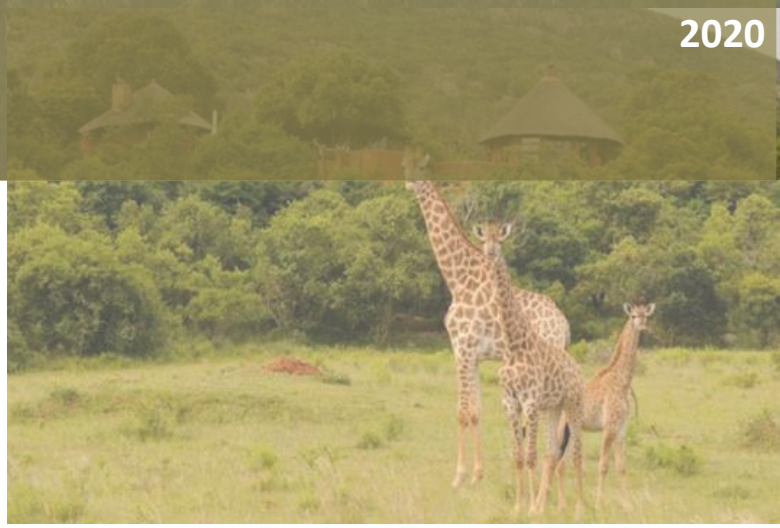
IMPACT STUDY ON TOURISM AND FOOD SECURITY FOR MUSINA-MAKHADO SEZ

First Draft Report

2020



URBAN-ECON
Development Economists

EXECUTIVE SUMMARY

TBC

Prepared by:	Urban-Econ Development Economists Pty (Ltd)
Contact Person	**Wynand Myburgh**
Contact details:	Tel: +27 12 342 8686 Email: wynand@urban-econ.com Lake View Office Park, 137 Muckleneuk Street, Brooklyn, Pretoria, 0081

Prepared by:	Musina Makhado Special Economic Zone
Contact Person	**Richard Zitha**
Contact details:	Tel: 071 391 8188 Email: Richard.Zitha@lieda.co.za 29 Market Street Polokwane 0699

Table of Contents

List of Figures

List of Tables

List of Abbreviations

Abbreviation	Description
CBNRM	Community-Based Natural Resource Management
CEO	Chief Executive Officer
CoAL	Coal of Africa
DGR	Dinokeng Game Reserve
DM	District Municipality
DTI	Department of Trade and Industry
GDED	Gauteng Department of Economic Development
GMTFCA	Greater Mapungubwe Transfrontier Conservation Area
ICT	Information and Communication Technology
IDP	Integrated Development Plan
KNP	Kruger National Park
LED	Local Economic Development
LEDA	Limpopo Economic Development Agency
LEDET	Limpopo Department of Economic Development, Environment & Tourism
LM	Local Municipality
MCL	Mapungubwe cultural landscape
MCM	Makhado Coal Mine
Mct	Million carats
MET	Namibia's Ministry of Environment and Tourism
MICE	Meetings, Incentives, Conferences and Exhibition
MLMIDP	Makhado Local Municipality Integrated Development Plan
MNP	Mapungubwe National Park
MNR	Musina Nature Reserve

Abbreviation	Description
MOU	Memorandums of Understandings
NDP	National Development Plan
NGOs	Non-Governmental Organisations
NRR	Nzhelele Nature Reserve
PPP	Public-Private Partnership
SADC	Southern African Development Community
SAHRA	South African Heritage Resources Agency
SANParks	South African National Parks
SANRAL	South African National Roads Agency Limited
SDF	Spatial Development Frameworks
SDI	Spatial Development Initiative
SEZ	Special Economic Zones
SMMEs	Small, Medium and Micro-sized Enterprises
VBR	Vhembe Biosphere Reserve
VDMIDP	Vhembe District Municipality Integrated Development Plan
VLNR	Venetia Limpopo Nature Reserve

1 SPECIALISTS ON REPORT

1.1 Tourism Specialist: Dr. Kiera Schoeman

Date of Birth: 23 September 1989

Profession: Manager Tourism Planning and Research Unit

Specialisation: Senior Tourism Specialist

Years of Experience: 10 Years

Education:	
North West University - 2010	BA (Psychology and Tourism)
North West University - 2011	BAHons (Tourism Management)
North West University - 2012	MA (Tourism Management)
North West University - 2015	PhD (Tourism Management)
Professional Membership:	
Marketing Association of South Africa	
Tourism and Protected Areas Specialist Group (TAPAS) Member	

Work Experience:

2010-2012	North-West University: Senior Research Assistant for TREES (Tourism Research in Economic Environs and Society)
2013-2014	University of South Africa: Tourism Lecturer
2015-current	Urban-Econ: Tourism Research Specialist

Biography:

Dr. Kiéra Schoeman is the manager of the Tourism Research Specialist unit at Urban-Econ Development Economists. She completed her Doctor of Philosophy in Tourism Management through the North-West University during 2015. Kiéra has attended various national and international conferences where she presented papers focusing on the tourism experience. She was invited by the National Department of Tourism to form part of a panel discussion and give a workshop on The Development of a Basic Tourism Plan at the bi-annual Local Government Tourism Conference during 2017. In 2018 Kiera was a key speaker at the annual Attractions Africa Conference and Limpopo Travel Fair where she presented on Emerging trends in the Tourism Sector.

She served as a Lilizela Tourism Judge (South African Tourism) for the category Visitor Experience during the past three years and started the Tourism Talk Initiative. Her work as a Tourism Research Specialist focus on a number of tourism attraction, marketing, branding, planning, research and development studies. She has led and project-managed over 50 tourism projects across South Africa, Botswana, Namibia, Lesotho and Zambia. These projects include the State of Tourism Report, the Indi-Atlantic Tourism Route Supply and Demand Analysis, the B-BBEE Baseline in Tourism Study, the Transformation Strategy, which were all commissioned by the National Department of Tourism, the South African Tourism Grading Perception Study, the Northern Cape Coastal and Marine Tourism Strategy, the SAFCOL Eco-Tourism Master Plan and a number of other tourism plans and strategies.

1.2 Agriculture Specialist: Vimbai Maronga

Date of Birth: 13 May 1984

Profession: Development Economist

Specialisation: Agricultural Economics

Years of Experience: 10 Years

Education:	
Fort Hare University - 2008	BSc Agricultural Economics
Fort Hare University - 2010	BCom Honours in Economics: Financial Markets
University of South Africa - 2011	NQF Level 5: Programme in Mathematics Teaching (FET Band)
Fort Hare University - 2015	MCom Economics
Courses:	
Certificate: Turn Down the Heat: From Climate Science to Action; Coursera authorised by The World Bank - 2016	
Certificate: Financing for Development; The World Bank through edX - 2017	
Certificate: Entire MBA Course in 1 through Udemy - 2018	
Certificate: The Complete Financial Analyst Course through Udemy - 2018	
Certificate: The Complete Financial Analyst Training and Investing Course through Udemy - 2018	
Certificate: Fundamentals of Project Management through Philanthropy University-2019	
Certificate: Planning for Monitoring and Evaluation through Philanthropy University-2019	

Work Experience:

2016- Current	Development Economist, Urban-Econ Development Economists
2009- 2016	Master Maths: East London, Mathematics and Physical Science Tutor and Educator
2008- 2009	Home2Home Lodge and STP HRD Consultants, Administration Officer

Key Qualification:

Vimbai Maronga obtained her BSc degree majoring in Agricultural Economics from the University of Fort Hare in 2008. She went on to obtain a BCom Honours degree in Economics specialising in Financial Markets. Her research thesis was on the Implications of Globalisation on Economic Growth in South Africa. She then proceeded to complete her Master of Commerce in Economics. Vimbai has extensive experience in training and skills development, having worked after graduation as a mathematics tutor and educator for a firm in East London. Since joining Urban-Econ she has been able to focus on agricultural economics having undertaken several agri-processing business plans and feasibility studies. She has also undertaken research in the field of local economic development and tourism. The focus of Vimbai's profession experience to date has been:

- Small Town Development Planning & Tourism
- Local Economic Development
- Agricultural Economics

2 NEMA APPENDIX 6: SPECIALIST REPORTS

2.1 Tourism Specialist Inputs

Table 1: NEMA Appendix 6: Specialist Reports - Tourism

NEMA REQUIREMENT	ADDRESSED:
(1) A specialist report prepared in terms of these Regulations must contain— (a) details of— (i) the specialist who prepared the report; and	Section 1.1
(ii) the expertise of that specialist to compile a specialist report including a curriculum vitae;	Section 1.1
(b) a declaration that the specialist is independent in a form as may be specified by the competent authority;	Available upon request
(c) an indication of the scope of, and the purpose for which, the report was prepared;	Section 3
(cA) an indication of the quality and age of base data used for the specialist report; (Item 1(1)(cA) inserted by Government Notice 326 in Government Gazette 40772 dated 7 April 2017)	Sources indicated and referenced. Section 11: Bibliography
(cB) a description of existing impacts on the site, cumulative impacts of the proposed development and levels of acceptable change; (Item 1(1)(cB) inserted by Government Notice 326 in Government Gazette 40772 dated 7 April 2017)	Sections 8.3, 8.4 & 8.6
(d) the duration, date and season of the site investigation and the relevance of the season to the outcome of the assessment; (Item 1(1)(d) substituted by Government Notice 326 in Government Gazette 40772 dated 7 April 2017)	17 – 21 August 2020
(e) a description of the methodology adopted in preparing the report or carrying out the specialised process inclusive of equipment and modelling used; (Item 1(1)(e) substituted by Government Notice 326 in Government Gazette 40772 dated 7 April 2017)	Section 3.4 & 8.4
(f) details of an assessment of the specific identified sensitivity of the site related to the proposed activity or activities and its	Section 8.3 & 8.4

associated structures and infrastructure, inclusive of a site plan identifying site alternatives; (Item 1(1)(f) substituted by Government Notice 326 in Government Gazette 40772 dated 7 April 2017)	
(g) an identification of any areas to be avoided, including buffers;	Section 8.7
(h) a map superimposing the activity including the associated structures and infrastructure on the environmental sensitivities of the site including areas to be avoided, including buffers;	N/A
(i) a description of any assumptions made and any uncertainties or gaps in knowledge;	Section 8.7
(j) a description of the findings and potential implications of such findings on the impact of the proposed activity or activities; (Item 1(1)(j) substituted by Government Notice 326 in Government Gazette 40772 dated 7 April 2017)	Section 8.6
(k) any mitigation measures for inclusion in the EMPr;	Section 8.6
(l) any conditions for inclusion in the environmental authorisation;	Section 8.8
(m) any monitoring requirements for inclusion in the EMPr or environmental authorisation	Section 8.8
(n) a reasoned opinion— (i) whether the proposed activity, activities or portions thereof should be authorised; (Item 1(1)(n)(i) substituted by Government Notice 326 in Government Gazette 40772 dated 7 April 2017) (iA) regarding the acceptability of the proposed activity or activities; and (Item 1(1)(n)(iA) inserted by Government Notice 326 in Government Gazette 40772 dated 7 April 2017) (ii) if the opinion is that the proposed activity, activities or portions thereof should be authorised, any avoidance, management and mitigation measures that should be included in the EMPr, and where applicable, the closure plan; (Item 1(1)(n)(ii) substituted by Government Notice 326 in Government Gazette 40772 dated 7 April 2017)	Section 8.8

(o) a description of any consultation process that was undertaken during the course of preparing the specialist report;	Section 8.5; in progress
(p) a summary and copies of any comments received during any consultation process and where applicable all responses thereto; and	Section 8.5; in progress
(q) any other information requested by the competent authority.	N/A
(2) Where a government notice gazetted by the Minister provides for any protocol or minimum information requirement to be applied to a specialist report, the requirements as indicated in such notice will apply. (Item 1(2) added by Government Notice 326 in Government Gazette 40772 dated 7 April 2017)	N/A

2.2 Agricultural Specialist Inputs

Table 2: NEMA Appendix 6: Specialist Report - Agriculture

NEMA REQUIREMENT	ADDRESSED:
(1) A specialist report prepared in terms of these Regulations must contain— (a) details of— (i) the specialist who prepared the report; and	Section 1.2
(ii) the expertise of that specialist to compile a specialist report including a curriculum vitae;	Section 1.2
(b) a declaration that the specialist is independent in a form as may be specified by the competent authority;	Available upon request
(c) an indication of the scope of, and the purpose for which, the report was prepared;	Section 3
(cA) an indication of the quality and age of base data used for the specialist report; (Item 1(1)(cA) inserted by Government Notice 326 in Government Gazette 40772 dated 7 April 2017)	Sources indicated and referenced. Section 11: Bibliography
(cB) a description of existing impacts on the site, cumulative impacts of the proposed development and levels of acceptable change; (Item 1(1)(cB) inserted by Government Notice 326 in Government Gazette 40772 dated 7 April 2017)	Sections 9.3, 9.4 & 9.6

(d) the duration, date and season of the site investigation and the relevance of the season to the outcome of the assessment; (Item 1(1)(d) substituted by Government Notice 326 in Government Gazette 40772 dated 7 April 2017)	17 – 21 August 2020
(e) a description of the methodology adopted in preparing the report or carrying out the specialised process inclusive of equipment and modelling used; (Item 1(1)(e) substituted by Government Notice 326 in Government Gazette 40772 dated 7 April 2017)	Section 3.4 & 8.4
(f) details of an assessment of the specific identified sensitivity of the site related to the proposed activity or activities and its associated structures and infrastructure, inclusive of a site plan identifying site alternatives; (Item 1(1)(f) substituted by Government Notice 326 in Government Gazette 40772 dated 7 April 2017)	Section 9.4
(g) an identification of any areas to be avoided, including buffers;	Section 9.7
(h) a map superimposing the activity including the associated structures and infrastructure on the environmental sensitivities of the site including areas to be avoided, including buffers;	N/A
(i) a description of any assumptions made and any uncertainties or gaps in knowledge;	Section 9.6
(j) a description of the findings and potential implications of such findings on the impact of the proposed activity or activities; (Item 1(1)(j) substituted by Government Notice 326 in Government Gazette 40772 dated 7 April 2017)	Section 9.4
(k) any mitigation measures for inclusion in the EMPr;	Section 9.7
(l) any conditions for inclusion in the environmental authorisation;	Section 9.7
(m) any monitoring requirements for inclusion in the EMPr or environmental authorisation	Section 9.7
(n) a reasoned opinion— (i) whether the proposed activity, activities or portions thereof should be authorised;	Section 9.7

(Item 1(1)(n)(i) substituted by Government Notice 326 in Government Gazette 40772 dated 7 April 2017) (iA) regarding the acceptability of the proposed activity or activities; and (Item 1(1)(n)(iA) inserted by Government Notice 326 in Government Gazette 40772 dated 7 April 2017) (ii) if the opinion is that the proposed activity, activities or portions thereof should be authorised, any avoidance, management and mitigation measures that should be included in the EMPr, and where applicable, the closure plan; (Item 1(1)(n)(ii) substituted by Government Notice 326 in Government Gazette 40772 dated 7 April 2017)	
(o) a description of any consultation process that was undertaken during the course of preparing the specialist report;	Section 9.5; in progress
(p) a summary and copies of any comments received during any consultation process and where applicable all responses thereto; and	Section 9.5; in progress
(q) any other information requested by the competent authority.	N/A
(2) Where a government notice gazetted by the Minister provides for any protocol or minimum information requirement to be applied to a specialist report, the requirements as indicated in such notice will apply. (Item 1(2) added by Government Notice 326 in Government Gazette 40772 dated 7 April 2017)	N/A

3 INTRODUCTION

Urban-Econ Development Economists (Pty) Ltd was appointed by the Musina-Makhado Special Economic Zone (MMSEZ) to conduct an impact study on tourism and food security for the Musina-Makhado Special Economic Zone.

3.1 Purpose of the Study

The purpose of this report is to conduct a study on the potential impact of MMESZ energy and metallurgy cluster on tourism, agriculture, and food security. The analysis will assess the current situation of the Musina/Makhado economy, as well as several other factors that contribute to the impact of the region.

3.2 Goal and Objectives

The objective of the impact study is to consider how the SEZ might best be configured to achieve the stated objectives of key stakeholders and maximise the associated economic and social benefits in relation to the three economic pillars of Tourism, Agriculture and Mining.

The impact study provides an overview of the MMSEZ, including the location of the areas, the history of the areas, the progress made in establishing tourism, agriculture and mining as economic pillars, the rationale for MMSEZ, and a summary of the three different sectoral analysis.

The purpose of this report is to confirm if the current strategic approach is still relevant to the province and to identify the strategic interventions required. This project is founded on the key principles of sustainable development, including:

- Alleviation of poverty
- Conservation and enhancement of the local resource base
- Encompassing economic growth, social and cultural development
- Taking both economics and ecology into account in decision-making processes
- Deployment of the Cooperative Model to develop financial independence
- Adoption of social business principles
- Credit extension to promote value creation in small production businesses and new technology and service businesses
- Narrowing the inequality gap
- Building a sustainable, vibrant local economy
- Minimising the opportunities for corrupt activities

The report continues with an overview of the technical aspects of the impact study, the environmental scanning, sectoral activities and financial impact, and an assessment of the opportunities and risk factors.

3.3 Methodology utilised for study

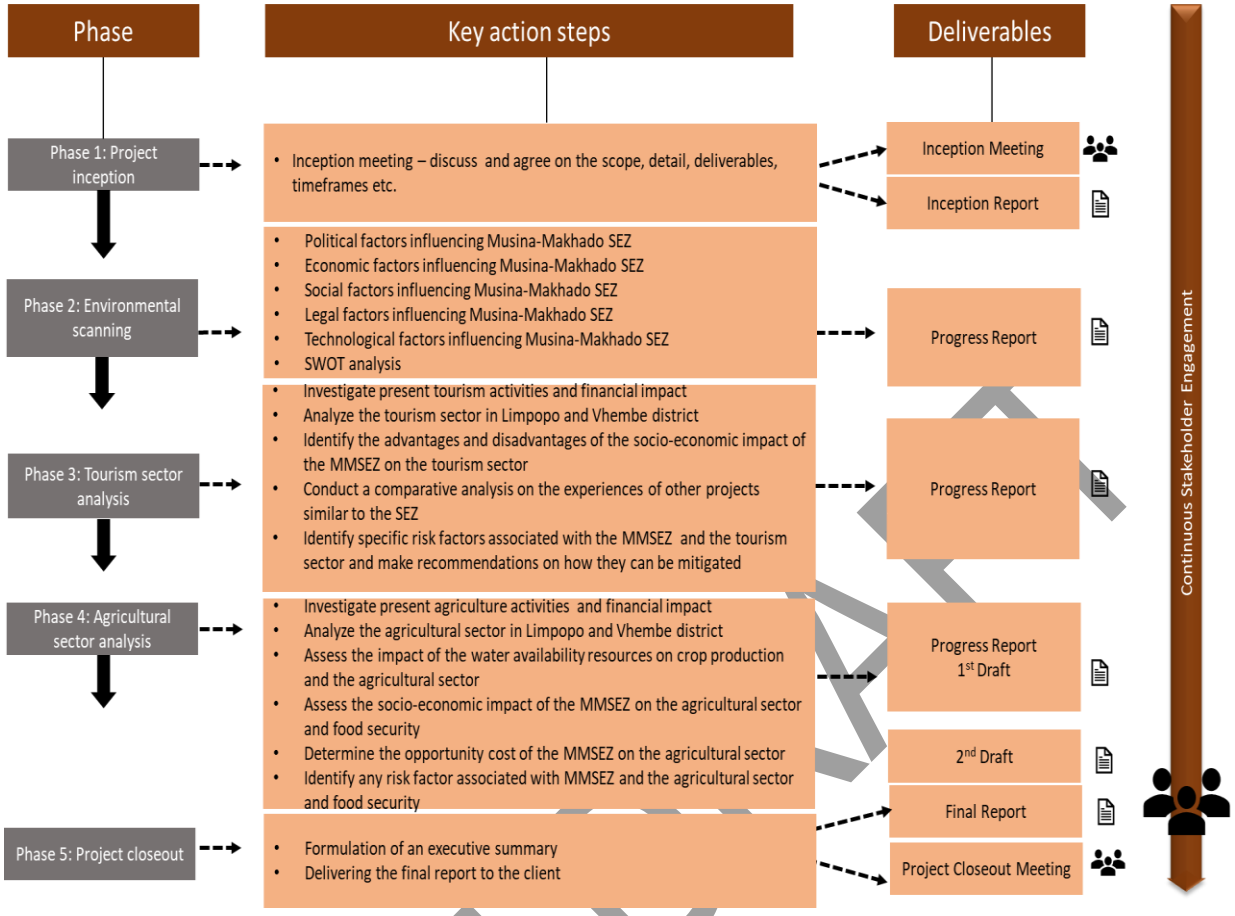


Figure 1: Project Methodology

3.4 The concept of Special Economic Zones

A Special Economic Zone (SEZ) is an economic development tool to promote national economic growth and export by using targeted support measures to attract foreign and domestic investments and technology.

Traditionally SEZs geographically delineated and fenced in areas that allowed for the duty- and tax-free import of raw and intermediate materials for processing and re-export. Modern forms of SEZs are not exclusively export focused and can encompass larger areas and support a wider range of economic activities or have a specific technology or sector focus. The typical SEZ policy package includes, "import and export duty exemptions, streamlined customs and administrative controls and procedures, liberal foreign exchange policies and income tax incentives.

The Department of Trade and Industry (DTI) replaced its Industrial Development Zone (IDZ) programme with a more inclusive model of industrial facilitation in the form of the Special Economic Zones. According to the DTI, the purpose of SEZs is to support and accelerate industrial development by facilitating targeted investment in certain manufacturing and tradable service activities. The SEZs are also envisaged as a mechanism to promote regional development, exploit existing technological and industrial capacity, and attract foreign and domestic investment. The SEZ bill and policy was released for public comment in 2012 and applications for designation as an SEZ were invited by the DTI in 2013. After a process of extensive consultation, the SEZ Act was gazetted in May 2014.

3.5 Report Outline

The report is broken into seven chapters and consists of the following:

Chapter 1 - Introduction

Provides an outline, goals and objectives, the concept of SEZ and the purpose of the study.

Chapter 2 - Locational Analysis

Provides a description of the site, and an overview of the geographic precinct.

Chapter 3 - Socio-Economic Analysis

The purpose of this section is to address a range of socio-economic indicators, including demographic trends, housing and service delivery, education, and skills development.

Chapter 4 - Economic Analysis

This section provides an overview and decomposition of the most dynamic sectors of the Musina-Makhado Economy.

Chapter 5 - Environmental Scanning

This section reviews the performance of various factors and provides a SWOT analysis.

Chapter 6 - Tourism Sector Analysis

Reviews the performance of the tourism sector in various important performance areas.

Chapter 7 - Agricultural Sector

Reviews the performance of the agricultural sector in various important performance areas.

Chapter 8 - Main Findings and Development Recommendations

This section concludes the report by providing recommendations identified from the findings of the report.

Chapter 9 - Bibliography:

Throughout the text of the report, chapter 9 includes the references which have been included in the report.

4 LOCATIONAL ANALYSIS

The analysis of the site highlights the SEZ in relation to the greater environment in which it exists. The connections of the site to the rest of the surrounding areas are essential to analyse the impact of the SEZ in terms of the contextualization of the site of the SEZ in relation to the district municipality and the province.

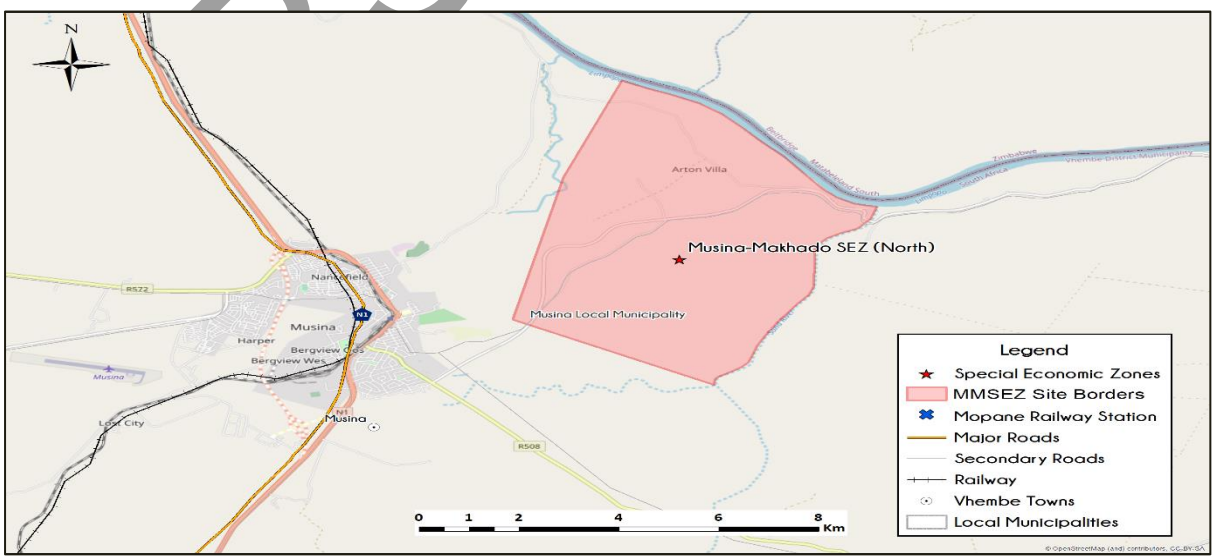
4.1 Site Area

The MMSEZ is made up of two sites and hosted by two municipalities namely, Musina and Makhado located in the Vhembe district of the Limpopo Province. The first site is referred to as North Site (Antonvilla) approximately 3500 HA and it is situated between the Musina town and the banks of the Limpopo river. This site is earmarked for the development of light and medium manufacturing industries, which includes logistics and agro-processing.

