	1	17
Regional planning and human settlement								
Aspect	**Mitigation Measures**	**Status**	**Mitigation**	**Intensity (I)**	**Extent (E)**	**Duration (D)**	**Probability (P)**	**Significance (I+E+D)xP**
Regional spatial and infrastructure planning and human settlement	Ensure plan alignment of the development plans of the respective pheres of governement in order to ensure a well-managed implementation of the planned	-	Without	16	5	5	1	26
		-	With	8	5	4	0,5	8,5

12 CONCLUSION

The proposed SEZ is the first of its type in the Limpopo province. However, there are nine other SEZs in South Africa that are in a planning and operational phase.

The SEZ will function as a geographically designated area of the Limpopo Province set aside for specifically targeted economic activities to promote national economic growth and export.

This SEZ would require an initial township establishment application that will form the outline of the SEZ and establish the heavy industrial land use rights on the land within the township boundary. Once the outline planning permission is in place, detailed phased planning applications and environmental impact assessments will follow for each development phase within the SEZ.

The mitigation of all the environmental impacts on site will form a significant part of the consideration of environmental authorisation applications submitted for each of the heavy industrial plant phases inside the SEZ. From an environmental impact perspective, the development will require extensive on-site and offsite mitigation measures.

The SDF of both municipalities will have to be further amended and expanded to include the SEZ and be adopted as statutory documents. Proposals to amend the SDF will be subject to a public participation process and the public will be given the opportunity to review and comment on the draft SDF before the final SDF is put forward for adoption. The land uses proposed in the approved SDF for this location of the municipality will then be incorporated into the municipality's planning scheme.

The municipal land use scheme of both municipalities makes provision for "Special" zoning and all of the zoning proposed in the basket of rights are listed in both planning schemes.

A strategic opportunity exists for the local municipality to capitalise on the infrastructure improvements associated with this development. Providing in the energy and water demand of the SEZ will require extensive upgrades to the bulk provision of these services, which could result in inter-regional, international, services agreements.

In light of the benefits accrued for the national economy and the regional population, the proposal is considered both necessary and desirable from a socio-economic, job-creation and strategic clustering point of view. However, the environmental impact of this development would require substantial mitigation at national level.

The beneficiation of resources will not only add to their export value, which will enhance Limpopo and South Africa's GDP, but the strategic location of this project

will bring much needed economic relief to the residents of the second poorest province in South Africa.

The SEZ development will contribute to the local and national economy of South Africa and improve the investment character of the area, as well as create local job opportunities in minerals and energy beneficiation activities, related heavy and light industrial activity, transport and logistics operations, and government, administrative and management activities provided by the investors that will settle there over the long term.

The essence of the Musina-Makhado SEZ south site is a significant catalyst in the materialisation of the Eastern Escarpment National Transformation Corridor.

The job creation initiated by the SEZ deliverables will ensure a reduced unemployment rate coupled with a more economically active population within Musina and Makhado and the surrounding region. A more economically active population results in more business growth and sustainability in the area. This focus on local content development will result in the empowerment of local entrepreneurs, equating to community sustainable development.

On an administrative and management level the SEZ will require significant efforts in the planning and management of development plans and land use applications to make this development successful.

The potential catalytic impact of the proposed development on set transformation goals, to achieve radical economic transformation, within this area is considered positive.

However, the quantative and qualitative benefits of the SEZ must be maximised, not just optimised, for the national economy and be tangible for the regional community, in order to increase the desirability of the development in lieu of the undeniable impact the development will have on the environment and surrounding land use.

The sustainable end land use, after the life cycle of the proposed development, should be determined to ascertain the long-term impact of the development and rehabilitation cost and effort needed afterwards to justify the development.

Given the significant impact on the environment this development could only become desirable and gain the necessary support if the socio-economic and infrastructure benefits accrued can be demonstrated clearly to the general public and to the regional community which will be impacted greatly by the proposed development.

APPENDIX A: TITLE DEEDS

APPENDIX B: PROOF OF LAND CLAIM SETTLEMENT

APPENDIX C: POWER OF ATTORNEY AND COMPANY RESOLUTION

APPENDIX D: CONVEYANCER REPORT

APPENDIX E: LAND SURVEYOR CERTIFICATE

APPENDIX F: ZONING CERTIFICATE

APPENDIX G: TOWNSHIP LAYOUT PLANS

APPENDIX H: FLOODLINE RELINEATION REPORT

APPENDIX I: GEOLOGICAL STUDY

APPENDIX J: CONCEPT INTERNAL MASTERPLAN

APPENDIX K: CONCEPT INTERNAL MASTERPLAN