The MMSEZ is strategically located along the N1 North-South route into the Southern African Development Community (SADC), very close to the border between South Africa and Zimbabwe. It forms part of the Trans-Limpopo Spatial Development Initiative (SDI) and has been developed as part of the greater regionals plans to unlock investment and economic growth and address the development and employment. The strategic location of the MMSEZ and its close proximity to the main landbased route into SADC and the African continent, along with incentives and logistics, makes the identified location the ideal choice for investment in the mineral beneficiation, agro-processing and petrochemical industries.

Musina Local Municipality is located to the north west of Vhembe District Municipality, which is one of the five Districts that make up the Limpopo Province. Vhembe District is bordered by the Capricorn District to the south west and Mopani District to the south east. The sharing of the borders extends to Zimbabwe and Botswana in the north and west and the Kruger National Park in the east, respectively. The Musina Local Municipality, jointly with Thulamela, Collins Chabane, and Makhado Local Municipalities make up the Vhembe District Municipality. **Error! Reference source not found.** illustrates the location of the Musina LM.

Map 1 MMSEZ (North Site)



Source: Urban-Econ, 2020

The Musina LM was developed as a result of the area's abundant mineral wealth, which includes iron ore, graphite, coal, magnetite, diamond, asbestos, and copper. The terrain around Musina supports

low-shrub and thorny vegetation and animal life. These features enabled a tourist attraction, where offerings such as lodges and safaris are prevalent. The Musina Nature is characterised by its abundance of the baobab trees. The Limpopo Valley National Park is a tourist attraction in the Musina LM and is South Africa's youngest and northernmost park, declared around the historical archaeological site of Mapungubwe.

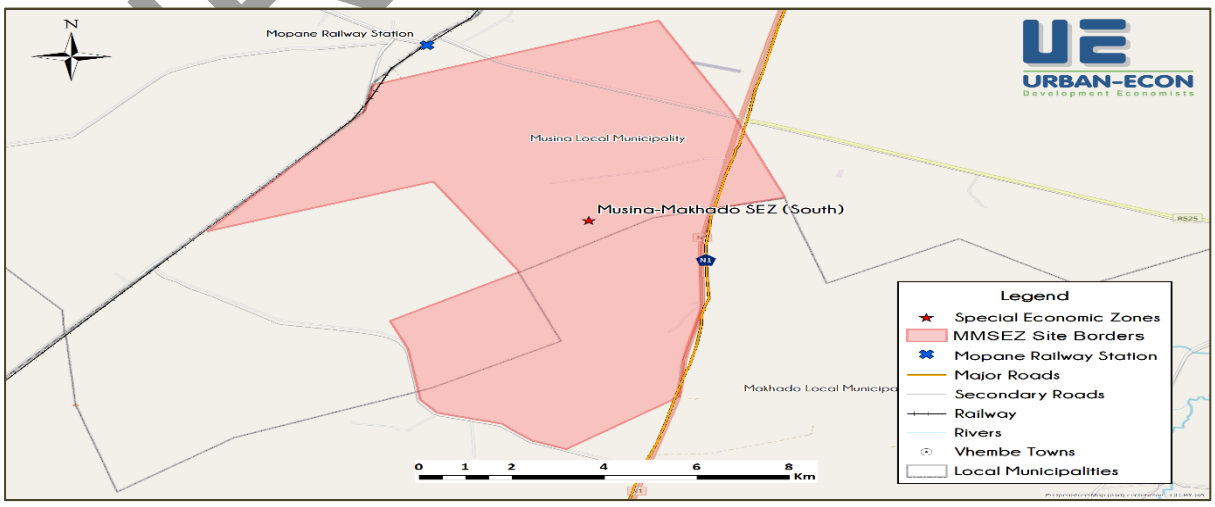
According to the Vhembe District Spatial Development Framework (2006), the only nodal point within the Municipality is the town of Musina. This node refers to a growth point within the Municipality, which is continuing to grow despite indications of outmigration. According to the Musina Integrated Development Plan (IDP), Musina is the only urban area north of the Soutpansberg and the most northerly located town in South Africa. Musina is situated 13km south of the Beit Bridge border post to Zimbabwe on the N1-national road and railway line, linking South Africa to the rest of Africa. Musina is very accessible and several provincial roads converge at Musina:

- District Road D746 (R525) to Tshipise holiday resort (37km)
- District Road D1483 (R572) to Alldays in the west (Pontdrift road)
- District Road D2692 to Venetia Mine in the west
- District Road D1942 to Artonvilla and Pafuri

The second site is commonly referred to as South Site (Mopani) approximately 8000 HA, and it is situated next to the Mopani railway station on the west side of the Baobab Toll Gate, at the border of both Musina and Makhado Municipalities. This site is earmarked for the development of the energy and metallurgical cluster and other associated heavy industries. Among the targeted industrials projects are: Coal Power Plant; Coke Plant; Ferrochromium Plant; Ferromanganese Plant; Pig Iron Plant; Carbon Steel Plant; Stainless Steel Plant; Lime Plant; Silicon-Manganese Plant; Metal Silicon Plant; and Calcium Carbide Plant.

The Makhado Local Municipality is located in proximity to the Soutpansberg Mountain Range. The Makhado LM is located km from the Zimbabwean border along the N1 Route, and is made up of formal towns, which includes Makhado, Vleifontein, Waterval, Vuwani as well as Dzanani. Map 2 illustrates the location of the Makhado LM.

Map 2 MMSEZ (South Site)

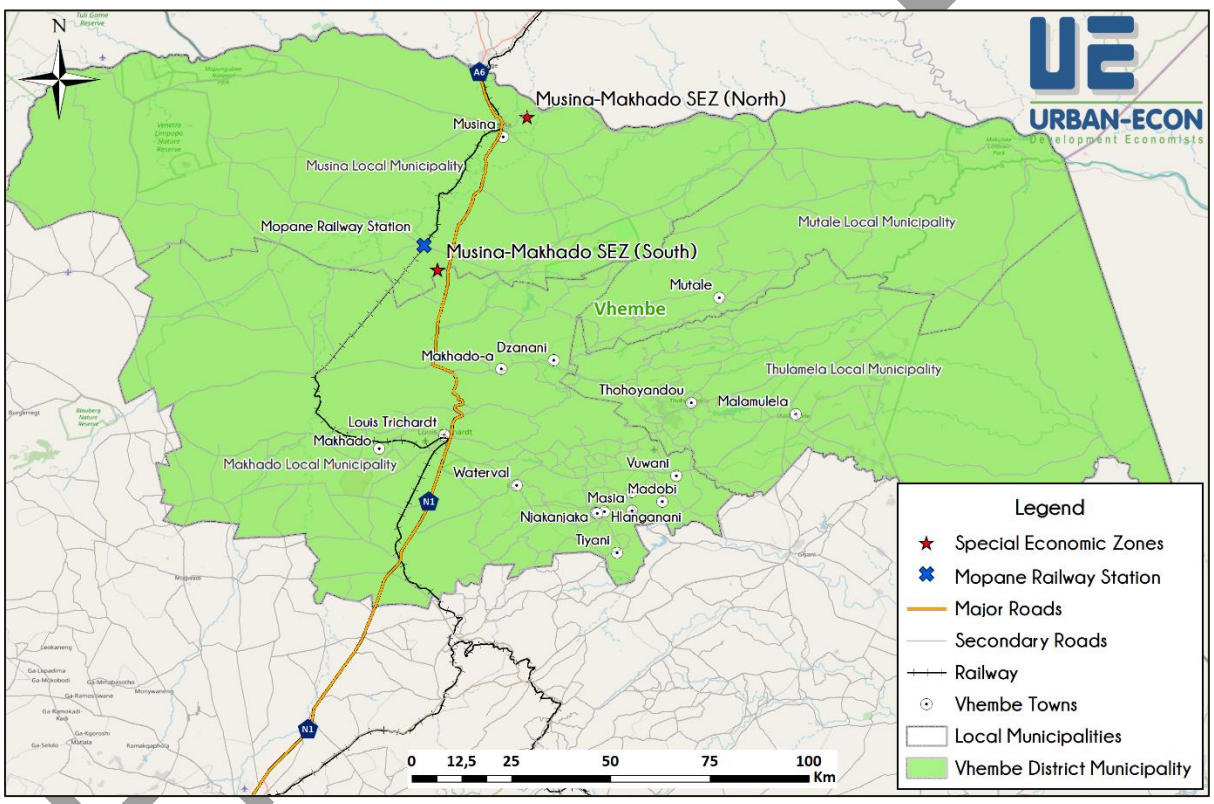


Source: Urban-Econ, 2020

The Makhado LM is located in the northern parts of Limpopo Province. It shares borders with the following local municipalities, namely, Blouberg, Musina, Molemole, Greater Letaba, Greater Giyani, Mutale and Thulamela. At least 2.6% of the municipality is urban whereas 97.4% is rural. The major towns include Makhado town, Dzanani, Waterval, Vleifontein and Vuwani. The Makhado LM is connected to major cities in Gauteng Province via the N1, which is an important asset for the further development of the area and to connect it with outside markets. The Trans-Limpopo Corridor proceeds through the Municipality and follows the N1 from Polokwane in the south through Makhado into Musina and Zimbabwe in the north.

The Vhembe District Municipality is located in the Northern part of the Limpopo province. Vhembe DM shares land port borders with Zimbabwe and Botswana on the North-West through the Limpopo river, and Mozambique on the South-East through the Kruger National Park. The Vhembe DM comprised of four municipalities, namely Collins Chabane LM, Makahdo LM, Musina LM and Thulamela LM. The Vhembe District Municipality (DM) which the MMSEZ is in, is illustrated in Map 3.

Map 3 The Vhembe District Municipality



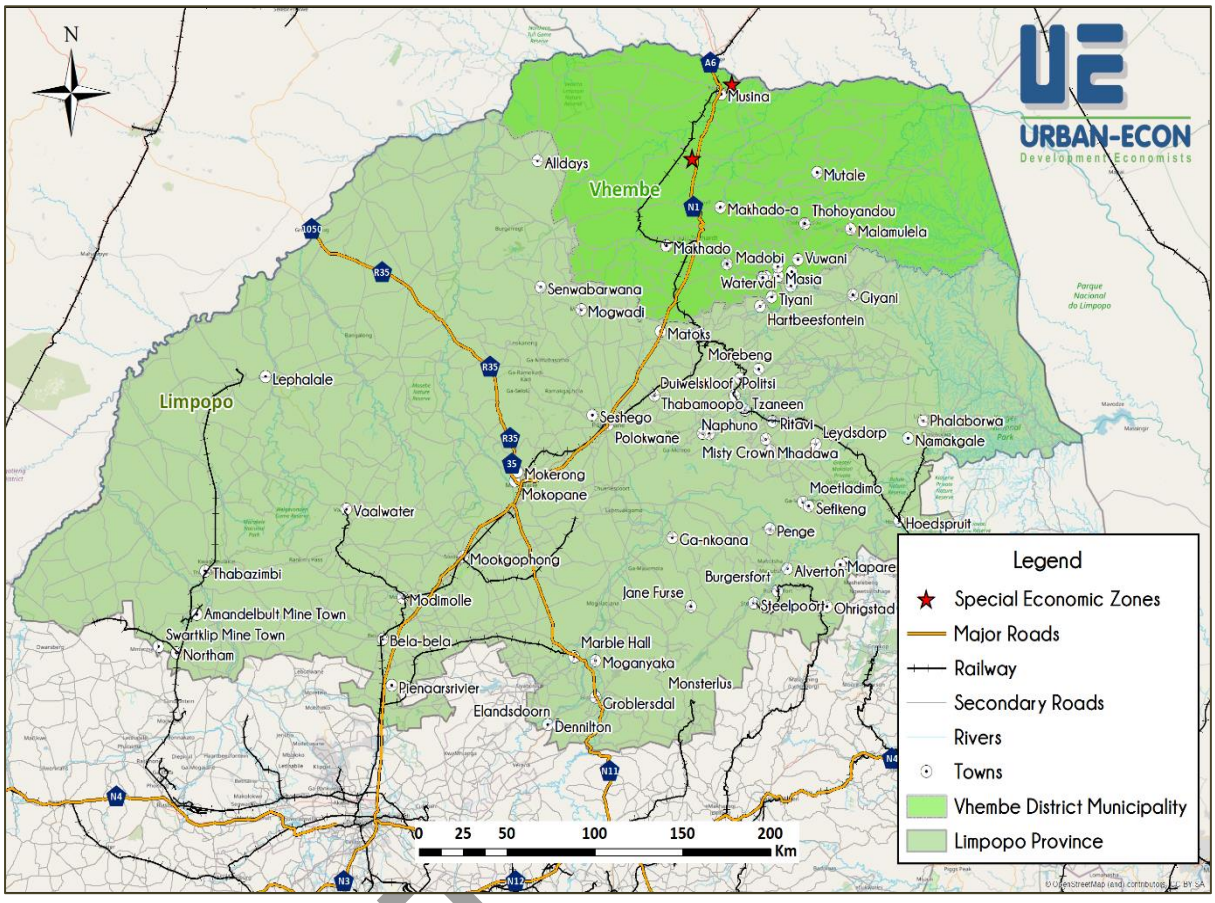
Source: Urban-Econ, 2020

The Vhembe DM is predominantly rural and is a cultural hub and a catalyst for agriculture and tourism development. Besides the Musina and Makhado local municipalities, the Vhembe DM comprises two other local municipalities, namely Thulamela LM and Collins Chabane LM. Thulamela LM shares borders with Mutale LM in the North-Eastern part, Makhado LM in the South, as well as South-Western side. Collins Chabane LM is situated on the eastern side of the Vhembe DM bordered by the Mopani DM on the southern part and the Kruger National Park towards Mozambique.

Limpopo is one of the nine provinces in South Africa. It is situated in the north-eastern corner of South Africa and shres borders with Botswana, Zimbabwe and Mozambique. On a provincial level and the southern edge (from east to west), Limpopo shares borders with Mpumalanga, Gauteng and North

West. There is a total of five district municipalities and twenty-two local municipalities in the Limpopo province. Map 4 illustrates the location of the Makhado LM.

Map 4 The Limpopo Province



Source: Urban-Econ, 2020

The Limpopo is distinct as it shares borders with three countries and also serves as the link between South Africa and countries further afield in Sub-Saharan Africa. This distinct factor places the province in a position of geographical and socio-economical relevance.

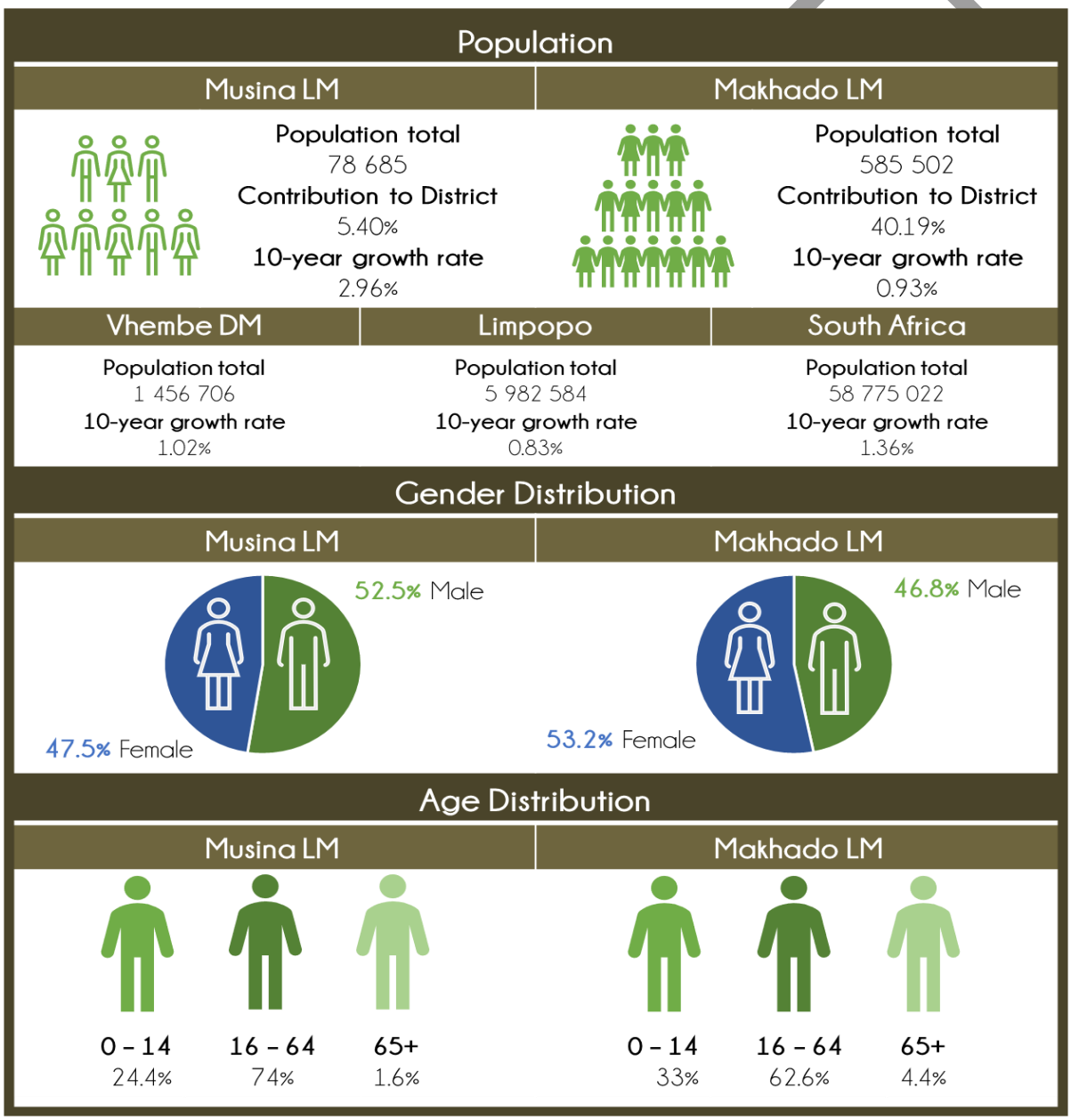
5 SOCIO-ECONOMIC ANALYSIS

The purpose of this section is to address a range of socio-economic indicators, including demographic trends, housing and basic service delivery, education and skills development, and economic output and employment. The information and analysis presented below will inform decision making around the impact of the MMSEZ and assist with the identification of development opportunities and programmes.

5.1 Demographic Profile

The demographic trends of an area affect the economic, social and spatial development by dictating the demand for employment, infrastructure, and services. The Musina-Makhado will be compared to the wider region with regards to its demographic profile in this sub-section.

Figure 2: Demographic Profile



Source: Quantec (2020)

The rate of economic growth can be significantly affected by rapid changes in population growth through factors such as fertility rates and migration. A well planned and integrated economic and population policy provides the best results in declining economic growth as well as increasing population growth rates.

The Musina LM is home to an estimated 78 685 people or 1.3% of the total Limpopo population in 2020, as seen in Figure 2, growing at a rate of approximately 25.3% per annum. The total population of the Vhembe District is approximately 24.3% of the provincial population. Between 2010 and 2020 the population growth of the Vhembe District was on average 9.6% per annum. The figure indicates the population size in Musina-Makhado, Vhembe District and the Limpopo Province between 2010 and 2020.

The areas of Makhado LM, Vhembe DM and Limpopo experienced a population growth below 10% during the period of 2010 and 2020. This may attribute to high levels of unemployment and poverty which the Limpopo has developed a reputation in. This has caused a growing migration of citizens from poverty-stricken rural areas to large metropolitan areas where many of them ended up in growing squatter settlements.

The size of the population and the number of households are key considerations in determining the current and future needs of a study area. These needs are expressed in the demand for economic and social services, including water, sanitation, electricity, housing, healthcare, and jobs. The household dynamics within a study area is a key determinant of the demand for services and employment.

Figure 2 illustrates the composition of households in Musina-Makhado and the wider region between the period of 2010 – 2020. There were 148 471 households within the study areas in 2010 with an average household size of 3 compared to 173 776 households with an average households' size of 3.9 in 2020. The Province had the same average household size in 2020, whereas the District had a lower weighted average household size of 3 persons per household.

The average household size is indicative of the quality of life in a study area. This connection is based on the following principle: In areas where the average household size is higher than the number of dependents is also expected to be greater and thus income per person will be lower.

The age and gender composition of a population has a considerable impact on socio-economic development in a study area. It is indicative of the size of the labour force, worker migration and the demands for health care and other social services.

The Figure 2 shows the age profile of the study area. As seen in the figure, a significant proportion of the population forms part of the working age population - 73% in Musina LM and 60.3% in Makhado LM, respectively. The representation of the working age group (15 – 64) indicates that there is a substantial labour in the areas.

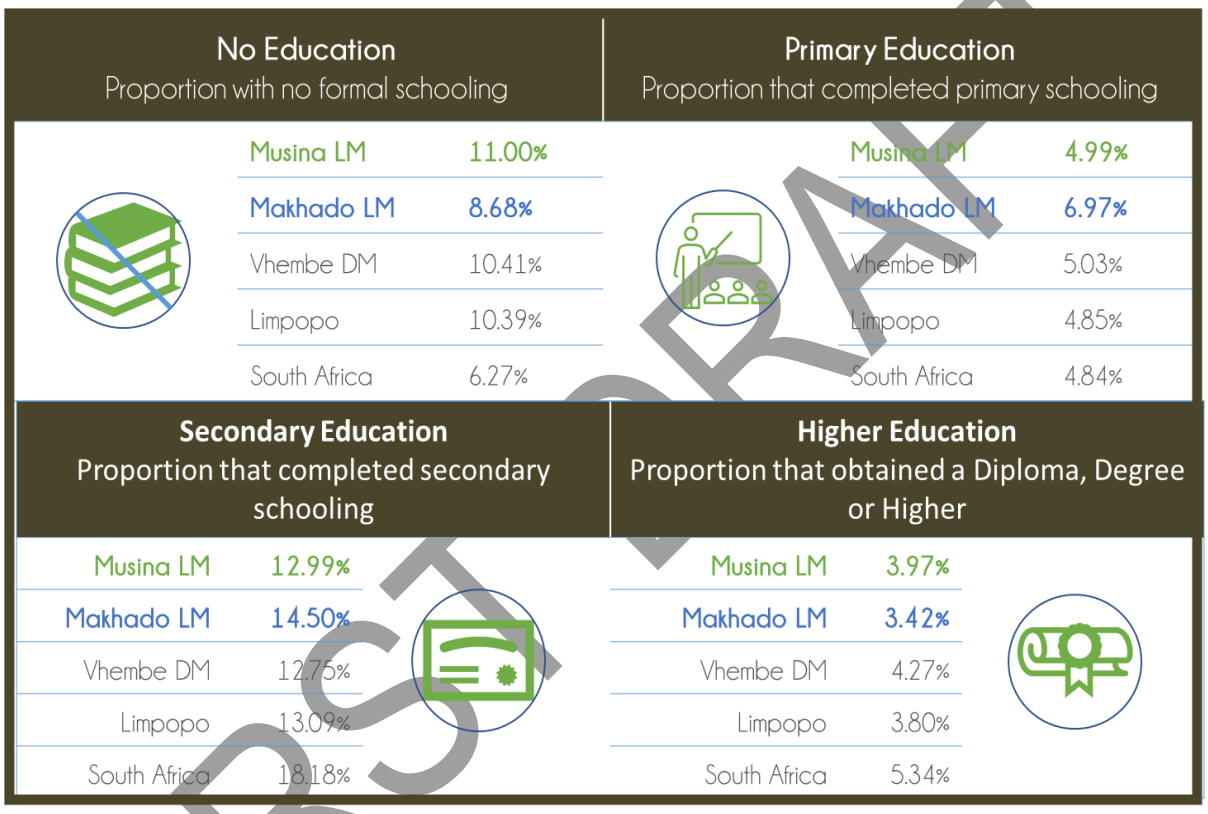
The percentage of people that are not economically active (0-14 and 65+) in Musina LM is higher than that of district and provincial, whereas Makhado LM's is on par with that of the province and the district. A high dependency rate decreases the wealth of the population as people need to take care of family and friends, with no work, with their income.

5.2 Education

The level of educational accomplishment in an area can be used as a general indicator of the capacity for improvement of the local population. Educational attainment is regarded as a contributing factor to the quality of the human capital and considered an important key for socio-economic growth and development in a study area.

Education levels have a direct impact on economic development and the quality of life experienced by residents of an area. Literacy is used as a concept to indicate the minimum education level attained. Literacy refers to the ability to read and write, and the successful completion of a minimum of 7 years of formal education.

Figure 3: Education Profile



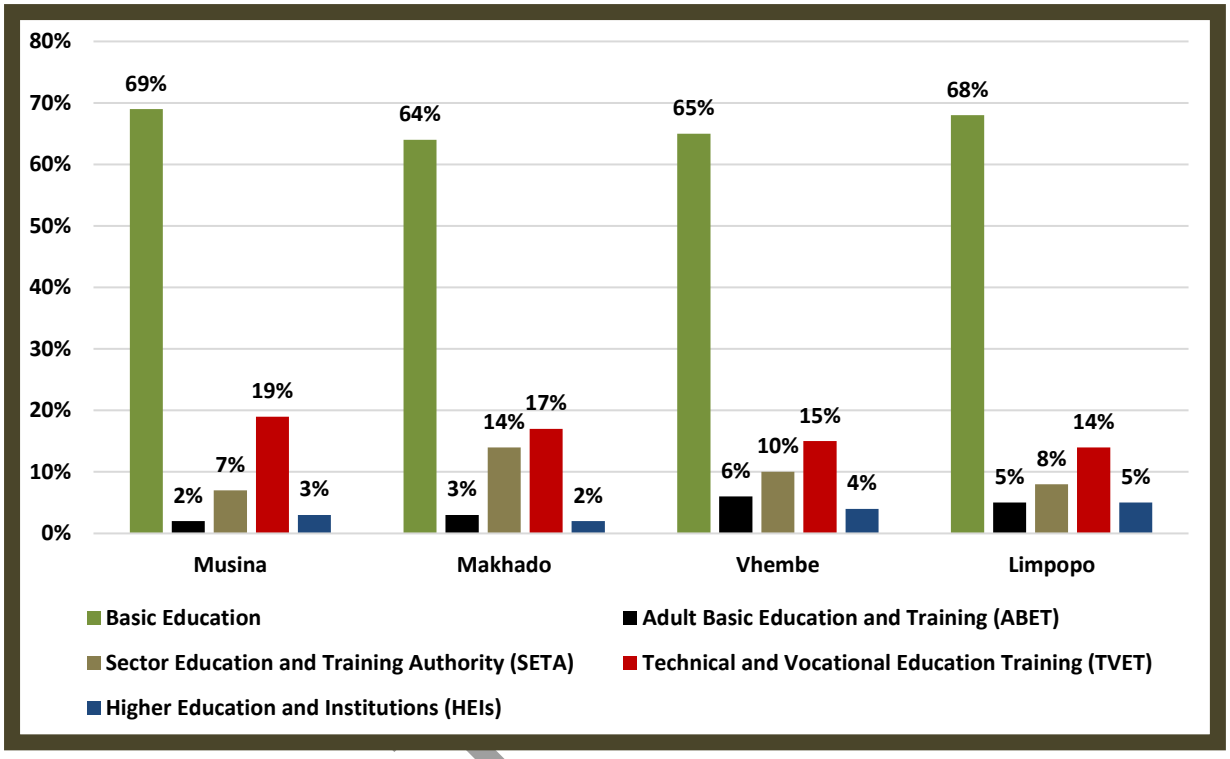
Source: Quantec (2020)

Figure 3 above depicts the highest level of education among people who are 20 years and older in Musina-Makhado as compared to the district and province. In 2010, approximately 11% of the population over 20 years of age had attained some form of primary education. At least 19% of people have had no schooling, 22% people have a Grade 12 education, and 9% people have attained a higher education. This analysis reveals that the population in Makhado is most heavily invested towards high school education.

An education expands the range of options from which a person may choose, thus creating opportunities for a fulfilling life. Education and training satisfy the basic human need for knowledge and skills. It provides a means of meeting basic needs, provided that adequate employment opportunities exist, and helps sustain and accelerate overall development. The level of education of the population in a region influences its welfare through the indirect effects on health, fertility, and life expectancy.

The student population refers to all those within a study area that are currently studying either full or part time at a recognised education institution. Student population encompass educational institutions within the area that are designed to provide learning spaces and learning environments for the teaching of students (or "pupils") under the direction of teachers. Figure 4 illustrates the student enrolment of the different academic institutions in Musina-Makhado and the wider region as of 2020.

Figure 4 Student Enrolment in 2020



Source: Quantec (2020)

The education profile of Musina-Makhado and the wider region indicates that the highest proportion of student population comprise of basic education followed by Technical and Vocational Education and Training (TVETs). Basic education consists of individuals who have obtained basic education qualifications ranging from grade 1 level to grade 12. TVET education consist of individuals who have obtained Higher education qualifications, this consists of certificates and diplomas issued by an accredited institution.

Education and training improves access to employment opportunities and helps to sustain and accelerate overall development. It expands the range of options from which an individual may choose to create opportunities for a fulfilling life. The level of education of the population in a study area influences its welfare through indirect positive effects on health and life expectancy.

5.3 Housing and Basic Services

The status of housing and basic service delivery in a municipality or study area is a key indicator of socio-economic welfare. There is a strong correlation between inadequate housing and insufficient service delivery on the one hand and poverty, unemployment, and inequality on the other. Additionally, lack of housing and basic services is related to poor governance, protest action and weak social cohesion.

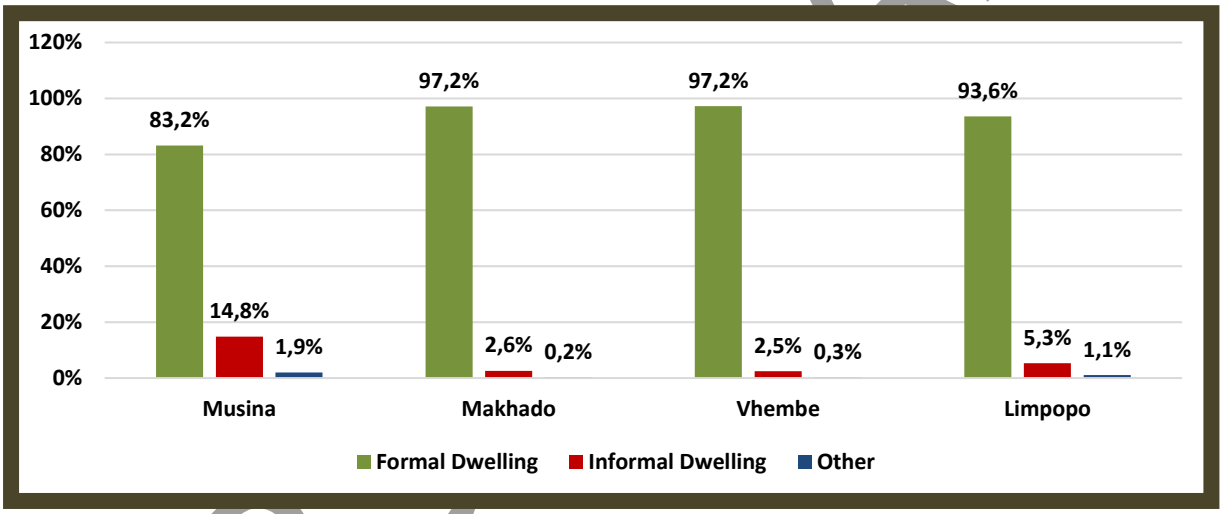
The provision of basic services affects the quality of life of citizens, particularly the poor, and plays an important role in economic development through improved basic services and infrastructure. The purpose of this section is to determine to what extent the right to housing and basic service delivery is extended to residents of Musina-Makhado and compared to the Vhembe DM and the Limpopo Province, where applicable.

5.3.1 Access to Housing

The type of housing available in a study area is illustrative of the socio-economic conditions faced by a population. In areas where most households live in formal dwellings, either homes or apartments, the level of income and quality of life is assumed to be relatively high. Contrarily, a noteworthy number of informal dwellings or 'shacks' is indicative of low-income levels, lack of basic services and poor quality of life.

The type and proportion of housing available in the Musina-Makhado, Vhembe DM and the Limpopo Province is illustrated in the subsequent figure. Figure 5 illustrates the level of housing for Musina-Makhado in comparison to the district and the province.

Figure 5 Access to Dwelling Types in 2020



Source: Quantec (2020)

The above figure show that over 80% of households in Musina (83.2%) and Makhado (97.3%) live in formal detached houses, implying a relatively high quality of housing and service delivery. Additionally, 14.8% of households in Musina live in informal dwellings or shacks, which makes the spread of informal settlements a challenge for the area. The characteristics of the dwelling units in which households live and the level of access to services and facilities provide an important indicator of the well-being of members of households.

5.3.2 Access to Basic Services

Basic services refers to bulk services provided by municipalities to households, which includes piped water, electricity, sanitation, and refuse removal. An analysis of the percentage of households with access to basic services will provide insight to the proportion of households that require these services to improve their standard of living. A summary of household access to basic services is illustrated in Figure 6.

Access to electricity by households is an important factor of socio-economic development, with most households without electricity living in poverty. Households that can use electricity are capable of

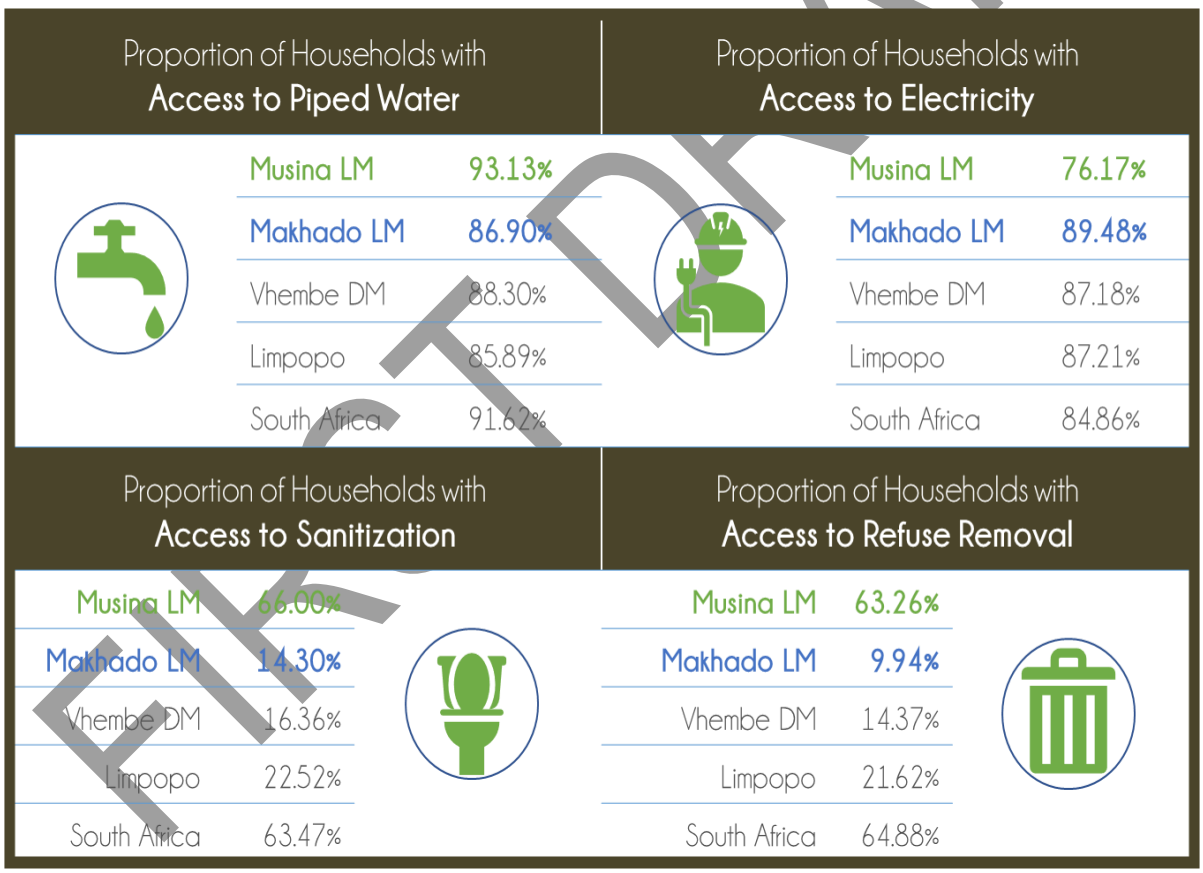
efficiently re-organising their time without the need to collect wood for light. They are less likely to suffer health difficulties from smoke and chemical inhalation and students living at home are better equipped to perform well in school.

Figure 6 illustrates access to electricity in the Musina-Makhado compared to the Vhembe District and Limpopo Province. For the purpose of this study, a household is considered as having access to electricity if it uses electricity as its primary energy source for lighting.

The proportion of households with access to electricity in Musina-Makhado and the wider regions, all display the proportion of households with access to electricity beyond three quarters in terms provision. The second most used method of lighting was candles, with Musina (22%) displaying the highest use of this sources of lighting compared to all other areas in the study.

Households living in poor areas have the right to have access to a minimum amount of free basic electricity through the adoption of the Basic Services Policy of 2001. This translates into the need for distribution networks to extend into these communities and provide households with access to the electricity grid of South Africa.

Figure 6: Access to Basic Services



Source: Quantec (2020)

In South Africa, the Constitution guarantees access to 'sufficient water'. This guarantee is translated into specific water regulations that form part of the Basic Services Policy adopted in 2001. These regulations set a minimum standard of 25 potable litres of water per person per day available within 200 metres of every household.

In the study area, majority of households have access to piped water within their yard, with half of the households in Musina households' comprising of piped inside the yard. This masks the inequality

amongst the Musina compared to Makhado (28.9%) and the wider region. that comprises the study area. The figure above highlights social issues and backlogs that require attention as water provision is a basic and has major effect on the not just the human life activities, but also the economy as it can halt or increase productivity in the various industries and sectors.

The basic service delivery that municipalities are required to provide, according to the Basic Services Policy of 2001, is a minimum level of sanitation which is defined as households having access to a ventilated pit latrine, also known as a VIP toilet. This standard of service delivery is deemed necessary to ensure human dignity and prevent the spread of disease.

Figure 6 represents the access to sanitation facilities among households in Makhado. It distinguishes between households with access to flush toilets, flush septic tanks, chemical toilets, VIP's, pit latrines, bucket latrines and those households that have no access to sanitation facilities.

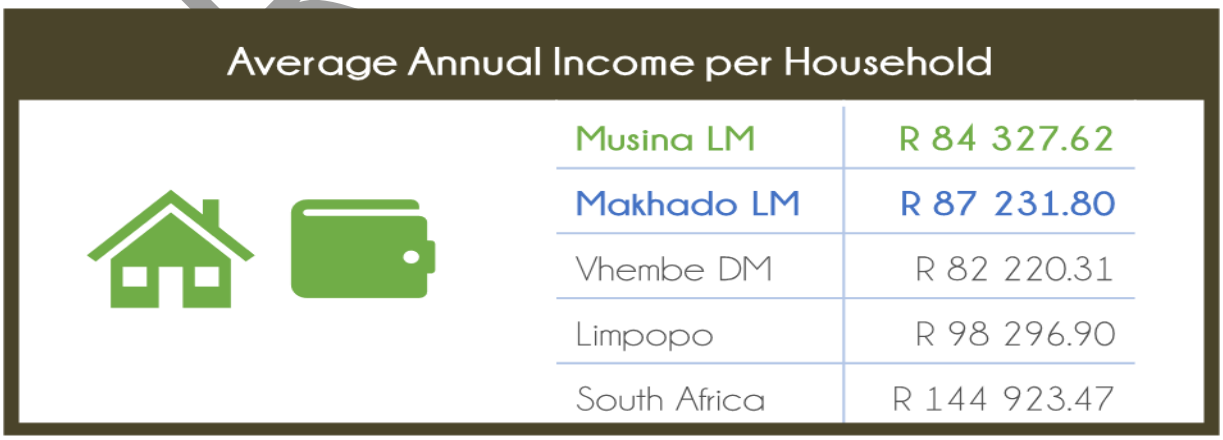
The figure illustrates the level of access to sanitation in the Musina-Makhado compared to the district and the province. It shows that a greater proportion of households in the Musina have access to a flush toilet (77%) compared to Makhado (15%) and the Vhembe DM (18%) and the Limpopo province (25%).

It is evident that there is regressive progress being made in terms of service delivery within the province. The impact of low level of sanitation leads to lower levels of hygiene, and ultimately expose the residents to other diseases and various negative health effects The lack of access to proper sanitation facilities is of concern as improper sanitation methods can negatively impact on the natural environment as well as the health and well-being of the population of Tokologo LM.

5.4 Income and Poverty

Household income is the clearest indicator of socio-economic welfare in a study area. The total income for a household includes salaries and wages, social grants, revenue on investments, gifts, and all other income sources. Household income in a study area can also be illustrated according to the proportion of households in each income bracket. This provides a more comprehensive view of income levels and allows for an understanding of local inequality ad poverty. Figure 7 illustrates the average income of households in the Musina LM and Makhado LM.

Figure 7: Household Income



Source: Quantec (2020)

Approximately 6% of households in Musina LM reported earning no income compared to 9% in Makhado. This is highly challenging in terms of its impact on poverty levels and access to basic needs such as food and clothing. In both local municipalities, majority of residents earned between R10 000

and R20 000 monthly, with the second income brackets of household being between R20 000 and R40 000.

These figures display much greater proportion of households in the middle-income brackets and holds significant socio-economic implications with more equal regions typically having greater social cohesion, less crime, and lower levels of poverty.

5.5 Health

Good health entails a complete state of physical, mental, and social well-being, this includes the absence of illnesses. One of the hindering illnesses to a good health is the prevalence of HIV/AIDS. HIV/AIDS can be broken into HIV infections and AIDS deaths. HIV infections refers to the number of people that are infected with the virus over an annual period, which is expressed as the percentage of HIV infections. AIDS deaths refer to the number of people that die because of AIDS, which is expressed in percentages.

The table below illustrates the proportion of Musina-Makhado's population that are HIV+, as well as AIDS, related deaths as a percentage of the total deaths in this area as of 2020. These figures are also compared to Vhembe DM and Limpopo in order to evaluate the Study Area in District and Provincial context.

Table 3 Health Dynamics in 2020

	V	Makhado	Vhembe	Limpopo
% of population HIV+	16.7%	9%	11%	9,1%
AIDS related deaths (% of total deaths)	45.3	39%	42.1%	40,2%

Source: Quantec (2020)

Musina's HIV+ population is higher than the district and provincial total. Approximately 45.3% of total deaths in Musina are AIDS related, which is higher than that the district and provincial total. Makhado's HIV+ and AIDS deaths are lower than that of the district and the provincie.

All geographic areas display a lower HIV infection rate compared to AIDS related deaths. AIDS has proven to be a challenge for all affected areas and the provision of Antiretrovirals (ARVS) will need to be well distributed in remote areas as it makes it possible for the HIV infected persons to live longer lives and become part of the economically active groups.

5.6 Vulnerable Groups

Vulnerable groups within a society include children, youth, women, and the elderly. Special provision and planning need to be made to accommodate and protect these groups within a society. This sub-section provides a brief overview of the social profile of these groups.

5.6.1 Children

Most children in South Africa live in poverty and are faced with considerable inequalities that continue to inhibit their access to better quality of life, enhanced educational levels, improved health outcomes and access to opportunities. Children are defined by the Constitution of the Republic of South Africa as 'individuals under the age of 18 years'. Table 7 provides an overview of the demographics and sociological composition of the child population

Table 4 - Child Demographics in Musina-Makhado

	Musina	Makhado	Vhembe	Limpopo
% who are orphaned (Both parents have died)	2.8%	3.6%	3.2%	2.6%
% living with both parents	29.4%	28.1%	25.3%	26.7%
% living in child headed households	0.9%	1.7%	1.5%	1.3%
% living without employed adult	42.3%	49.4%	48.7%	45.4%
% living in household that reported hunger	3.8%	5.3%	4.5%	3.9%

Source: Stats SA (2020)

It can be concluded from Table 4 that orphans of which both parents have died represent 2.8% of the child population in Musina, and 3.6% in Makhado. Approximately about 29.4% of children living in the Musina consistently live with both their biological parents, whereas 28.1% of the same demography for Makhado.

The demographic patterns of children not living with biological parents are quite common in most African cultures where an expanded view of parenthood and the raising of children exist. Uncles and aunts are often represented as mother or father figures and having children raised by grandparents is very common. Children living in households without any employed adults are more vulnerable to hunger than children living in households that contain at least one employed adult.

5.6.2 Youth

The youth forms a vital component in the drive towards the development of any region. The youth represent new entrants into the country's labour force and will also serve as the basis for future demographic growth. The youth can therefore be either a major source of provincial development or serious social conflict.

The role of the youth in the Musina-Makhado will depend on the success with which they are incorporated into the labour market and other social structures. The National Youth Policy 2009– 2014 defines young people as men and women falling within the age group of 14 to 35 years. The population composition of the youth in the Musina-Makhado is very similar to the child composition. Table 8 provides an overview of the demographics and sociological composition of the youth population in the Limpopo Province.

Table 5 Youth Demographics

	Age	Musina	Makhado	Vhembe	Limpopo
Households headed by youth (%)	15-24	7.6%	11.8%	10.2%	9.6%
	25-34	23.1%	16.5%	17.4%	18.9%
Living in poverty conditions (%)	15-24	70.5%	78.5%	73%	76.2%
	25-34	48%	63.5%	61.2%	60.1%

	Age	Musina	Makhado	Vhembe	Limpopo
Living in households with inadequate access to food (%)	15-24	18.7%	11.2%	12.6%	13%
	25-34	13.5%	8.2%	11.4%	10.9%

Source: Stats SA (2020)

It is evident from the different age categories displayed in the table above that the youth is not homogeneous. Household members are often more vulnerable to poverty and unemployment when living in households in which young members are forced to take on responsibility for themselves as well as their siblings due to the death or absence of their parents. The portion of households headed by individuals aged 15– 24 amounts to 7.6% in the Musina and 11.8% in Makhado.

Households headed by younger individuals are more likely to be single or single generation households than those headed by older individuals. These households are also more likely to contain other nonrelated members. Households headed by younger individuals are also more likely to have experienced hunger than households headed by older individuals

5.6.3 Elderly

The current generation of the elderly in South Africa was particularly burdened by the apartheid government system and inequality in factors that include health, employment, and various opportunities. Adequate education, employment and socio-economic opportunities were not provided to a large portion of the elderly during their younger years.

Without the means to break free from the bondage of poverty, the majority of older people were unable to provide for their old age through secure retirement benefits. Table 6 provides an overview of a few demographics as well as the sociological composition of the elderly population in the Musina-Makhado compared to the district and the Limpopo Province.

Table 6 Demographics of the Elderly, 2020

	Musina	Makhado	Vhembe	Limpopo
Households headed by older persons (%)	20.7%	24.3%	23.5%	22.9%
Living in poverty conditions (%)	48.7%	63.2%	62.1%	61.6
Living in households that reported hunger (%)	8.6%	14.8%	13.5%	13.1%

Source: Stats SA (2020)

It can be concluded from the table above that the percentage of households headed by older persons is 20.7% in Musina, and 24.3% in Makhado. Slightly less than 23% of all persons in Limpopo live in a household headed by a person aged 60 years and older. Approximately 48.7% of the elderly in Musina, and 63.2% in Makhado live in households where poverty conditions prevail, compared to 61.6% in Limpopo as a whole.

6 ECONOMIC ANALYSIS

This section provides an overview and decomposition of the most dynamic sectors of the Musina-Makhado Economy. This section seeks to analyse the most relevant characteristics of the Musina-Makhado and illustrate the most advantageous aspects for future developments and opportunities.

This will be done by observing time series data in a creative way and forecasting the most recent economic events to describe the current situation in the Musina-Makhado. During this process, key performance areas will be highlighted for potential growth in the Municipality. This section will also provide insight into the way possible investment should be placed to enable effective exploitation of competitive advantages of the economy.

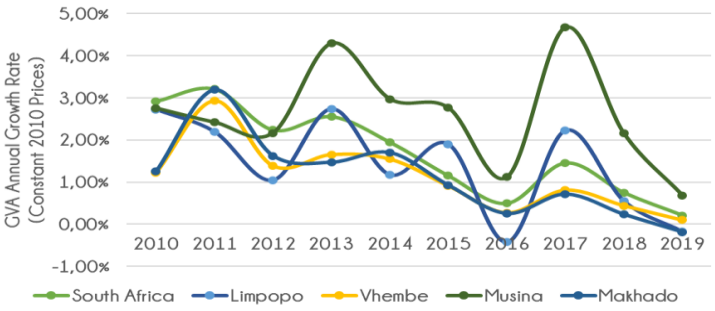
6.1 Production Outlook

This sub-section will predominantly focus on the Musina-Makhado and will take into consideration the significant impact each of the economic sectors will have on the Musina-Makhado economy. A summary of the Economic profile is seen in Figure 8.

Figure 8: Economic Profile

Total Gross Value-Added (R Millions Constant 2010 Prices), 2019	
Musina LM	2 865 542.45
Makhado LM	204 631.48
Vhembe DM	32 461.12
Limpopo	3 287.07
South Africa	13 666.97

Gross Value-Added Annual Growth Rate



Top Sector Contributors (R Millions Constant 2010 Prices), 2019

Musina LM		Makhado LM	
Wholesale and retail trade, catering and accommodation	GVA 988.66 10-year growth rate 4.53%	General Government	GVA 4 355.09 10-year growth rate 1.57%
General Government	GVA 533.41 10-year growth rate 3.20%	Wholesale and retail trade, catering and accommodation	GVA 2 967.70 10-year growth rate 0.65%
Finance, Insurance, Real Estate and Business Services	GVA 474.78 10-year growth rate 2.57%	Finance, Insurance, Real Estate and Business Services	GVA 2 867.05 10-year growth rate 1.59%

Source: Quantec (2020)

The production levels of an area is measured in term of the Gross Value Added (GVA), which can be defined as the difference between output and consumption for a given sector or industry and therefore measures the total current Rand (R) value of goods and services produced in that sector.

The GVA gives information on important aspects as to how well a region within a country is performing. It only provides information to a certain extent because the wellbeing and standard of living are only partially a matter of financial or monetary capital - GVA is the inflation-adjusted market value approximation of all goods and services originating from and destined to a region in a given time period (or, alternatively, the estimated value of income generated in terms of profits and wages).

Figure 8 shows the GVA of Musina-Makhado from 2010 to 2020. GVA at basic prices over the past ten years from R 5 267 million in 2010 to R 10 697 million by 2020 for Musina, and for Makhado, it increased from R23 743 Million in 2010 to R 40 712 million in 2020.

Increased output of goods and services does benefit the wellbeing and standard of living of the average person in Musina-Makhado in some ways: higher average incomes and increased consumption are often beneficial. But not always: GVA numbers do not answer essential questions, such as whether too much of the wrong things are being consumed, whether there is better quality consumption or whether too little saving is taking place.

From Figure 8, it can also be seen that the year-on-year GVA growth rate has been volatile over the past ten years, peaking at 12.6% in 2012 for Musina and 9.4% in 2012 for Makhado to a low of -1.3 and 2.6% in 2019 for Musina and Makhado respectively. Although the initial stages of 2020 were projected to be stable, it can be assumed that the Musina-Makhado's economy is expected to downturn due to the global pandemic of COVID-19.

The primary, secondary, and tertiary sectors represent various business types and the goods these sectors produce and sell. The three sectors can be regarded as a chain of production, from extracting the raw materials (primary) through manufacturing (secondary) and in the end to servicing the end consumers (tertiary). Each sector relies on the others to function properly and efficiently within the economy. Under the three-sector economic theory, every job, in every industry, falls into one or more of these sector types.

The leading contribution to the GVA of Musina-Makhado is the Wholesale and Retail Trade Sector that accounted for 26.6% and 36.9% of the GVA for 2020, respectively. The Tertiary Sector of the Musina-Makhado dominates the other sectors where the Primary Sector makes out 9.7% of the economy in Musina and 19.8% of the economy in Makhado, whereas the Secondary Sector accounts for 20% and 14.7% of the economy in Musina and Makhado respectively.

From this profile of the Musina-Makhado economy, it can be deduced that the potential risk posed by an over-dependence on the wholesale and retail trade sector, as it accounts for over a quarter of the Musina economy, and over a third of the Makhado economy. The focus should therefore be on encouraging diversification of the economic base, especially in industries such as manufacturing and agro-processing due to its potential support for local and regional (African) agriculture and mining as the importance of mining is evident in its contribution of 35.2% to the Limpopo Province economy.

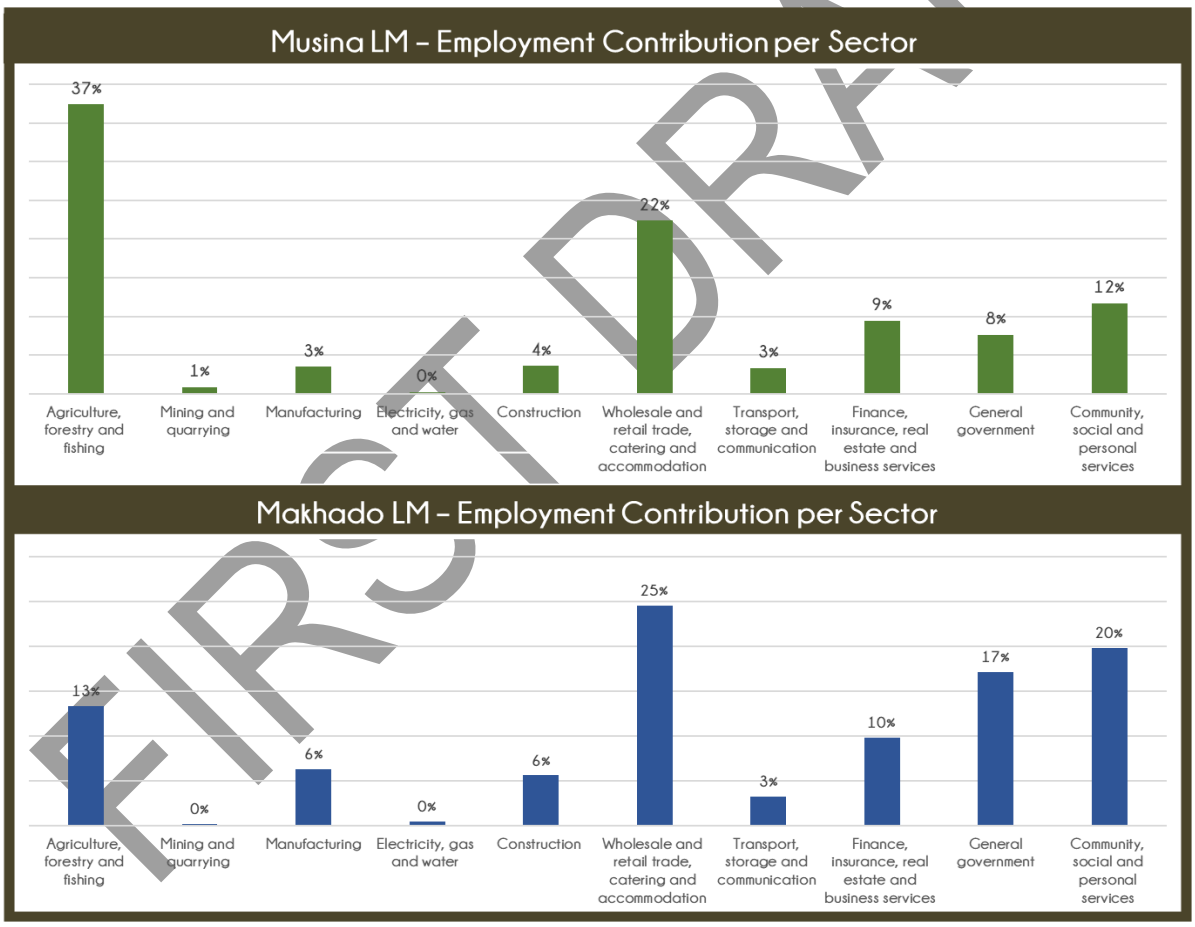
6.2 Employment Contribution

Each economic sector in South Africa contributes to the total employment of the population, and as such, it is important to analyse the contribution of employment to identify which skills are in demand in the study area. As seen in the previous section, Musina and Makhado LMs economies have become less diversified, and therefore, assessing the sectors' employment will further indicate which sectors are prioritised.

Figure 9 illustrates the proportion of the contribution of each sector to the total employment in Musina and Makhado LMs. The largest employer in Musina LM is the agricultural sector, employing 37% of the workforce, followed by the trade sector (22%). The mining and energy sectors employ the lowest proportion of the workforce.

The largest employer in Makhado is the trade sector, employing 25% of the workforce, followed by the community sector (20%) government sector (17%) and agriculture sector (13%). Similarly, to Musina LM, Makhado LM's energy and mining sectors employ the lowest proportion of the workforce.

Figure 9: Employment Contribution per Sector



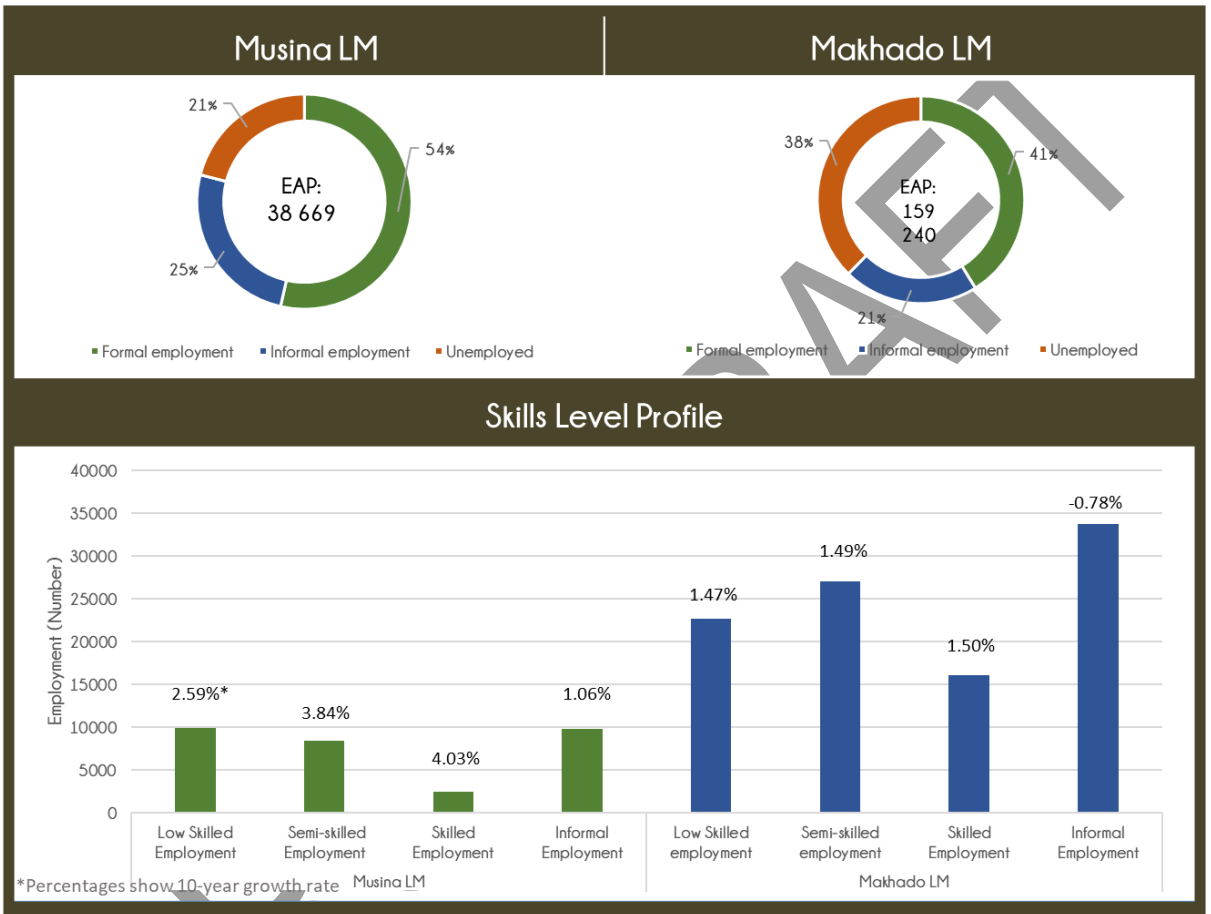
Source: Quantec (2020)

The MMSEZ which has an emphasis on mining, agriculture and tourism, will aim to stimulate all the private economic sectors. The focus on these three (3) industries will increase the employment of the sectors, although upstream and downstream benefits from the establishment of the MMSEZ will simulate employment in other sectors, such as the construction sector during establishment, manufacturing sector during MMSEZ operations and transportation sector through logistics.

6.3 Employment and Occupation Profile

Generally, citizens in certain demographic groups and locations tend to participate in the labour market very differently from others. Decisions that are as volatile and unpredictable as these do not leave enough room to be analysed properly and the incentives of household labour supply decisions are very restricted. The more information available about the details of the household labour supply choices, including choices to participate in the market, the better policymakers can predict the impact of strategies and programmes on labour force participation.

Figure 10: Employment and Skills Profile



	Vhembe DM	Limpopo	South Africa
Formal employment	154 553 (39%)	758 958 (43%)	12 358 501 (54%)
Informal employment	80 420 (21%)	317 134 (18%)	3 901 286 (17%)
Unemployment	156 914 (40%)	679 028 (39%)	6 578 983 (29%)

Source: Quantec (2020)

As indicated in Figure 10, skill levels have an impact on employment level in an area. Employment in turn has an impact on household income levels and the overall economic structure of an area. For the purpose of this sub-section, employment status may be categorised as the following:

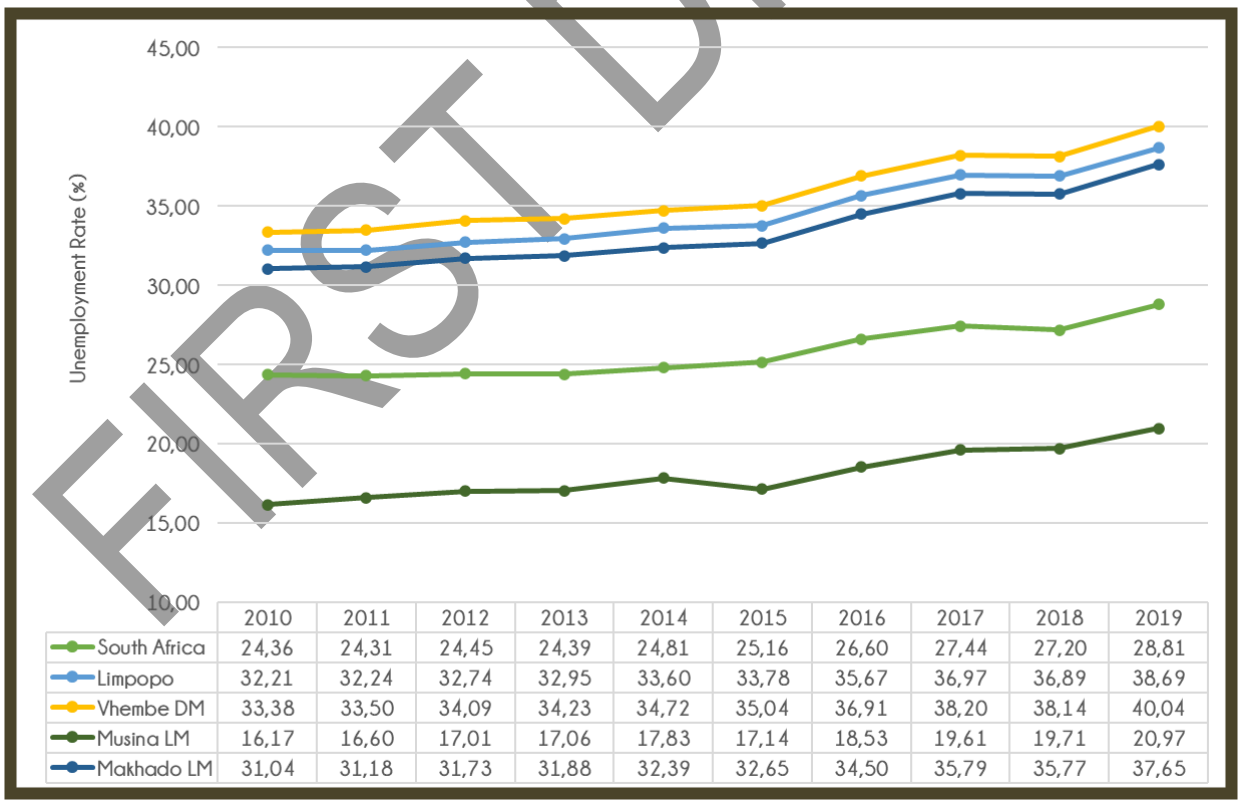
- Employed- individuals that are employed within the last seven days and have performed work for compensation.
- Unemployed- individuals within the economically active population who want to work and are available to work and have taken steps to look for work or to start some form of self-employment.

- Discouraged work-seeker- a person of legal employment age who is not actively seeking employment or who has not found employment after long-term unemployment, but who would prefer to be working.
- Not economically active- A person who is not working and not seeking work or not available for work)

Figure 10 illustrates the characteristics of the labour force of the Musina-Makhado in 2020 compared to the wider region of the Vhembe DM and the Limpopo Province.

Musina LM (67.3%) has a participation rate of the working age population compared with only 45% of the Makhado LM. Within the labour force in these two areas, a total of 129 846 workers are employed, and 68 063 people are unemployed. The unemployment rate for the Musina (21%) and Makhado (37.7% is lower than that compared to the unemployment rate of the Vhembe DM (40%), and the Limpopo Province (38.7%), as seen in Figure 11.

Figure 11: Employment Rate



	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
South Africa	24,36	24,31	24,45	24,39	24,81	25,16	26,60	27,44	27,20	28,81
Limpopo	32,21	32,24	32,74	32,95	33,60	33,78	35,67	36,97	36,89	38,69
Vhembe DM	33,38	33,50	34,09	34,23	34,72	35,04	36,91	38,20	38,14	40,04
Musina LM	16,17	16,60	17,01	17,06	17,83	17,14	18,53	19,61	19,71	20,97
Makhado LM	31,04	31,18	31,73	31,88	32,39	32,65	34,50	35,79	35,77	37,65

Source: Quantec (2020)

To combat unemployment, it is important to identify viable projects and interventions that will create significant employment in the short term and medium term, while also providing opportunities for sustainable growth and development.

7 ENVIRONMENTAL SCANNING

The environmental scanning is a constant and careful analysis of the internal and external environment of a study area in an effort to detect opportunities, threats, trends, and weaknesses which can impact the current and future strategies of a study area and the wider region.

7.1 Policy factors

A policy review plays an integral role in the early stages of a project. The review provides a high-level indication of whether a project is aligned with the goals and aspirations of the developmental policy within a country and at a local level. Furthermore, the analysis signposts any red-flags or developmental concerns that could jeopardise the development of the project, and assists in amending it, preventing costly and unnecessary delays,

7.1.1 National Policy Overview

7.1.1.1 National Development Plan

The **National Development Plan NDP** offers a long-term development perspective. It defines a desired destination and identifies the roles that different sectors of society need to play in reaching that goal. The NDP aims to eliminate poverty and reduce inequality by 2030. According to the plan, South Africa can realise these goals by drawing on the energies of its people and promoting leadership and partnerships throughout society.

The National Development Plan (NDP) recognises tourism and agriculture as key drivers of employment, economic growth and the national transformation agenda (National Planning Commission, 2012). The NDP states that long-term shifts in global trade and investment are reshaping the world economy and international policy, requiring greater policy focus, effective implementation of industrial policies and improved skills development. It is also stated in the NDP that South Africa must tackle the diversification of the economy from a range of angles. It needs to build on state capacity to identify sectors that will improve export opportunities. In addition, development finance can play a crucial role in promoting industrial policy.

The government, in partnership with the private sector, must identify areas to nurture and support; develop sensible instruments to support those areas and implement them competently. As a first step, it is proposed that efforts to support employment creation in the following key sectors should be prioritized:

- Infrastructure
- The agricultural value-chain
- The mining value-chain
- The green economy
- Manufacturing sectors
- Tourism and certain high-level services

7.1.1.2 The New Growth Path

The purpose of the **New Growth Path (NGP)** is to provide a framework that enables the achievement of the vision of 'jobs and decent work placed at the centre of economic policy'. One of the identified job drivers is in the green economies. The green economy necessitates profound changes in energy

infrastructure. The framework states that public investment can create 250 000 jobs annually in energy, transport, water and communications infrastructure and in housing (Economic Development Department, 2010). These jobs are said to be in four activities, the construction of new infrastructure; the operation of new facilities; expanded maintenance; and the manufacture of components for the infrastructure programme.

The strategy developed to achieve employment creation is essentially in offering comprehensive support for energy efficiency and renewable energy, including appropriate pricing policies, combined with programmes to encourage the local production of inputs, commencing with solar water heaters (Department of Economic Development, 2011).

With economic growth and employment creation as the key indicators identified in the NGP, the MMSEZ needs to identify key structural changes in the economy that can improve its performance in terms of labour absorption and the composition and rate of growth. New Growth Path (NGP) includes tourism as one of the six pillars of economic growth.

7.1.1.3 The National Spatial Development Framework

The **National Spatial Development Framework** (NSDF) is a government document that seeks to make a bold and decisive contribution to bringing about peaceful, prosperous and truly transformed South Africa, as articulated in the Freedom Charter, the Reconstruction and Development Programme and the National Development Plan (Department of Planning, Monitoring and Evaluation, 2018). It does so in full recognition of:

- The stranglehold that the unjust national spatial development paradigms, logics and patterns of the past have placed on many attempts at breaking the back of poverty, unemployment and inequality.
- The valuable, and often hard lessons learnt over the last twenty-four years in the pursuit of national reconstruction, inclusive economic growth and spatial transformation.
- The necessity for decisive, collaborative and targeted state action in national space, to drive South Africa towards the shared, inclusive and sustainable future we desire and require.

The impact of NSDF presents wide variety of socio-economic trends emerging in South Africa, and then draws inferences about how that emerging space economy should affect public expenditure in the immediate future.

7.1.1.4 Special Economic Zone (SEZ)

A Special Economic Zone (SEZ) is an economic development to promote national economic growth and export by using support measures in order to attract foreign and domestic investments and technology. (The Department of Trade and Industry, 2012). The SEZ has been recognised as a tool by the government to facilitate economic growth and development goals.

Due to the introduction of SEZ programmes, more areas of strategic economic potential can be leveraged to attract foreign direct investment. The most pertinent outcome envisaged by the SEZ programme is the expansion of the manufacturing sector and the creation of additional industrial hubs to regionally diversify the national industrial base.

The impact of the SEZ policy will be of benefit to industrialisation and significant to achieving to the programmes' goals of economic growth, development and employment creation.

7.1.1.5 Industrial Policy Action Plan (IPAP)

The **Industrial Policy Action Plan** provides an economic analysis of prevailing global and domestic economic conditions relevant to industrial policy; time bound action plans and programmes across a range of sectors and listing the key constraints to an optimal industrial strategy (The Department of Trade and Industry, 2018).

The impact of the IPAP in the context of long-term policy will create a framework to secure even higher levels of investment and production, higher exports, deepening localisation and expanding employment.

7.1.1.6 Agricultural Policy Action Plan (APAP)

The **Agricultural Policy Action** Plan (APAP) seeks to translate the high-level responses offered in the Integrated Growth and Development Policy (IGDP) into tangible, concrete steps. The first iteration of APAP is not offered as a fully comprehensive plan; rather, based on the model of the Industrial Policy Action Plan (IPAP), it identifies an ambitious but manageable number of focused actions, in anticipation of future APAP iterations that will take the process further (Department of Agriculture, Forestry and Fisheries, 2014).

APAP is planned over a five-year period and will be updated on an annual basis. Aligning itself with the New Growth Path (NGP), the National Development Plan (NDP) and Industrial Policy Action Plan (IPAP), APAP seeks to assist in the achievement of Outcome 4, Decent Employment through Inclusive Growth, and that of Outcome 7, Comprehensive Rural Development and Food Security.

The key outputs from APAP are well documented and have been broadly incorporated into the various provincial and district plans that are in place.

7.1.1.7 National Tourism Sector Strategy (NTSS)

The **National Tourism Sector Strategy** (NTSS) focuses on inclusive growth, which must fundamentally be based on domestic and international tourist market growth and expenditure increases. The NTSS links the marketing plans to broader development imperatives, including addressing barriers to growth and the building of a transformed and inclusive tourism economy. This growth will, by the values that drive South Africa as a developmental state, be inclusive, responsible and sustainable

Government's recognition of the critical importance of tourism in the economy is evident in the sector's inclusion as one of the priority areas in the initial Industrial Policy Action Plan, the New Growth Path and the National Development Plan (Department of Tourism, 2012). The sector is expected to make the requisite contribution to job creation and the continued growth of the economy.

The impact of the NTSS is reinforced through the following:

- Effective Marketing
- Facilitating ease of access
- Visitor experience
- Destination management
- Broad-based benefits

7.1.1.8 Comprehensive Rural Development Programme

The **Comprehensive Rural Development Programme** (CRDP) focuses on enabling rural people to take control of their destiny, with support from government, and thereby dealing effectively with rural poverty through the optimal use and management of natural resources (Department of Agriculture, Forestry and Fisheries, 2011). This will be achieved through a co-ordinated and integrated broad-based agrarian transformation as well as the strategic investment in economic and social infrastructure that will benefit entire rural communities. A three-pronged strategy to ensure the programme achieve its objectives are:

- Agrarian Transformation: this includes increasing all types of agricultural production; optimal and sustainable use of natural resources; the use of appropriate technologies; food security; and improving the quality of life for each rural household.
- Rural Development: At the heart of rural development is that rural communities become vibrant socially and economically through optimal utilisation of natural resources; infrastructure is developed and revitalised; communities become socially cohesive through social facilitation and mobilisation; job creation models implemented.
- Land Reform including restitution, redistribution, land tenure reform

7.1.2 Provincial Policy Overview

7.1.2.1 Limpopo Provincial Growth and Development Strategy

The **Limpopo Provincial Growth and Development Strategy** (PGDS) is aimed at providing the province and all its stakeholders with a vision and pathway for development that reflects the priorities of the province. It is a strategic framework for accelerating and sharing economic growth through developmental interventions. It lays the foundation for attracting and instilling confidence from potential investors in the province and seeks to provide the guidelines for developing social contracts that address the challenges faced by the Province

The Limpopo PEGDP is set out to enable the province to address the challenges facing it as set out in the PGDS (Limpopo Provincial Government, 2005). It includes specific programmes that are designed to achieve structural change in critical areas of the provincial economy, and ultimately provides a framework for the provincial government, municipalities, the private sector and all organs of civil society to make hard choices in pursuit of the priorities encapsulated in the MTSF.

Tourism and agriculture have been established as priority sectors for the Limpopo province to drive economic development. The Limpopo PGDS is informed by policy at the national, provincial and local levels. Its overarching objectives can be found in the NGP and the NDP.

7.1.2.2 Limpopo Development Plan

The **Limpopo Development Plan** (LDP) strives for economic development and transformation to enable the province to address triple challenges, poverty, inequality and unemployment. The main economic agenda (LDP) is to intensify job-creation and enhance the skills base of the province towards supporting socio-economic growth and development in the province (Limpopo Provincial Government, 2015).

The province aims to diversify the economy through placing emphasis in manufacturing thus creating value along commodities with competitive advantage within the prioritised economic sectors, in pursuit of addressing the losses in employment and promoting sustained job opportunities.

The LDP 2015-2019 builds on the foundations of the Limpopo Economic Growth and Development Plan (LEGDP) 2009-2014 and the Limpopo Provincial Growth and Development Strategy (PGDS) 2004-2008 and built on the **National Development Plan** (NDP). These strategies were reviewed in order to maintain positive momentum for development and to overcome shortcomings that were revealed during the implementation cycles.

In addition to the envisaged SEZs, specific manufacturing clusters for appropriate industrial value-chains should be identified to enable the manufacturing sector in Limpopo to be more competitive nationally. The LDP aims to achieve the four goals: an increased economic growth rate, decreased unemployment rate, decreased poverty rate and decreased inequality level.

7.1.2.3 Limpopo Green Economy Plan

The Limpopo Green Economy Plan refers to the local production and consumption, efficient use of energy and water and care of natural and created resources. It is a new way of thinking, planning and living. It provides socially and environmentally solutions to economic exclusion and resource degradation (Department of Economic Development, Environment and Tourism, 2013).

It is aligned with the Limpopo Employment Growth and Development Plan (LEGDP) 2009-2014, of which the main objective is to improve the quality of life of the people in the province. It is envisaged, that this will be done by introducing economy, which:

- Will create decent jobs, foundation to sustainable livelihoods
- Create reliable health care infrastructure
- Afford for the building of houses of acceptable standard
- Provide social development
- Result in comprehensive rural development, good security and land reform.

7.1.3 Local Policy Plans

The vision of the **Vhembe DM Integrated Development Plan** (IDP) is referred to as a developmental municipality which is focused on sustainable service delivery and socio-economic development towards an equal society (Vhembe District Municipality, 2016). Service delivery and infrastructure development is a priority area. The strategic objective aligned to this priority area is to improve access to services through the provision, operation, and maintenance of socio-economic and environmental infrastructure (Vhembe District Municipality, 2016).

7.1.3.1 Musina Local Municipality

The **Musina LM IDP** emphasis a mission for the municipality to be a mechanism of affordable quality services and stability through socio-economic development and collective leadership (Musina Local Municipality, 2016). One key performance area is to initiate and improve the quality and quantity of municipal infrastructure services.

The aim of the **Musina LM Spatial Development Framework** (SDF) is to support the municipal vision by spatially interpreting the vision of the IDP. The vision of the municipality as stipulated in the SDF is

to be a vibrant, viable, and sustainable gateway city to the rest of Africa (Musina Local Municipality, 2014). Musina has been identified as a provincial growth point and is a key district development priority area.

7.1.3.2 Makhado Local Municipality

The main thrust of the **Makhado LM IDP** is to put in place strategies aimed at alleviating poverty, and it outlines the key challenges that the municipality is currently facing. The vision of the Makhado LM is emphasised as "Moving towards a dynamic and progressive centre for socio economic development by 2025" (Makhado Municipality, 2019).

The **Makhado SDF** states that the future spatial pattern for the municipality will be determined by political and economic forces and processes (Makhado Local Municipality, 2013). Further, the availability of resources will have a direct impact on economic development in the area and will be the most important factor for development in the municipality in the future.

7.2 Economic factors

According to the South African Standard Industrial Classification, all economic activities can be divided into nine economic sectors that contribute to total production in a regional economy. Limpopo's economy has traditionally been rooted in the primary sectors, because of a wealth of mineral resources and favourable agricultural conditions.

In terms of production, the size of an economy refers to the total current Rand (R) value of goods and services produced in that area, commonly measured in Gross Value Added (GVA). The structure or composition of such an economy is then measured by the contribution of each economic sector to the total value of goods and services produced. Economic growth or economic performance is subsequently measured by the change in total.

Employment and its economic contribution are important considerations when assessing the scope of economic factors in an area. The employment profile illustrates the significance of different economic activities of the local population.

Economic linkages refer to the interaction of various economies with one another, or various sectors within one economy. These interactions can take place in various manners and on various scales. Linkages are important for an economy and its activities to be sustainable. One economy in general cannot provide for the local needs and therefore needs to interact with neighbouring or nearby economies.

7.3 Infrastructure

Infrastructure is a very important part of any economy. The availability of infrastructure such as roads, telecommunications, railways, water, and airports can create economic growth and development. The existence of these infrastructures improves linkages between the MMSEZ and the local population, and it also creates employment.

7.4 Climate Factors

The climatic factors of the study region will have a significant impact on the region's ability to produce agricultural commodities and the comfort levels for tourism, thus, an analysis of the climate will assist in determining the impact of the environment on the MMSEZ operations.

Table 7 compares the climatic factors of Musina and Makhado LM in order to gain an overview of the differences of the weather in these regions. The rainfall in the study region is significantly low, ranging

on average between 77 mm and 87 mm p.a., with rainy periods between April and September. Wind speeds average approximately 14,7 km/h, mostly from an easterly direction, between August and March.

Due to warm temperatures, tourism and agricultural activities can be performed all year, although the best climatic conditions for tourism are in the Autumn to Spring seasons, as the summers experience very high temperatures. The brightest days occur between October and March and the months of May to August are the darkest days.

Table 7: Climatic Factors

Factor	Musina	Makhado
Temperature (average)	22°C - 32°C (**summer**) 10°C - 24°C (**winter**)	19°C - 28°C (**summer**) 8°C - 21°C (**winter**)
Rainfall (mm p.a.)	77 mm	87 mm
Rain Period	July to April (9 months)	September to May (7,5 months)
Rainless Period	April to July (3 months)	May to September (4,6 months)
Windy Season	August to March (6,3 months)	August to December (3,5 months)
Wind Speed (average km/h)	14,5 km/h	14,9 km/h
Wind Direction	Mostly from the East	Mostly from the East
Tourism – best time to visit	mid-April to mid-September	mid-March to late-May early-August to late-October
Growing Season	All year (crop dependent)	All year (crop dependent)
Solar Energy	October to March (**brighter period**) May to August (**darker period**)	October to March (**brighter period**) May to July (**darker period**)

Source: (WeatherSpark.com)

The climate will have an impact on the operations of the MMSEZ, as the low rainfall in the region will hamper agricultural development, restricting crop farmers to riversides and borehole irrigation. The low rainfall will also limit grazing land carrying capacity, as grass yields are low and availability of drinking water for livestock will keep stock-levels low, without piped water in some regions. This will impact the volume of inputs to agro-processors at the MMSEZ.

Tourism will also be impacted by the climate as visitors who prefer dry weather conditions will be drawn to the region, while others will be deterred by the climate. The MMSEZ may experience higher volumes of visitors during the more favourable months, while experiencing a decrease during the hotter months, although South Africans tend to take vacation during December and January, which may offset the decrease in tourism.

7.5 Technological factors

Successful Special Economic Zones regimes are characterised by the provision of comprehensive support systems that go beyond the provision of world-class infrastructure and include all other key inputs to successful industrialization, such as strategies for the development of human capital, logistics, technology, research and development, business incubation and other measures for the promotion of small and medium enterprises.

The advancement of technologies refers to the systematic use of scientific, technical, economic, and commercial knowledge to meet specific business objectives or requirements. Technological developments in the fields of agriculture, tourism and energy will potentially have direct impact on the MMSEZ, both presently and in the future. This subsection aims to identify current technological improvements in each field.

7.5.1 Agricultural Technological Developments

Agricultural technology developments include advancements in both primary and secondary production of commodities, including:

- **Indoor Vertical Farming** - Indoor vertical farming can increase crop yields, overcome limited land area, and even reduce farming's impact on the environment by cutting down distance travelled in the supply chain.
- **Farm Automation** - technology that makes farms more efficient and automates the crop or livestock production cycle, using robotics innovation to develop drones, autonomous tractors, robotic harvesters, automatic watering, and seeding robots.
- **Livestock Farming Technology -** this technology can come in the form of nutritional technologies, genetics, digital technology, and more. Livestock technology, such as Animal genomics; and Sensor and data technologies, can enhance or improve the productivity capacity, welfare, or management of animals and livestock.
- **Modern Greenhouses -** Modern greenhouses are becoming increasingly tech-heavy, using LED lights and automated control systems to perfectly tailor the growing environment. Successful greenhouse companies are scaling significantly and located their growing facilities near urban hubs to capitalize on the ever-increasing demand for local food, no matter the season.
- **Precision Agriculture -** New precision agriculture companies are developing technologies that allow farmers to maximize yields by controlling every variable of crop farming such as moisture levels, pest stress, soil conditions, and micro-climates. By providing more accurate techniques for planting and growing crops, precision agriculture enables farmers to increase efficiency and manage costs.
- **Blockchain -** Traceability is critical for the food supply chain. Blockchain's capability of tracking ownership records and tamper-resistance can be used to solve urgent issues such as food fraud, safety recalls, supply chain inefficiency and food traceability in the current food system. Blockchain's unique decentralized structure ensures verified products and practices to create a market for premium products with transparency.
- **Artificial Intelligence -** Remote sensors, satellites, and UAVs can gather information 24 hours per day over an entire field. These can monitor plant health, soil condition, temperature, humidity, etc. The idea is to allow farmers to gain a better understanding of the situation on the ground through advanced technology (such as remote sensing) that can tell them more about their situation than they can see with the naked eye.

- **Smarter packaging and less waste** - modified atmosphere packaging (MAP) as a means to preserve and extend the shelf life of fresh produce. Through MAP technology, the atmospheric air inside a package is substituted with a protective gas mix that keeps the product fresh for longer periods of time.

The abovementioned technological developments will have an impact on the volume of available raw inputs for agro-processors based at the MMSEZ as more efficient farming techniques and technologies will increase yields. Technologies, such as blockchain and MAP, will improve the quality of produce in the down-stream supply chain, ensuring greater quality product offerings.

7.5.2 Tourism Technological Developments

The tourism industry relies heavily on the exposure of key points of interest to attract tourist. Advancements in communication technologies will provide businesses, and potential visitors, more access to information for greater channels of communication, including:

- **Mobile Technology -** The cell phone has become our tour guide, travel agency, best restaurant locator, map, and more. It is by our side during the entire purchase journey. In fact, according to TripAdvisor, 45% of users use their smartphone for everything having to do with their vacations.
- **Augmented Reality -** Augmented reality (AR) or virtual reality (VR) have also entered the travel world, and the truth is that it's a trend due to all the possibilities they can offer. Companies use it to show users a cabin on a cruise ship or transport them, for a few seconds, to the Great Wall of China. It's possible to "teleport" ourselves to the most remote corners of the globe without getting off the couch.
- **Internet of Things (IoT) -** The Internet of Things (IoT) promises to bring significant updates to the tourism industry. They include integrating sensors connected to the Internet inside items like cars, suitcases, buildings, and more. In fact, Spain's Hotel Technology Institute (Instituto Tecnológico Hotelero, or ITH) affirmed that the Internet of Things "is going to be the major transformative factor in the personalization of the customer experience over the next few years."
- **Virtual Assistants -**the virtual assistants, such as Apple Inc.'s Siri, that meet all our needs. IBM recently launched Watson Assistant, an AI-powered virtual assistant that creates an interactive and personalized experience for consumers. This is open technology that firms can employ and adapt to their needs.
- **Big Data -** Businesses use information about their guests to figure out what is the best target for marketing campaigns. Primarily, they examine their database to look at the amount spent, the reason for the trip, the country of origin and cross-checks this information with public data from government sources to develop the most appropriate customer profile and achieve a higher success rate. This way, they make a better segmentation for their campaigns to increase their efficacy and optimize the investment required for these campaigns.
- **Blockchain -** Although it is mainly associated with finance, it also appears that it can impact travel. While there has not been that much experimentation with it, it is possible that it will be useful in identifying passengers at the airport, guaranteeing transparency in tourists' opinions, and easy and secure payments.
- **5G -** Travel technology becomes all the more powerful with help from 5G networks. It promise much faster loading and downloading speeds, wider coverage, and more stable connections. Beyond downloading content 20 times faster than before, 5G allows us to develop and deploy technology that 4G limited us. That means the connection between smart devices will be more efficient and we will be able to start to truly enjoy the Internet of Things (IoT). Immersive tourism,

where technology turns travellers into the experience's protagonist, will be a reality. Plus, augmented reality (AR) or 360° video will be more universal and accessible.

The new developments in communication technology will have a significant impact on the tourism industry, specifically regarding the MMSEZ, as the various technologies may be utlised to increase the reach of MMSEZ's tourism marketing, as well as improve the access to information about the surrounding key attractions.

7.5.3 Energy Technological Developments

In the search for cleaner fuel alternatives to fossil fuels, the development of energy technologies has progressed rapidly in recent years. The use of fossil fuels gained prominence as it was cheaper to extract and develop than renewable energy, but has a significant impact on the environment, due to pollution, and extensive use resulting in the depletion of reserves.

Major developments in energy technology includes, Wind-, Hydro-, Solar- and Nuclear Energy Production, with advancements in Battery Storage capacities. The focus on efficient energy also stems to the design of production facilities and processes to maximise the efficiency of energy usage, with modern factories implementing closed systems where energy is recycled throughout the production process.

The numerous developments in the sources of energy gives rise to the potential for the MMSEZ to produce energy for its tenants, thus avoiding challenges currently experience from the national grid, such as load-shedding. The impact of a more consistent energy source, such as the planned solar energy farm at the north MMSEZ site, will improve the productivity of the MMSEZ, as well as reduce the costs of energy consumption.

7.6 SWOT Analysis

It is important to consider the potential strengths, weaknesses, opportunities, and threats that will impact the MMSEZ and the economy on the study region. The following factors should be considered:

Strengths

- The SEZ is strategically located to accelerate and consolidate economic integration within the SADC.
- The MMSEZ (North) is located close to the Beitbridge Border Gate which is the second biggest port of entry in South Africa, and a gateway to other SADC countries.
- The MMSEZ is strategically located in the Vhembe DM, which is endowed with mineral resources.
- The central location of the MMSEZ (South) is in proximity to significant agricultural areas.
- The MMSEZ is located next to a railway, which enables bulk transport domestically and abroad.

Weaknesses

- Technical recession had a negative impact on the growth and development of the provincial economy.
- Illegal mining continues to impact negatively on the province's economy and investor confidence.
- The lack of diversity in the economic sectors results in extreme reliance on few economic sectors.
- The introduction of new manufacturing facilities, with certain development benefits, will create unfair competition with current local businesses

Opportunities

- The MMSEZ had managed to attract investment of up to R150 billion to the province.
- The MMSEZ is intended to accelerate economic growth, development, and job creation.
- The MMSEZ will stimulate the secondary sector directly through manufacturing, and the primary and tertiary sectors as an important link in the supply chain.
- The economic stimulation of the MMSEZ will create job opportunities in the primary and secondary sectors, specifically agriculture and manufacturing.

Threats

- The Coronavirus is expected to take a lasting toll on the national economy and the provincial economy.
- The recent coal-driven threats to Limpopo water security
- Significant changes in the low annual rainfall of the region may result in insufficient inputs for agro-processing, which will negatively impact the MMSEZ

7.7 Comparative Analysis

The establishment of Special Economic Zones is used worldwide as a tool to assist in improving a country's economic growth. The main purpose of this sub-section is to compare the key features of the MMSEZ to those of other areas in the country, and at larger scope, to that of China.

7.7.1 Similar SEZ and Industrial Parks in South Africa

With the inclusion of the MMSEZ, South Africa has a total of **eleven** SEZs located throughout the different provinces, and includes the following:

- **Saldanha Bay, Western Cape** - The Saldanha Bay SEZ is located two hours north of Cape Town. This SEZ is an oil, gas and marine repair engineering and logistics services complex, servicing the upstream oil exploration industry and production service companies operating in the oil and gas fields off Sub-Saharan Africa.
- **Coega, Eastern Cape** - Coega SEZ is located in the Nelson Mandela Bay Metropolitan Municipality on the Est-West trade route to service both world and African markets. It has attracted investments in the agro-processing, automative, aquaculture, energy, metals logistics and business process services sectors.
- **East London, Eastern Cape** - The East London SEZ is considered a prime industrial park, renowned for its customised solutions for various industries, including automative, agro-processing and aquaculture. It is an ideal location of exported manufacturing and processing, providing investors with connections to major markets, locally and across the globe.
- **Maluti-A-Phofung, Free State** - The Maluti-A-Phofung SEZ is located in Harrismith and is geographically at the mid-point of the Durban-Johannesburg route. The Maluti-A-Phofung SEZ offers access to the port of Durban as well as the logistics for the transfer of freight between road and rail.
- **Dube TradePort, KwaZulu Natal** - The Dube TradePort SEZ is located 30 km north of Durban. This SEZ focuses on manufacturing and value-addition primarily for automotive, electronics and fashion garments.
- **Nkomazi, Mpumalanga** - The Nkomazi SEZ is located approximately 65km of the CBD of Nelspruit and is in the eastern part of Ehlazeni District Municipality in Mpumalanga. The Nkomazi SEZ has been formalised to provide a competitive and highly efficient industrial Cluster that position itself

as the leading location for Agro-processing, and Logistics services within South Africa, in response to investor demand.

- **Richards Bay, KwaZulu Natal** - The Richards Bay SEZ is located on the north-eastern South African coast. The N2 business corridor links the province's two major ports of Durban and Richards Bay, and connects with Maputo in Mozambique and, ultimately, areas of East Africa. With prime rail and road access, this zone is a portal to the world.
- **Atlantis SEZ, Western Cape** – the Atlantis SEZ is located on the West Coast of South Africa, which is 40km from Cape Town. The Atlantis SEZ focuses on green technologies that reduces the impact of people on the planet. Examples of green technologies include solar panels, wind turbines, insulation, electric vehicles, biofuels, and recycling materials.
- **Platinum Valley, North West** - The industrial park is located near the town of Mogwase in the Bojanala Platinum District of the North West Province. The site will be developed in three phases comprising of a logistics park, light manufacturing space and a heavy industries manufacturing space.
- **OR Tambo IDZ, Gauteng** – the OR Tambo IDZ is located in Johannesburg and aims to develop land around the OR Tambo International Airport to stimulate economic development through the use of IDZ mechanism. The OR Tambo IDZ supports the growth of the beneficiation of previous metals and minerals sectors, with a focus on light, high-margin, export-oriented manufacturing of South African precious and semi-precious metals.

7.7.2 Lessons learned

South Africa needs to utilise SEZs to transform the country's economic prospects. It is therefore important that the approach to development should be quite differently from the ineffective IDZ strategy. Successful SEZs must do more than offer an investment proposition that is marginally better than what is available outside the zone, and as evident from countries such as China, the success of the country across different levels requires that SEZs be globally competitive. If South Africa is to deliver on the promise of SEZs, the country's new approach will need to embrace some key lessons from international experience, which include the following:

Special Economic Zones (SEZ) must be distinct - Successful SEZs offer investors something significantly different from what is available in the rest of the economy. Precisely what an SEZ offers, and how this differs from conditions elsewhere, depends on the goals of the country's SEZ programme. International evidence indicates that SEZs are most successful when they are targeted toward particular industries and offer concrete solutions to the challenges faced by those industries.

Global competitiveness is key - South Africa's SEZs need to be globally competitive. Investors, particularly foreign investors, choose SEZs for different reasons. Most consider the location, market access and logistics; others consider wage levels and labour market practices, and others take into account access to skilled labour or a favourable regulatory environment.

The country's economy needs to support SEZs - the extent to which SEZs can function effectively and benefit the economy as a whole depends on wider economic conditions. The more business friendly the surrounding environment, the more potential an SEZ has to stimulate economic activity both within and outside of the zone. Factors such as the exchange rate and availability of skilled workers are important in creating support and stability for SEZs.

SEZs should support local businesses - Although it is widely believed that multinationals invest in SEZs in order to take advantage of cheap local labour, most FDI (including investments in SEZs) is in

medium-skill industries. SEZs can tailor their offerings to specific sectors and subsectors across the industrial spectrum. The key is to ensure that the zones help address whatever constraints limit the growth of those sectors elsewhere in the economy. Where mass unemployment is a problem, SEZs should focus on addressing the needs of labour-intensive industries.

SEZs require political commitment from the different levels of government - Effective SEZ policies and operations require the coordination of a number of government departments. Generally, from the national level to local level, government must be committed to making SEZs work, if only because the zones will require government entities to do some things differently from how they do them everywhere else. Achieving this requires strong leadership and high levels of political oversight, often for a sustained period.

7.7.3 China's role in SEZ

After decades of centrally planned economy, China adopted the open-door policy in 1978 and has since taken the lead in applying polices and measures to engaging in economic activities to the other countries. In 1980, the areas of Zhudai, Shenzhen, and Shantou in the Guangdong Province were designated as special economic zones, and later followed by Xiamen in the Fujian Province.

The four SEZs were quite similar as they comprised large areas within which the objective was to facilitate broadly based, comprehensive economic development, and they have all enjoyed special financial, investment, and trade privileges. From the 1980s to date, there has been major factors and situations which have contributed to the success of China's SEZ, which include but not limited to the following:

Government support to market-oriented economic reforms - Strong commitment and support of the government to pilot market-oriented economic reforms. Despite the high uncertainty at the beginning, the country's leaders were determined to make changes, through a gradualist approach. Through such a determination, the state ensured a stable and supportive macro-environment.

Land Reforms - Before 1981, all land belonged to the State in the urban areas and, in rural areas, land was collectively owned. Since 1981, the government allowed SEZs to lease land to investors with an initial term of 20-50 years with the possibility of renewal. Meanwhile, a land auction system was established for all the commercial land (2002) and industrial land (2007) to ensure the efficient use of land resources (Shen and Xu 2011). These reforms helped to establish a modern land market which has transformed whole China's urban landscape.

Investment incentives and institutional autonomy - To encourage firms to invest in the zones, the Chinese SEZs had in place various fiscal and non-fiscal incentives and preferential policies. This included streamlined administrative process, sound infrastructure, rapid customs clearance, concessionary tax rates, and flexibility in hiring and firing workers. Favourable policies were also in place to attract skilled labour, such as the provision of housing, research funding, education subsidies, etc.

Foreign Direct Investment and the Chinese diaspora - FDI and the Chinese diaspora have played important roles in the success of the SEZs by bringing capital investment, technologies, and management skills; generating learning and spillovers; and ultimately helping to build local manufacturing capacity.

8 TOURISM SECTOR ANALYSIS

This section of the report will review the performance of the tourism sector in essential performance areas, relating to the provincial and regional tourism performance within Limpopo's changing context.

South Africa's tourism sector is regarded a key economic and growth enabler labelled as one of the world's fastest growing leisure and business travel destinations. With its significant contribution to the local and global economy. South Africa's tourism sector focus on providing visitors with a unique range of natural beauty, wildlife, cultural heritage, and adventurous activities suitable for diverse tourism preferences and experiences.

Furthermore, South Africa's tourism sector continuously enable growth in terms of job creation, social inclusion, services exports, foreign exchange earnings and sustainable transformation. For the purpose of this report, this section will focus on the Limpopo province's tourism sector to create a better understanding of the sector's performance and offerings. The purpose of this section is to elaborate on the focus areas of the impact analysis to establish to what extent the tourism sector of the area will be influenced by the Musina-Makhado SEZ.

8.1 Limpopo Tourism Overview & Performance

The Limpopo province, previously known as the Northern Province, offers scenic and contrasting landscapes reflecting typical African characteristics along with vast bushveld settings and unique landscapes. A vast range of both natural and man-made attractions, rich cultural heritage and abundance of wildlife labelled the province as a preferred tourist destination for both leisure and business travelers globally. Limpopo's main supply of tourist attractions comprises of an established network of protected areas and nature reserves, which is amongst the best on the African continent. The purpose of this network of nature reserves is to preserve the province's natural heritage for sustainable tourism purposes domestically and internationally.

The Limpopo Province is the northmost province of South Africa and covers approximately 14 million hectares, which comprises 10.3% of the country's total land surface. These hectares are made up of 1.16 million hectares dedicated to nature conservation. Approximately 4500 game farms (50% of the total game farms in the country), 48 provincial nature reserves and national parks including Marokele National Park, Mapungubwe National Park and two thirds of the well-known Kruger National Park are situated within the province. The province shares three borders with neighboring countries namely, Botswana, Zimbabwe, and Mozambique.

Limpopo is divided into five regions located according to cultural inhabitants. Capricorn is the central region mainly occupied by the Bapedi People. Waterberg is the largest region in the province with the largest number of Batswana people. The Vhembe region in the far north is dominantly occupied by Shavonda and Vatsonga people. The Mopani region (towards the Kruger National Park) mainly comprises Vatsonga people, while the Sekhukhuni region mainly comprise of the Bapedi and Ndebele people.[1]

A Transfrontier Conservation Area (TFCA) refers to a cross-border region's different component areas have different forms of conservation status such as national parks, private game reserves, communal natural resource management areas and even hunting concession areas. These areas border each other and are jointly managed for long-term sustainable use of natural resources.
Source: Department of Environment, Forestry and Fisheries

Furthermore, the Limpopo province forms part of two transfrontier conservation areas (TFCAs) namely the Greater Limpopo and the Mapungubwe Transfrontier Conservation areas. These TFCAs creates a valuable competitive advantage for the province's tourism sector as it expands tourism experiences beyond borders. Additionally, the province comprises a diverse number of game species, which includes the "Big Five" and some endangered and indigenous species, creating another competitive edge within the wildlife and ecotourism sectors.

According to the Limpopo Tourism Growth Strategy of 2018, the province's landscapes are reflected through three registered United Nations Educational, Scientific, and Cultural Organisation (UNESCO) Biosphere Reserves including, the Kruger to Canyons, Waterberg- and Vhembe Biosphere Reserve. On top of the two World Heritage Sites namely the Mapungubwe Cultural Landscape and Makapans Valley, the province boasts with two RAMSAR sites and 28 registered natural heritage sites. It is thus evident from the information above that the Limpopo province's tourism sector's main offering consist of diverse conservation.[2]

As part of Limpopo's conservation diversity, the province offers unique cultural heritage experiences. In 1925 sediments, fossils, bones, and artefacts were discovered in the province which ever since became a popular paleontology and archaeology destination. Due to the historic San inhabitants, San rock art are found throughout the province, mainly in proximity of the three mountain ranges known as Waterberg, Soutpansberg and Drakensberg. Additionally, various cultural and heritage festivals are hosted annually throughout the province. These festivals create cultural awareness and promotes the value of the province's conservation while creating employment opportunities and attract tourists.

[1] **Limpopo Tourism, 2018.**

[2] **Limpopo Tourism Growth Strategy, 2018.**

There are two main corridors in Limpopo; the N1 national road which stretches from Gauteng through the centre of the province to the border of Zimbabwe and South Africa. The N1 is mainly used by both domestic and international tourists from O.R. Tambo International Airport to Bela-Bela, Marakele, Modimole, Mookgophong, Mokopane, Polokwane, Makhado, Mapungubwe, Musina and Zimbabwe. The N11 national road is the second main corridor which connects Mpumalanga with Botswana through the Limpopo province. Travelers make use of this corridor towards Groblersdal, Marble Hall, Mokopane, Lephalale, etc.

The above-mentioned corridors reflect the province's ease of access to its international tourism markets. Additionally, Limpopo has three commercial airports: the Polokwane International Airport, the Hendrick van Eck Airport (Phalaborwa) and the East Gate Airport (Hoedspruit). The Polokwane International Airport is mostly used by business travelers, while the other two are mostly used by leisure tourists due to the Kruger National Park and other surrounding nature reserves.

The Limpopo Tourism Growth Strategy of 2018 identified six tourism development clusters due to the diverse tourist destinations, attractions, products, and services available in the province. These clusters are listed below:

Figure 12: Limpopo's Six Tourism Clusters

Source: Limpopo Tourism Growth Strategy, 2018

It is evident from the overview above that the Limpopo province operates as a competitive tourist destination focusing on enabling sustainable tourism growth through conservation measures and diverse tourism offerings.

Tourism contributes significantly to the growth of the economy. The World Travel and Tourism Council estimated that the economic impact of tourism in 2018 was R425 billion towards the country's GDP, which adds up to 8.6% of the total economy. Furthermore, the tourism sector contributed approximately 1.5 million jobs to the economy, which is 9.2% of the country's total employment. Ultimately, the tourism sector injected R116.9 billion into the country's economy in 2018/19 through the direct spend of both international and domestic tourists.[3]These recordings reflects the significant impact the tourism sector has on the country's economy.

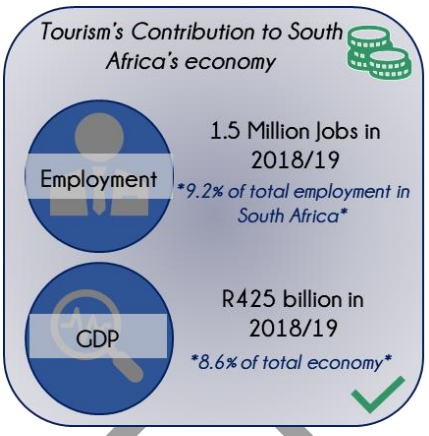


Figure 13: South African Tourism Performance 2018/19

Source: South African Tourism, 2018/19

International tourism in South Africa recorded a decline of 0.6% in 2018/19 from 2017/18 and recorded a total of 10.4 million in arrivals. International tourists contributed a total amount of R87.4 billion of direct spend in 2018/19, which is a 6.6% growth from 2017/18. Domestically, the tourism sector of South Africa recorded a total of 18.6 million domestic trips taken in 2018/19, a 12.7% increase from 2017/18. The total direct spend of domestic tourists recorded R29.5 billion (2018/19) which is a 35.7% increase from 2017/18. The main purpose of domestic travelling was visiting friends and relatives.[4] This sub-section will from here on forward elaborate on the tourism sector performance of the Limpopo Province.

[3] South African Tourism Annual Report, 2018/19

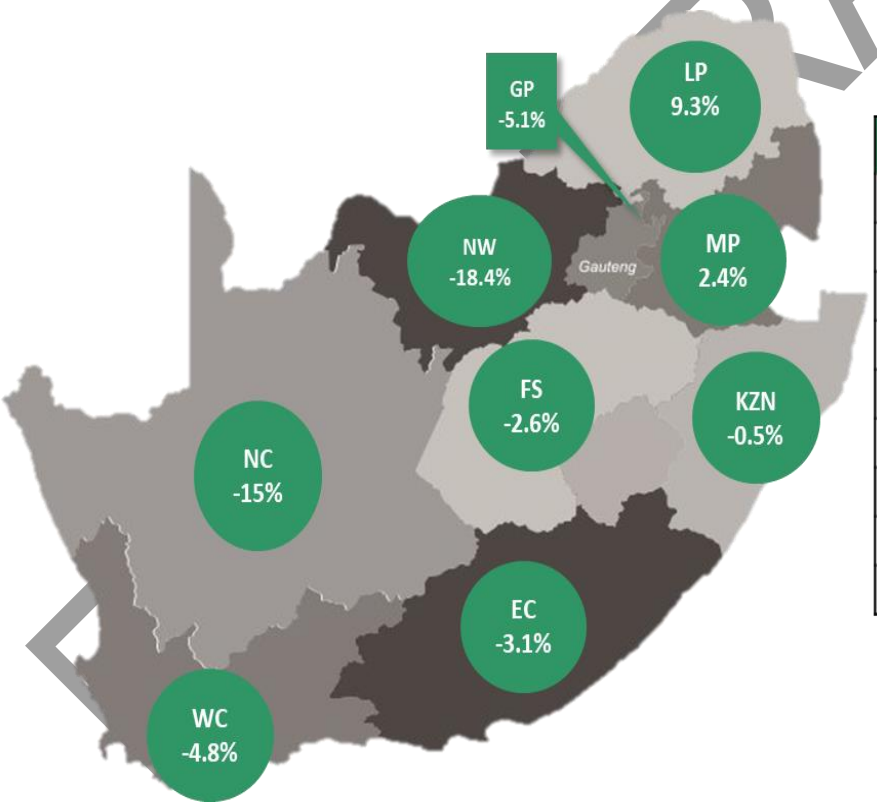
[4] South African Tourism Annual Report, 2018/19

8.1.1 International Performance

Evident from the tourism overview above, it is clear that the Limpopo province offers diverse tourist activities and offerings that attracts both national and international tourists. According to the South African Tourism Annual Report of 2018/19, Limpopo remained the second most visited province by international tourists in South Africa with 21.2% share driven by growth from its key source markets: Zimbabwe and Botswana.

Other international major source markets for the province was the United States of America, Germany, and the United Kingdom. Most international tourists visited the province for personal shopping purposes. While most provinces recorded a decrease of international arrivals, Limpopo and Mpumalanga recorded growth. The province received approximately 2.2 million international arrivals, an increase from 2017 as seen in the map below.[5] The Gauteng Province received the most international arrivals, which can be due to the O.R. Tambo International Airport's location. It is also clear that the Limpopo province recorded a 9.3% increase in international tourist arrivals, which will be beneficial to the tourism sector and its offerings.

Map 5: International Tourism Arrivals, 2018



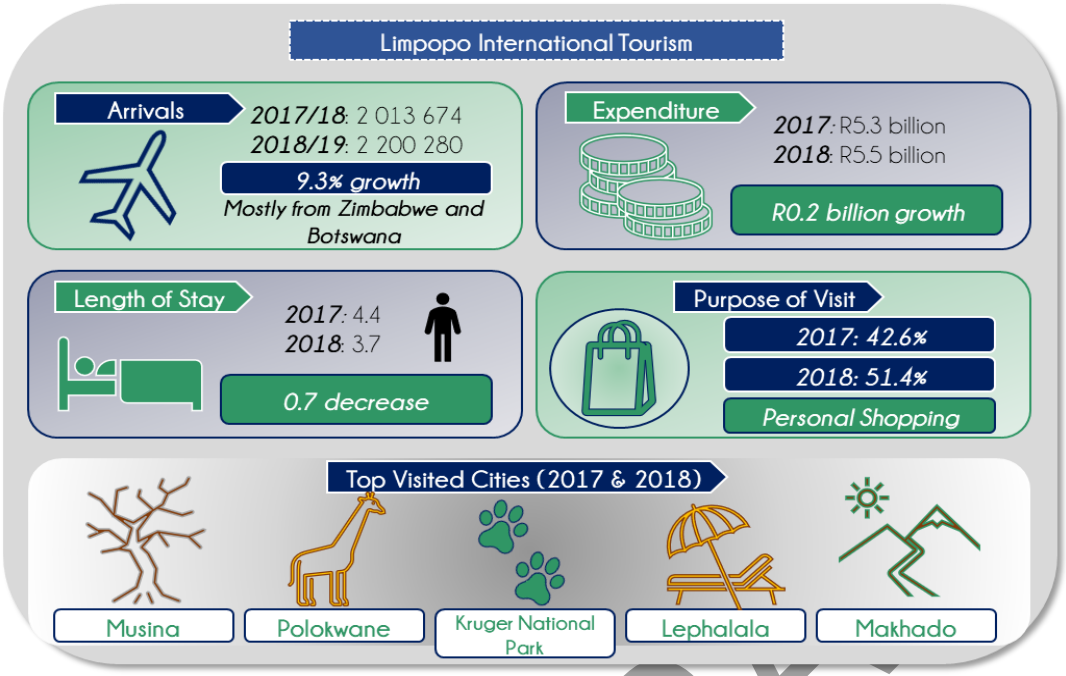
Province	2017/18	2018/19
Limpopo	2 013 674	2 200 280
Mpumalanga	1 596 959	1 634 739
Gauteng	3 964 005	3 762 882
North West	784 454	639 958
Free State	1 215 743	1 184 421
KwaZulu-Natal	824 829	820 614
Eastern Cape	430 884	417 547
Western Cape	1 777 573	1 692 254
Northern Cape	114 570	97 365

Source: South African Tourism Annual Report, 2018

The figure below illustrates the key indicators of the Limpopo Province's International Tourism performance for 2018.

[5] **Tourism Performance Report, 2018**

Figure 14: Limpopo International Tourism Performance, 2018



Source: South African Tourism, 2018

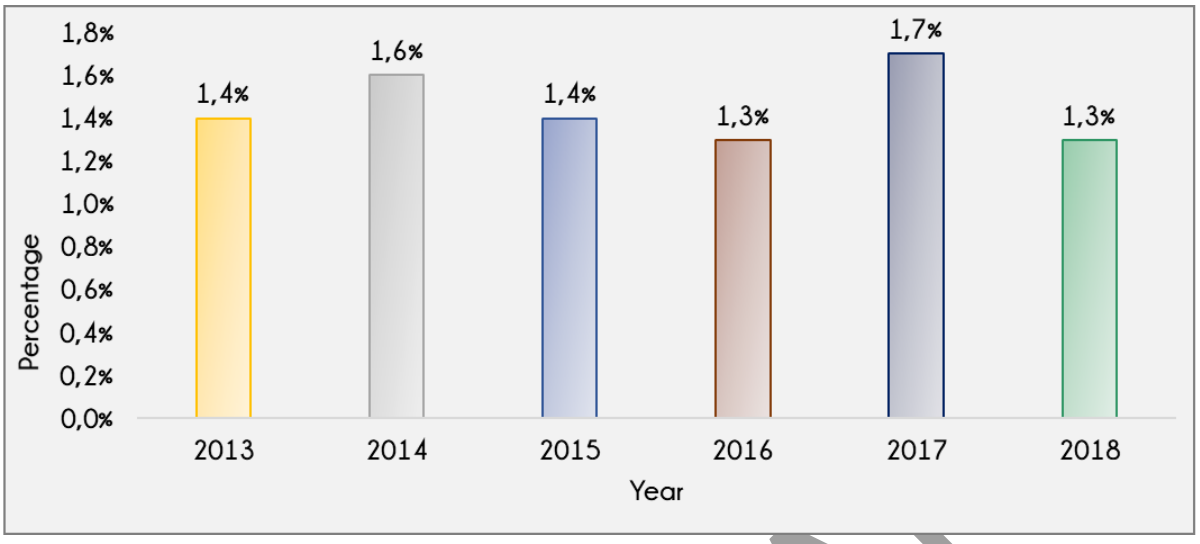
As illustrated in the figure above and mentioned previously, Limpopo and Mpumalanga are the only provinces that recorded an increase in international tourist arrivals during 2018. Limpopo's main international source markets was Botswana and Zimbabwe, reflecting the provinces' proximity to the Limpopo. Furthermore, the province recorded an increase in direct tourist expenditure which is due to the increase of arrivals.

Income generated from tourism activities are beneficial to both the sector's development and the overall economy. The length of stay of international tourists in the province, however, recorded a slight decrease. This can be linked to the proximity of its main source markets visiting the province mainly for personal shopping purposes which does not necessarily require longer length of stay.

8.1.1.1 Seasonality Index for International Tourism

Seasonality is one of the most general challenges faced by tourist destinations. Limpopo, like all other tourist destinations globally, face seasonality that affects the performance of the province's tourism sector. During peak tourism times, a few weeks or months causes inefficient use of tourist facilities and put pressure on the ecological and socio-cultural tourism capacity. During off-peak times tourist destinations and businesses experience profitability challenges which affects the sustainability of the tourism sector. The figure below illustrates the seasonality index of South Africa, as recorded between 2013 and 2018 for international tourism.

Figure 15: International Tourism Seasonality Index, 2013-2018



Source: Tourism Performance Report, 2018

As depicted in Figure 15 above, it is clear that the seasonality index of South Africa's international tourism sector recorded an improvement to 1.3% (the closer to zero, the better for the tourism sector's performance) in 2018, from 2017's 1.7%. This means South Africa (as a whole, including Limpopo) received a consistent flow of international tourists throughout the year. The most preferred month for international arrivals in South Africa was January, while other peak times were Easter (April) and December, illustrating that holidays are the most preferred times to travel in South Africa.

Seasonality Index is a measurement of the distribution of tourists amongst the different months (average) to give a score on how varied or similar the tourist volume in each month is. If the score increases seasonality becomes worse, if it decreases seasonality improved.

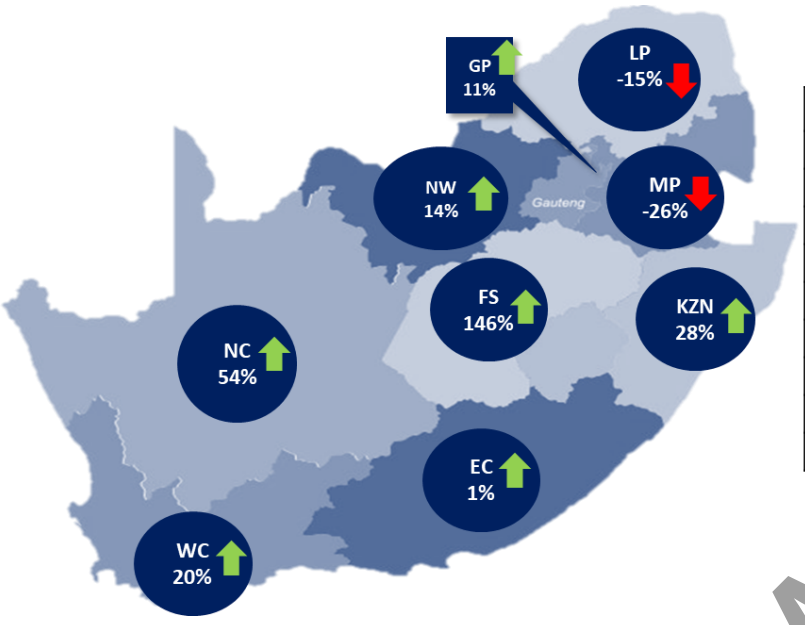
8.1.2 Domestic Performance

On a domestic tourism performance level, the Limpopo province was recognized as the most visited province during 2018. The province recorded a total of 2 800 032 residents travelling to other destinations for tourism purposes, while a total of 3 937 779 domestic tourists visited Limpopo. In general, South African Tourism stated that the main reason for domestic travelling remained visiting friends and relatives which accounted for 53% of total domestic trips taken in 2018.[6]

The map below illustrates the number of domestic trips taken to the different provinces of South Africa in 2018. It is clear that the Limpopo and Mpumalanga provinces both recorded a decrease in domestic trips received, contrasting international indicators of the province. This can be due to local tourists lacking the necessary disposable income to partake in tourism activities. Additional indicators of the province's domestic tourism performance will be illustrated in Figure 16 below.

[6] South African Tourism, 2018

Map 6: Trips by Destination Province, 2018

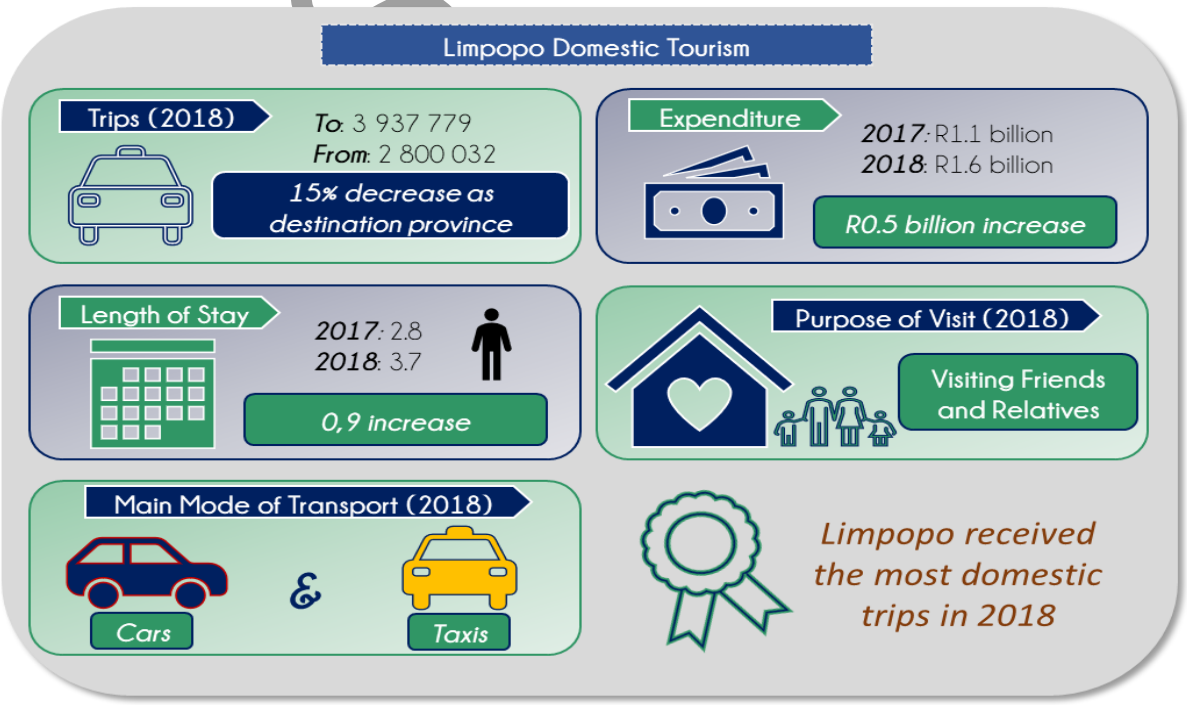


Province	2018/19	% Growth
Limpopo	3 937 779	-15%
Mpumalanga	2 120 827	-26%
Gauteng	3 638 983	11%
North West	1 368 962	14%
Free State	1 664 558	146%
KwaZulu-Natal	3 289 859	28%
Eastern Cape	1 868 087	1%
Western Cape	1 546 135	20%
Northern Cape	499 381	54%

Source: South African Tourism Annual Report, 2018

As depicted from the figure below, the decrease in domestic trips taken to the Limpopo province did not affect the domestic tourist expenditure. Domestic tourism recorded an increase in expenditure which is of vital importance to develop and maintain the tourism sector in the area. Additionally, domestic tourists visited the province for longer periods than the 2.8 recorded in 2017. This contributes to the increase of expenditure seen that the longer tourists stay in a destination, the more income is generated from tourism related activities. The main purpose of travel for domestic tourism remained visiting friends and relatives, while the main modes of transportation used for domestic travelling to Limpopo were cars and taxis.

Figure 16: Limpopo Domestic Tourism Performance, 2018



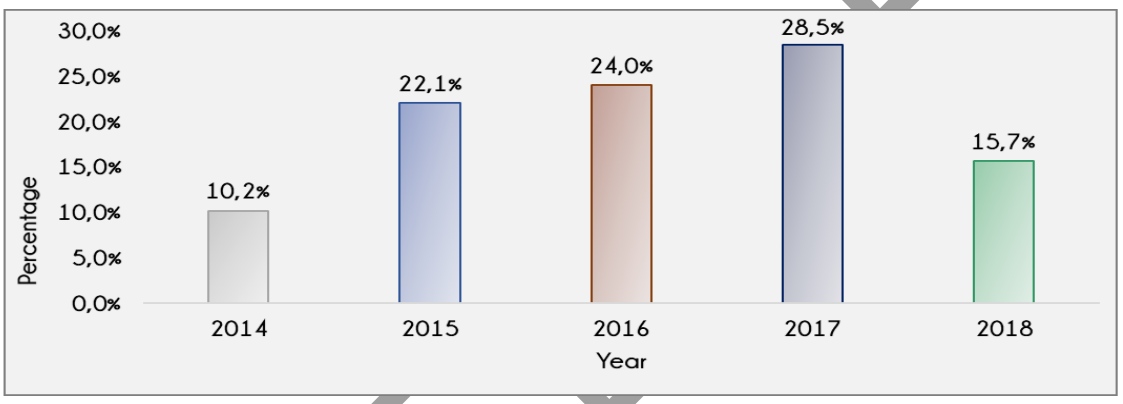
Source: South African Tourism 2018

The Limpopo province, like all other tourist destinations, have some challenges affecting the performance of its tourism sector. These challenges include the high impact of seasonality on tourism and the fact that a lot of domestic tourists travel for visiting friends and relatives' purposes. As stated in the Limpopo Tourism Growth Strategy of 2018, it is important that the province focus on alternative tourism activities that are less affected by seasonality while encouraging increased domestic trips such as: adventure, sport, business, events and culture and heritage tourism opportunities.

8.1.2.1 Seasonality Index for Domestic Tourism

The seasonality index of domestic tourism has a significant influence on the sustainability of the domestic tourism sector of any destination. Domestic tourism must be promoted and encouraged throughout the year, especially during off-peak seasons, to ensure the tourism sector remain profitable without solely relying on peak tourism months. The figure below illustrates the domestic seasonality index recorded for South Africa between 2014 and 2018.

Figure 17: Domestic Tourism Seasonality Index, 2014-2018



Source: Tourism Performance Report, 2018

As previously mentioned, the lower the seasonality index of a tourist destination, the better for its performance and the overall tourism sector. As seen in Figure 17 above, the seasonality index of South Africa recorded a improvement from 28.5% in 2017 to 15.7% in 2018, the most significant improvement recorded since 2014 (10.2%). This data shows that domestic tourists are increasingly partaking in tourism activities throughout different times of the year which is beneficial to the sustainability and growth of the sector.

8.1.3 Types of Tourism Activities

The Limpopo province boasts with a diverse range of tourism offerings. The Limpopo Tourism Growth Strategy stated that Limpopo is not only rich in ***natural resources***, but also consists of vast ***cultural and historical*** heritage landscapes spread throughout the province. Limpopo is the only province in South Africa where more than two cultural groups stay together in their original habitat.

Additionally, a large spectrum of ***fauna and flora*** are found within the province. Limpopo is known for its mega conservation areas which is mainly aimed at the conservation of its natural and cultural attributes, ideal for ecotourism practices. The province therefore strongly competes within the nature-and culture-based tourism sphere. As illustrated in the figure below, some of the largest conservation areas located in the province are:

Figure 18: Limpopo's Main Conservation Areas

Three National Parks and Two Heritage Sites	UNESCO Biosphere Reserves	Transfrontier Conservation Areas	Provincial Nature Reserves
•Kruger National Park •Marakele National Park •Mapungubwe National Park •Mapungubwe World Heritage Site •Makapans Valley •RAMSAR Sites: Nylsvlei Nature Reserve and Makuleke Wetlands	•Waterberg Biosphere Reserve •Kruger to Canyons Biosphere Reserve •Vhembe Biosphere Reserve	•Great Limpopo Transfrontier Park •Kruger National Park	•Lekgalameetse NR •Rust de Winter NR •Schuinsdraai NR •Doondraai NR •Makuya NR

Source: Limpopo Tourism Growth Strategy, 2018

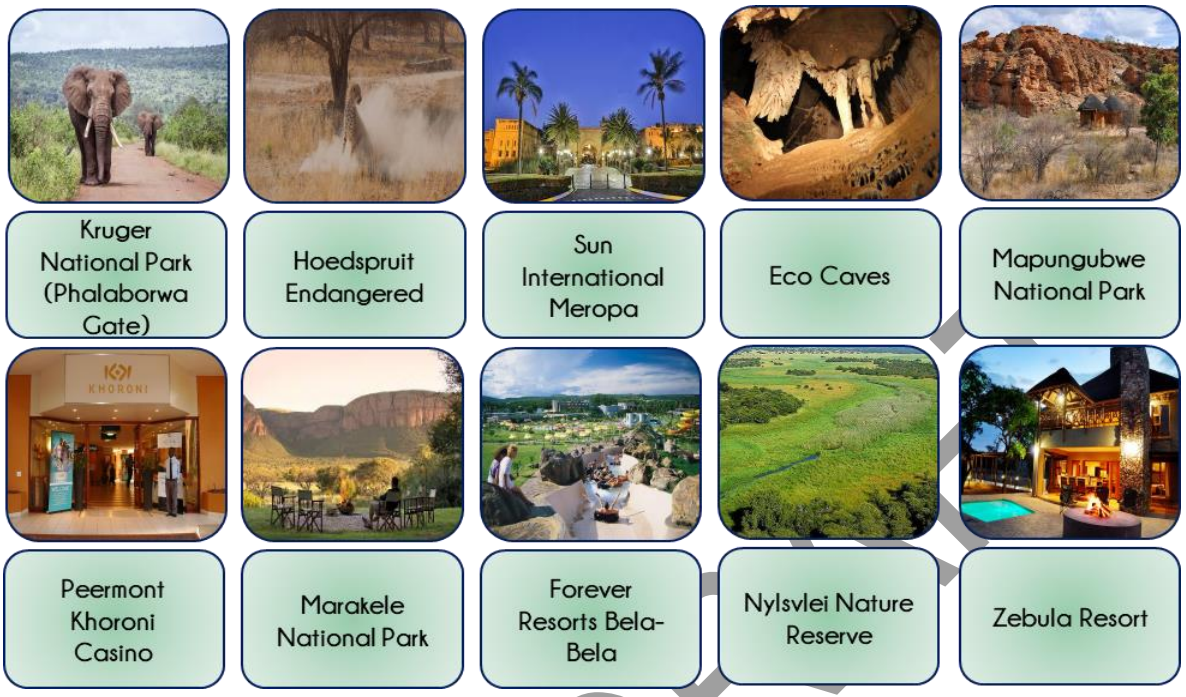
One of the main economic drivers of the Limpopo province is the hunting industry which contributes significantly to the tourism sector's growth. Hunting plays an important role in the conservation and sustainable utilisation of the wildlife and game industry. Due to the province's vast diversity of reserves and conservation areas, safaris also form part of tourist activities available. Due to the tourism resources available in the province, other activities include birding tourism, adventure tourism, angling tourism, religious tourism, business tourism and geo-tourism.[7]

8.1.4 Top 10 Attractions in Limpopo

As stated in the Limpopo State of Tourism Report of 2016/17, research was conducted at ten popular destinations to determine the number of visitors and the cost of each attraction. For the purpose of this report, the top 10 visited attractions in Limpopo are illustrated in the figure below (in no specific order).

[7] A detailed tourism value-chain of the Limpopo province is available in the Limpopo Growth Tourism Strategy.

Figure 19: Top 10 Limpopo Tourist Attractions, 2016



Source: Limpopo State of Tourism Report 2016/2017

Limpopo is a well-known and preferred tourist destination covering for a diverse tourist market that enjoys a variety of activities with friends and family. Domestic and international tourists are provided with endless activities and authentic experiences available in the province. The province's biggest drawcard is its natural and cultural resources since modern-day tourists seeks authentic experiences and responsible tourism practices.

8.2 Vhembe District Tourism Overview

The Vhembe District Municipality is located in the northern part of the Limpopo province. The district shares borders with Zimbabwe and Botswana in the north-west and Mozambique in the south-east through the Kruger National Park. The location of the district and its resources creates a vast range of tourism potential and development opportunities. The Limpopo River valley forms the borders between the district area and its international neighbors. The district consists of four local municipalities: Musina, Thulamela, Makhado and Collins Chabane. For the purpose of this report and the location of the Musina-Makhado SEZ, the tourism sector of the Vhembe district, in which both Musina and Makhado local municipalities are located in, will be elaborated on to create a better understanding of its tourism sphere.[8]

According to the Vhembe District Municipality's Annual Report of 2018/19, the area's economic growth potential lies within the Agriculture, Tourism and Mining industries.[9]The district covers a

[8] **Municipalities of South Africa, 2012**

[9] **Vhembe District Municipality Annual Report, 2018/19**

geographical area that is dominantly rural, a legendary cultural hub and catalyst for agricultural and tourism development. The Vhembe region comprises of authentic and unspoiled resources ranging from sub-tropical and mountainous scenery to pristine bushveld and majestic Baobabs. Authentic experiences in the district is made up of real people, animals, live culture, and historical sites that treasures the myths and legends of its ancestors and forefathers.[10]

The district's tourism sector development is boosted by Zion Apostolic Church in Nzhelele, two Transfrontier Conservation Areas; one bordering Botswana and Zimbabwe and the other one Mozambique and Zimbabwe. The majority of people in the Vhembe region are Venda, Shangaan and Sepedi. The district boasts with diverse geological, archaeological, and cultural systems, some of the most found in Africa. The Vhembe region was eventually settled by the Venda people who migrated from Zimbabwe. This region is known as the "Land of the Legend" due to the fascinating culture of the Venda people and its many historical and heritage sites.[11]According to the district's Integrated Development Plan, most of the accommodation establishments in the region are situated in Musina and Makhado.

Topographically, the Vhembe district is characterized by both high-lying and low-lying areas. The area is divided into the lowveld in the east, the Limpopo valley in the north and northwest, the Soutpansberg region in the central part, and the Pietersburg plateau in the south. Furthermore, the district has a limited supply of both ground and surface water. The district comprises a few catchment areas that are under pressure by the high demand for water used for development activities such as agriculture, human consumption, and mining. The Limpopo River provides sustenance to the predominantly hot and dry lands of the area through which it meanders. The district also boasts with Lake Fundudzi which is filled with cultural history. [12]

8.2.1 Types of Tourism Activities

This sub-section will outline the general types of tourism activities and offerings available in the Vhembe District. As previously mentioned, the region is rich in cultural and conservation activities and comprises of more than 70 heritage and cultural attractions. The district's tourism activities are mainly based on the following categories:

Figure 20: Tourism Activities in Vhembe District Municipality

[10] Vhembe District Municipality IDP Review, 2020/21

[11] S2L Collaboration Plan

[12] Vhembe District Rural Development Plan, 2016

Source: Urban-Econ Development Economists, 2018

Numerous annual events, mainly sport related, are hosted in the region and are listed below:

- Golf Tournament
- Cycle Centre Challenge
- Land of Legends Marathon
- Two Countries Marathon
- Powerade Keremetart Cycle Race
- 4x4 @ Thate Vondo and Tshipise

Various sport and recreational activities are available in the district that caters for a large tourism market, both locally and internationally. The Soutpansberg Birding route has 38 bird watching sites and 540 different species. Additionally, there are a few formal and informal hiking trails in the Vhembe region. The region comprises of adequate tourism facilities that will enhance tourist experiences. Approximately 142 accommodation establishments are found in the area, while 28% are graded by the Tourism Grading Council of South Africa (TGCSA). Due to the district's prominent cultural heritage, many crafters are situated throughout the region. The table below lists tourism destinations found in the Vhembe District.[13]

Table 8: Vhembe District Municipality Tourist Destinations

Destination/Attraction/Activity	Tourism Category	Description
Mapungubwe National Park (MNP)	Nature-based/Culture and Heritage	Situated near the town of Musina, this national park is acknowledged as a World Heritage landscape located at the confluence of the Limpopo and Shashe Rivers. The park is home to the iconic Mapungubwe Hill and represents unique, organically evolved, and associative cultural landscapes. Several gold artefacts excavated from the Mapungubwe Hill have been exhibited at the British Museum, including the famous gold Rhino. The park has a rich diversity of plant, animal, and bird species.
Musina Nature Reserve (MNR)	Nature-based	The reserve lies adjacent to Musina and the N1, 100km north of Makhado. The reserve forms part of the Vhembe Biosphere Reserve. Protecting one of the largest collections of baobabs in the country and includes a portion of the Sand River with several geological formations. The MNR was one of the first reserves to house Sable Antelope and Nyala.
Venetia Limpopo Nature Reserve (VLNR)	Nature-based	Owned by the De Beers, a diamond mine was established on the property. In the 1980s a diamond-bearing kimberlite pipe was found on

[13] **Vhembe District Municipality IDP, 2020/21**

Destination/Attraction/Activity	Tourism Category	Description
		the Venetia farm in Limpopo. Located 25km north-east from Allldays, the VLNR lies close to the confluence of the Shashe and Limpopo Rivers while a diverse range of habitats vary from riverine forest to sandstone cliffs. The reserve supports a range of plant and animal life and is sometimes referred to as a "piece of old Africa".
Nzhelele Nature Reserve (NNR)	Nature-based	Situated approximately 140km north-east of Polokwane, the NNR forms a key component of the Protected Area System in the Vhembe District due to the water catchment (Nzhelele Dam and reservoir), the reserve's proximity to the Nwanedi Nature Reserve, Honnet Nature Reserve, the privately owned Greater Kuduland Conservancy and the reserve's potential to act as an important catalyst in the local economy and social development.
Maremani Nature Reserve (MNR)	Nature-based	Located in a tropical savannah region to the west of Musina, the nature reserve was established in 1999 and developed by Aage V. Jensin Charity Foundation for nature conservation and wildlife protection. The focus was to restore natural attributes in the environment to their condition prior to human impact. This was made possible by the acquisition of hunting and marginal farming areas, the introduction of water holes and the reintroduction of animals and regeneration of indigenous plants in a wooded savannah.
Soutpansberg Limpopo Birding Route	Tourism Route	The route includes the northern section of the Kruger National Park, Mapungubwe National Park, Venda and the Soutpansberg mountain range. An abundance of birdlife can be seen through the year due to a high number of resident species. The route offers unique habitats, dramatic scenery and over 540 bird species.
Greater Mapungubwe Heritage Route	Tourism Route	Starting at Louis Trichardt in Makhado and dating back approximately 1000 years, the route follows a circular path to the west along the Soutpansberg until Vivo. The route ends amongst the largest colony of Cape vultures in South Africa at the Blouberg Nature Reserve.

Destination/Attraction/Activity	Tourism Category	Description
		From Blouberg the route goes north to the Greater Mapungubwe Transfrontier Park and World Heritage Site.
Medike Mountain Reserve (MMR)	Nature-based	The MMR is situated in the heart of the western Soutpansberg, in the Sand River Gorge. It covers an area of over 1400ha comprising of a large mountainous environment, a haven for biodiversity. The reserve boasts with 58 butterfly, 14 scorpion, 16 amphibian, 61 reptile, 58 mammal, 228 bird and 236 tree species.
Verdun Ruins (Provincial Heritage Site)	Culture and Heritage	The ruins are situated 6km west of Mopani station on the farm Verdun, between Musina and Louis Trichardt. The ruins comprise of strong walls and a typical chair for the chief. Behind the chair is a short piece of wall with check patterns. The ruins can be associated with the movement of the Shona people southwards from Zimbabwe and forms an important connection in the pre-history of South Africa.
Leshiba San Rock Art Sites	Culture and Heritage	Situated in Louis Trichardt, the guided archaeological trail at Leshiba offers a mystical venture into the past. There are seven rock art sites where Bushmen (San) paintings and Khoe Khoe hand and foot printings can be seen. Additionally, there are three sites with evidence of habitation. The paintings are between 200 and 2000 years old.
Bergpan Eco Resort	Nature-based	The resort derives its name from the salt pans on the north-westerns slopes of the Soutpansberg Mountain. The resort offers rock art paintings about 70 AD and can be viewed in a rock shelter above the Bergpan and Crystal Springs pans.
Lajuma San Rock Art Site	Culture and Heritage	Lajuma is an exclusive mountain retreat that offers hiking opportunities and guided walks to archaeological sites. Tourists can view six yellowish handprints painted with two prints comprising of red and white handprints. Below the handprints are a painting of a red elephant with faded animals and people images reflecting the rich cultural background of the area.
Machema Ruins (Provincial Heritage Site)	Culture and Heritage	Located in Mapungubwe, the Machema Ruins believed to be the site of early Venda

Destination/Attraction/Activity	Tourism Category	Description
		settlements. The Machema tribe was believed to be subordinate to the rulers at Mapungubwe, which was once the capital of a hugely successful Iron Age settlement.
Hangklip Hiking Trials	Nature-based/Adventure	Situated in Louis Trichardt, the entire Hangklip mountain area offers pristine landscapes being 1 719m above sea level. Hangklip is one of the highest points of the Soutpansberg Mountain Range, a vertical cliff. Hiking trials around Hangklip are available.
Soutpansberg Golf Club	Recreation	Situated at the foot of the Soutpansberg Mountain in Louis Trichardt, the course offers a 9-hole scenic course in the centre of the bushveld with bent grass greens and kikuyu fairways.
Buysdorp	Culture and Heritage	The town was the residence of the local figure, Coenrad du Buys, who settled in the Makhado area long before the Voortrekkers arrived. Buys was one of nine Afrikaner exiles and British mutineers who fled from the Cape after participating in an uprising against the British. In 1885 President Paul Kruger gave the Buys people land to live on and it became known as Buysdrop.
Schoemansdal Museum	Culture and Heritage	Located on the R522 to Vivo the museum commemorates the pioneering history of the district and country. The museum is an open-air museum and houses some of the remains of the town's original structures such as houses, shops, streets, and a water-furrow system. In 1855 the town had 1800 white inhabitants and for 19 years it was the most important trading centre in the area. After continuous conflict with the African tribes, the Voortrekkers abandoned the town in 1867, leaving behind deserted buildings.
Lajuma Mountain Retreat	Nature-based/Culture and Heritage	The exclusive mountain retreat offers hiking and climbing opportunities, guided walks to archaeological sites, swimming, mountain-biking, horse-riding, birdwatching, and night drives.
Bergplaatz Forest Sanctuary	Nature-based	Most species of primates can be found in the sanctuary, located in the western Soutpansberg

Destination/Attraction/Activity	Tourism Category	Description
		with its crystal-clear pools and waterfalls offering pristine landscapes.
Wyllie's Poort	Culture and Heritage	The main road from Makhado does a spectacular climb through the Soutpansberg and descends the northern side of the mountains into a narrow gorge known as Wyllie's Poort. In 1904 the British Army was instructed to build a road to the north and Wyllie was put in charge of the project. The Poort is kept open as a scenic drive.
Schoemansdal Environmental Education Centre	Recreation	Situated at the southern side of the Soutpansberg Mountain range in Limpopo, the centre forms part of the Western Soutpansberg Biosphere. The centre focusses on challenging each visitor with the responsibility of conservation, exploration, and self-development. Facilitators structure programs to cater for visitor's needs. The long-standing history of Schoemansdal proves that educating youth leads to responsible adulthood in unspoiled surroundings.
Morning Sun Nature Reserve	Nature-based	Situated near Louis Trichardt, the reserve offers accommodation in the heart of the Soutpansberg Mountain area. This Natural Heritage Site is centrally located and offers walking trials, archaeological ruins and birdwatching and butterfly hotspots.
George's Place	Nature-based	Located 60km west of Makhado, George's Place encompasses a natural heritage area that boasts abundant bird life and 250 species of trees.
Buzzard Mountain Retreat	Nature-based	On the road to Vivo, the retreat is in the heart of the Soutpansberg. Visitors can enjoy drives surrounded by magnificent rocky landscapes decorated with rare plant species. Other activities include birdwatching, hiking, mountaineering, and animals.
Vhembe Biosphere Reserve (VBR)	Nature-based	The VBR is the sixth South African Biosphere Reserve and the third in the Limpopo Province. The VBR aims to conserve the areas uniquely bio-diverse environment, while simultaneously supporting and promoting sustainable development. More information on this reserve will be discussed below this table.

Destination/Attraction/Activity	Tourism Category	Description
Nwanedi Park	Nature-based/Recreation	The park lies on the Nwanedi River, situated about 120km north-east of Makhado. Despite its natural attributes, accommodation, and conference facilities forms part of the park's product offering.
Soutpansberg Mountain Range	Nature-based	Situated in the Vhembe District of Limpopo, the name is derived from Afrikaans and means "Salt Pan Mountain". The mountain range stretched 130km from west to east. It also forms part of the Vhembe Biosphere Reserve which includes the Kruger National Park, Blouberg Range, the Makgabeng Plateau, the Makuleke Wetlands and the Mapungubwe landscape.
Lake Fundudzi	Nature-based	Found between Louis Trichardt and Thohoyandou and surrounded by the mythical Thathe Vondo Forest, the lake offers visitors with pristine landscape and surroundings. It is said that the lake is so full of spirits that few Venda people venture into it for fear of hauntings.
Nandoni Dam	Nature-based	Previously known as the Matoti Dam, the dam is a concrete dam located on the Luvuvhu river near the villages of ha-Mutoti and ha-Budeli. The dam is a few kilometers away from Thohoyandou in the district of Vhembe and mainly provides water supply.
Mandadzi Waterfall	Nature-based	Located in the Vhembe district, the waterfall is a pristine landscape to enjoy. Fresh spring water straight from the natural springs can be tasted while various bird species can be seen.
Aventura Tshipise	Recreation	The resort is in Tshipise and boasts with giant Baobabs dotting the landscape. The family recreational resort offers guests with various activities and leisure, while the natural surroundings create pristine scenery.
Phiphidi Waterfalls	Nature-based	The waterfall lies within a forest on the Mutshindudi River. The rock above the waterfall is called LanwaDzongolo, and the pool below, Guvhukuvhu. Both of these are considered holy by the Venda people.
Domboni Bushmen Site	Culture and Heritage	Situated within the Vhembe District, bushmen paintings can be seen and forms part of the cultural heritage of the area and its inhabitants.

Destination/Attraction/Activity	Tourism Category	Description
Greater Mapungubwe Transfrontier Conservation Area (GMTFCA)	Nature-based/Culture and Heritage	The GMTFCA was established due to the significant cultural and natural landscape of the Mapungubwe Heritage Site. More information on the GMTFCA will be given below this table.
Greater Limpopo Transfrontier Park (GLTP)	Nature-based	The GLTP links the Limpopo National Park in Mozambique, Kruger National Park in South Africa, Gonarezhou National Park, Manjinji Pan Sanctuary and Malipati Safari Area in Zimbabwe. It additionally brings together some of the best and diverse established wildlife areas in southern Africa. The establishment of the GLTP is the first phase in the establishment of a bigger transfrontier conservation area measuring almost 100 000km².

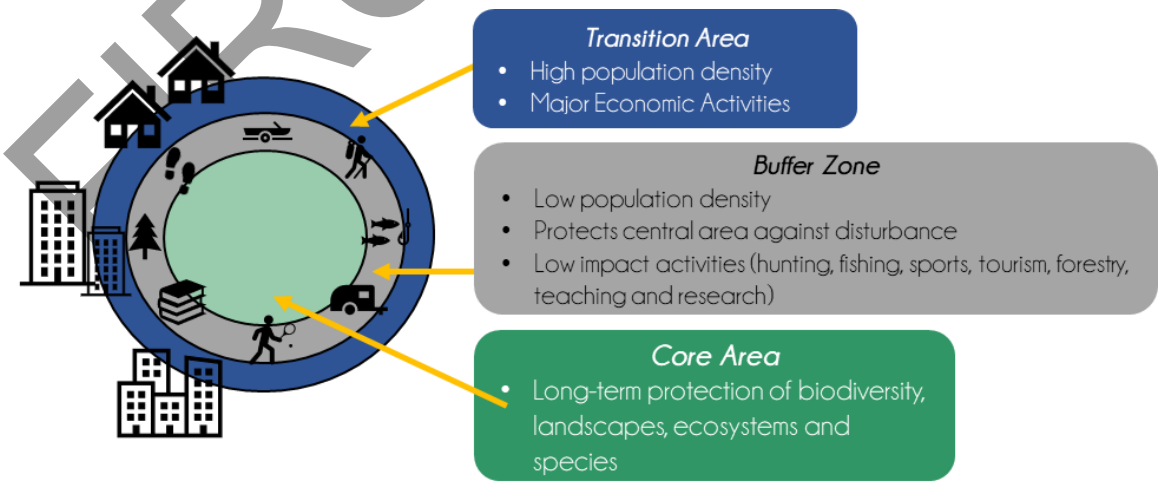
Source: Vhembe District Municipality IDP 2020/21/S2L Collaboration Report, 2019

As depicted from Table 8 above, the Vhembe District comprises of diverse tourism offerings that aims to conserve the surrounding environment and heritage. Two of the key conservation areas located within the district are the Vhembe Biosphere Reserve and The Greater Mapungubwe Transfrontier Conservation Area (GMTFCA).[14]

8.2.1.1 UNESCO Vhembe Biosphere Reserve (VBR)

The UNESCO Vhembe Biosphere Reserve (VBR) encourage implementation of a model of areas to promote conservation, sustainable development and contribution to scientific research and education. The three types of areas are:

Figure 21: Types of Biosphere Reserves Spaces



Source: S2L Collaboration Report, 2019

[14] S2L Collaboration Report, 2019

The VBR was established in 2009 and is the largest UNESCO Biosphere Reserve in South Africa, covering 3 037 590ha. Over 36% of the reserve has been identified as Critical Biodiversity Area 1 and 2. As mentioned in Table 8 above, the VBR is the sixth South African Biosphere Reserve and the third in the Limpopo Province. The VBR covers five local municipal areas in the northern districts of the Limpopo Province including Blouberg, Musina, Makhado, Thulamela and Mutale. The reserve includes the northern Kruger National Park north of the Shingwedzi River, and borders the three neighboring countries of Botswana, Zimbabwe, and Mozambique.[15]

Biosphere reserves are established in recognition of the relationship between man and the natural world.

The district is a prime area for eco-tourism, culture, and heritage tourism. Additionally, the area is a high priority for conservation due to its extreme richness in vegetation which includes three biomes: savanna, grassland, and forests. There are also two large cross-border conservation areas: The Greater Limpopo Transfrontier Park in the east stretching the South African Mozambican border, and the Greater Mapungubwe Transfrontier Conservation Area on the northern border extending into Zimbabwe and Botswana.

8.2.1.2 Greater Mapungubwe Transfrontier Conservation Area (GMTCA)

The Greater Mapungubwe Transfrontier Conservation Area falls within the Vhembe region. The area was established due to the significant cultural and natural landscape of the Mapungubwe Heritage Site. The Integrated Development Plan of the area mandates the conservation of both biodiversity and community beneficiation as management priorities.[16]

Situated at the confluence of the Shashe and Limpopo Rivers, the GMTCA covers 5 909km² encompassing private land in Botswana, South Africa, and Zimbabwe. Not only does the magnificent sandstone formations, the wide variety of trees, especially enormous baobabs, and game and birdlife attract a vary of tourists, but also the heritage of past generations. The South African component consists of a complex mosaic of private land, state-owned land, Mapungubwe National Park and the Mapungubwe Cultural Landscape, a World Heritage Site.[17]

The development of tourism is viewed as an enabler to create economic value out of the natural and cultural resources found in the Vhembe district. As mentioned in the Locational Analysis, the study area of the MMSEZ comprises of two sites, hosted by two different local municipalities. The first site is Musina, (on the farm Artonvilla) located in Musina Local Municipality, which is the northern site of the study area. The second site is located next to the Mopani railway station, next to the N1, at the border of both Musina and Makhado Local Municipalities. The major towns in the Makhado Local Municipality include Makhado, Dzanani, Waterval, Vleifontein and Vuwani. Therefore, due to the location of the study area, the attractions and information of the tourism overview focused on the Limpopo province, followed by an overview of the Vhembe District.

[15] **Vhembe Biosphere Reserve, 2018.**

[16] **S2L Collaboration Report, 2019**

[17] **Transfrontier Conservation Areas, 2018**

8.3 SEZ Impact on Surrounding Tourism Activities

Due to the strong conservation characteristics in the Limpopo Province, main tourism impacts of the SEZ development will focus on visual and environmental constraints. Natural resources in the area boasts tourism development and should be thoroughly considered throughout different phases of the SEZ development. The sensitivity level of a landscape is an indication of the 'degree to which the landscape can accommodate change from a particular development, in this case the Musina-Makhado SEZ, without damaging` its character'.[18]

Landscapes with high level sensitivity would be one that is greatly valued for its aesthetic appeal and/or have ecological, cultural, or social significance through which it contributes to the inherent character of the visual resource. Therefore, the primary goal of the visual assessment is to identify areas or features of scenic value and sensitive landscapes surrounding or forming part of the SEZ's sites. Table 9 below describes the sensitivity levels of landscapes and the development potential thereof.[19]

Table 9: Sensitivity Levels of Surrounding Tourism Activities

Sensitivity Level	Interpretations
Very High	Tourism resources that are visually sensitive areas with major constraints including protected areas, heritage sites, scenic routes, and other sensitive receptors. Development in and around these areas carries a very high risk of negatively impacting sensitive landscape features. Thus, development in these areas are strongly discouraged and viable alternatives should be investigated where possible.
High	High sensitivity areas include those comprising of complex terrain with high topographic diversity and landscape, high level of landscape and scenic constraints and proximity to game reserves and other sensitive areas. Development in these areas carries high risk of impacting sensitive landscape features. Thus, development in these areas are discouraged and viable alternatives should be investigated, where feasible to do so. Mitigation measures may also be available or identified to reduce the level of potential negative impacts.
Medium	Medium sensitive areas are characterised by moderately complex terrain with some topographic diversity and landscape observation, medium landscape scale and texture, moderate level of landscape and scenic constraints, and intermediate proximity of protected and sensitive areas. Development in these areas carries moderate risks of impacting sensitive landscape features. As such, development in these areas may be limited or impacts can be reduced through mitigation measures.
Low	Low sensitivity areas are those with relatively even terrain, flat to gently rolling topography and slopes, large expansive landscape scale and coarse-grain texture, few landscape and scenic constraints, absence of protected areas and a few sensitive areas and transformed or degraded land. Development in these

[18] Landscape Institute and the Institute of Environmental Assessment and Management, 2002.
[19] Kappa-Sterrekus Powerline Specialist Screening Report: Tourism, 2020

	areas carries a moderate risk of impacting sensitive landscapes and features. Therefore, these areas are considered best suited for development.

Source: Strategic Environmental Assessment for Electricity Grid Infrastructure in South Africa, 2018

The sensitivity features considered for the impact analysis include but is not limited to; topographic, geological, or cultural interest, together with landscape grain or complexity. Protected landscapes such as conservation areas, national parks, nature reserves, game parks and farms and heritage sites, contribute to the natural and cultural value of an area and were therefore considered as essential areas in the determination of landscape sensitivities. Furthermore, landscape sensitivities were determined by considering existing tourism activities in the area and included national roads, main roads, scenic routes, and other tourism destinations such as guest farms and resorts. The identified list of visually sensitive features is listed below:

- Major Rivers and Water Bodies
- Protected Areas
- Nature Reserves
- Private Reserves and Game Farms
- Cultural/Rural Landscapes
- Heritage Sites
- Historical Towns and Villages
- National Roads
- Main Roads
- Railways and Airports
- Scenic Routes
- Accommodation and Restaurants
- Adventure Activities
- Recreational Activities

Tourism activities that is not driven by responsible measures will cause destruction to the natural resources situated in the area. It is important to ensure that maximum benefits are gained from the development of the SEZ, while the visual and aesthetic quality of the area remains unharmed and protected. The features listed above were identified as relevant tourism activities in the surrounding area. Furthermore, sensitivity levels according to each identified feature were evaluated, as tabulated below. It is important to note that one sensitivity table was developed for both SEZ sites to align with tourism specific features.

Table 10: Sensitivity Features and Sensitivity Level

Sensitivity Feature	Sensitivity					
	≤1km	≤2km	≤5km	≤10km	≤20km	More
Cultural Landscapes	**High**	**High**	**Medium**	**Low**	**Low**	**Low**
Heritage Sites	**Very high**	**Very High**	**Medium**	**Low**	**Low**	**Low**
Historical Towns	**High**	**Medium**	**Medium**	**Low**	**Low**	**Low**
Other Towns	**High**	**Medium**	**Low**	**Low**	**Low**	**Low**

Sensitivity Feature	Sensitivity					
	≤1km	≤2km	≤5km	≤10km	≤20km	More
Scenic Routes	Very High	High	Medium	Low	Low	Low
National Roads	Very High	High	Medium	Low	Low	Low
Main Roads	Very high	High	Medium	Low	Low	Low
Rail Ways/Airports	Very High	High	Medium	Low	Low	Low
Major Rivers	Very High	Very High	High	Medium	Low	Low
Water Bodies; dams, wetlands, pans	Very High	Very High	High	Medium	Low	Low
National Parks	Very High	Very High	High	Medium	Low	Low
Nature Reserves	Very High	Very High	Very High	High	Medium	Low
Private Reserves and Game Farms	High	High	Medium	Medium	Low	Low
Mountain Catchments	Medium	Medium	Low	Low	Low	Low
Accommodation and Restaurants	Very high	Very High	High	Medium	Low	Low
Adventure Activities	Very High	Very High	High	Medium	Low	Low
Recreational Activities	Very High	Very High	High	Medium	Low	Low
Other	Low	Low	Low	Low	Low	Low

Source: Urban-Econ Development Economists, 2020

As depicted from the tables above and aligned with the main tourism resources and activities in the region, heritage, natural and cultural features can be negatively affected by the SEZ development due to its high aesthetic value, while other tourism activities may be influenced less by identifying and implementing mitigation measures. Even though many visitors will see the development and operations of the SEZ as an eye-sore and disturbance (where applicable), others may see this as continuous development, progress, and economic growth, which can attract investment opportunities to the area.

8.4 Impact on Surrounding Tourism Activities

As discussed in the Tourism Overview Section, a vast and diverse number of tourism activities and product offerings are available in the Limpopo province, and more specifically, the Vhembe District. The district is known for its rich natural and cultural heritage. The Musina-Makhado SEZ identified two sites both located within the Vhembe District Municipality. Furthermore, the Musina-Makhado SEZ

creates economic growth, unlock investment, develop skills and employment opportunities for the region and province.

However, it is important to consider the nature of the region's tourism resources and its sensitivity to these SEZs activities. This section will focus on the surrounding tourism activities situated in proximity of the two SEZ sites to consider the impact the SEZ will have on tourism sensitive areas. The two sites will be elaborated on separately due to its different locations within the region. These tourism activities' sensitivity levels will be identified according to the generic approach illustrated in Table 10 above.

8.4.1 Northern Site

As previously mentioned, the first site of the SEZ are in the Musina Local Municipality, situated on the farm Artonvilla. This site is referred to as the North site. The location of the site is approximately 8.73km from the town of Musina and in proximity of the Zimbabwe border. The site is thus located close to those tourism offerings located in and around the town. Some of the accommodation establishments located next to or close to the N1, lies approximately between 5km and 10km from the site. *Table 11* below illustrates the tourism offerings in proximity of the SEZ site, the distance between the site and tourist activities and the impact on these tourism activities according to sensitivity levels. It is important to note that the below mentioned tourism activities and offerings may differ from those mentioned in the Tourism Overview due to the specific location of the SEZ site.

Table 11: North Site Impact

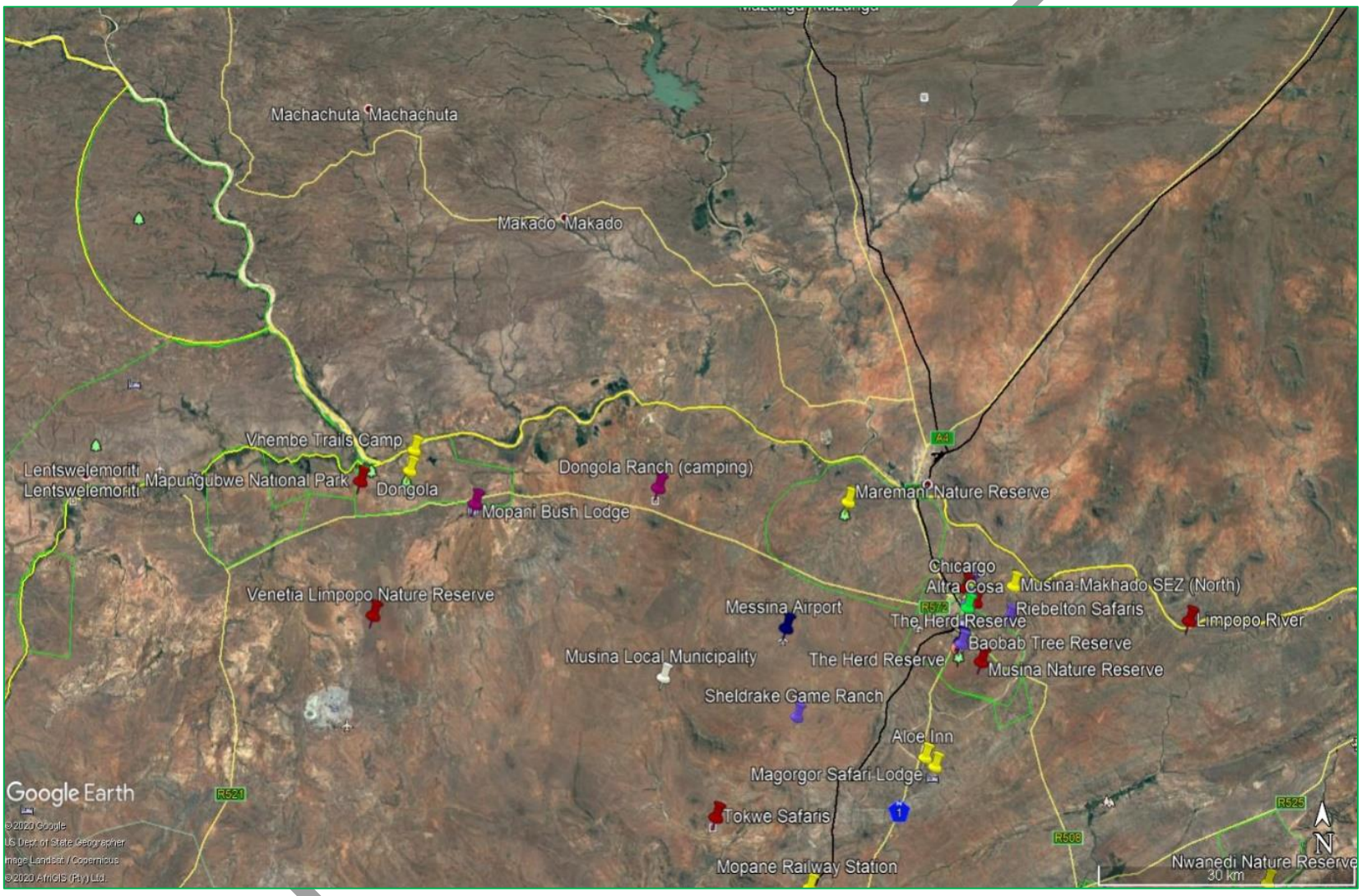
Type of Tourism Activity/Offering	Tourism Activity/Offering	Distance	Impact
Accommodation Establishments	Old Mine Guesthouse	5.16km	Medium
	Musina Lodge	5.21km	Medium
Restaurants	Altra Cosa	5.94km	Medium
	Chicargo	5.76km	Medium
Religious Establishments	Musina Islamic Centre	5.11km	Low
National Roads	N1	7.65km	Low
Airports/Rail Ways	Messina Airport	27km	Low
	Mupani Raliway (Musina)	5.64km	Low
Nature Reserves/Game Reserves/Conservation Areas/Lodges	Musina Nature Reserve	9.1km	High
	Baobab Tree Reserve	8.8km	High
	Sheldrake Game Ranch	29.4km	Low
	Mopani Bush Lodge	64km	Low
	Dongola Ranch	43.2km	Low
	Mapungubwe National Park	76.8km	Low
	Venetia Limpopo Nature Reserve	75.5km	Medium
	Maremani Nature Reserve	21.4km	Medium
	The Herd Reserve	8.6km	Medium
Adventure Activities	Riebelton Safaris	3.5km	High
	Vhembe Trails Camp	72.1km	Low
	Leeudraai Safaris Limpopo Lodge	9.6km	Medium

Type of Tourism Activity/Offering	Tourism Activity/Offering	Distance	Impact
Water bodies	Limpopo River	21km	Low
Recreation Activities	Musina Mall	5.4km	Medium
	Messina Golf Club	7.5km	Medium

Source: Google Earth, 2020

As seen from Table 11 above, the majority of tourism activities in proximity of the Northern SEZ site are nature-based, including nature reserves, game ranches, national parks and lodges. Other recreational activities and accommodation establishments located in Musina will also form part of surrounding activities, however the above mentioned are only those identified closest to the site. Illustrated in the map below are the above listed tourism activities, visually representing the North site's surrounding tourism activities.

Map 7: North SEZ Site Tourism Activities



Source: Google Earth, 2020

8.4.2 Southern Site

The second site of the SEZ is referred to as the South site. Located close to the Mopani railway station and the N1 national road, the site is at the border of both Musina and Makhado Local Municipalities. This SEZ site is located within the Nzhelele Nature Reserve. Table 12 below illustrates the surrounding tourism activities and offerings located close to the Southern site, the distance between the site and tourist activities and the impact of the SEZ according to sensitivity levels. It is important to note that the below mentioned tourism activities and offerings may differ from those mentioned in the Tourism Overview due to the specific location of the SEZ site.

Table 12: South Site Impact

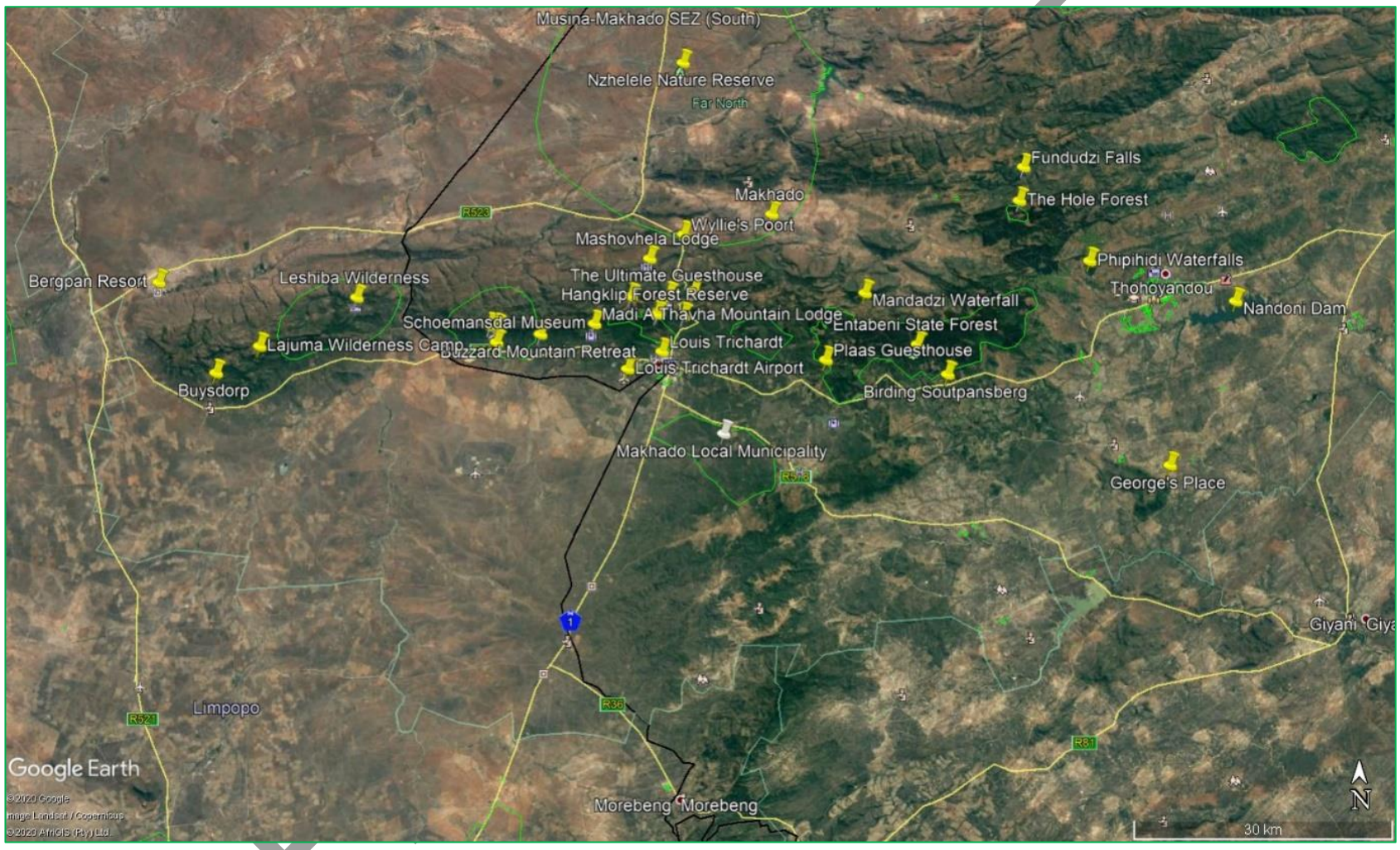
Type of Tourism Activity/Offering	Tourism Activity/Offering	Distance	Impact
Accommodation Establishments	Aloe Inn	22.3km	Low
	Magorgor Safari Lodge	21.8km	Low
	Plaas Guesthouse	47.3km	Low
	The Ultimate Guesthouse	34.6km	Low
	Clouds End Hotel	37.9km	Low
	Camp Africa	37.5km	Low
	Harnham Guesthouse	35.3km	Low
National Roads/Toll Gates	Baobab Toll Plaza	15.9km	Low
	N1	19.7km	Low
Main Roads	R525	8.2km	Low
Airports/Rail Ways	Musina Railway Station	8km	Low
	Tshipise Airport	30.1km	Low
	Louis Trichardt Airport	65.9km	Low
Nature Reserves/Game Reserves/Conservation Areas/Lodges	Nzhelele Nature Reserve	8.5km	High
	Honnet Nature Reserve	29.5km	Low
	Nwanedi Nature Reserve	50.5km	Low
	Fundudzi Falls	47.9km	Low
	The Hole Forest	49.5km	Low
	Mandadzi Waterfall	42.8km	Low
	Entabeni State Forest	51.1km	Low
	Hangklip Forest Reserve	37.6km	Low
	Madi A Thavha Mountain Lodge	41.7km	Low
	Buzzard Mountain Retreat	39km	Low
	Leshiba Wilderness	49.1km	Low
	Bergpan Resort	66.7km	Low
	Happy Rest Nature Reserve	42.8km	Low
	Mashovhela Lodge	30.5km	Low
Culture and Heritage	Wyllie's Poort	28.4km	Low
	Schoemansdal Museum	44.2km	Low
	Buysdorp	67.3km	Low
Adventure Activities	Tokwe Safaris	19.5km	Low

Other Towns	Mudimeli	28.9km	Low
	Manyii	33.4km	Low
	Maangani	50.7km	Low
	Makushu	41km	Low
	Louis Trichardt	60.6km	Low

Source: Google Earth, 2020

As depicted from the table above, it is clear that the South site of the SEZ is mainly surrounded by nature-based activities, similar to the North site and the overall region. It is important to note that the Nzhelele Nature Reserve will directly be impacted by the SEZ due to its location. The map below illustrates the tourism activities listed in the table visually.

Map 8: South SEZ Site Tourism Activities



Source: Google Earth, 2020

8.5 Stakeholder Consultation Inputs

TBC

8.6 Risk Factors and Mitigation

There are various risk factors to consider regarding the impacts the Musina-Makhado SEZ development will have on the region's tourism sphere, especially due to its rich natural, cultural and heritage resources. The area's aesthetic value is thus of great significance to its tourism sector. It is important to analyse potential risks and impacts the SEZ can have on these tourism features and relevant activities. Therefore, mitigation measures must be identified to reduce negative impacts where possible. Table 13 below illustrates the potential impacts, mitigation measures and reasons for identifying these impacts. The table covers both SEZ sites due to the general impacts on tourism.

Table 13: Potential SEZ Impacts on Tourism Activities

	Summary of Implications and Mitigation		Assessments of Impacts			
	Potential Impacts	**Mitigation**	**Significance Before Mitigation**	**Duration**	**Significance After Mitigation**	**Reason for Identifying Impact**
Employment Creation	New job opportunities	Offer employment opportunities to local communities first	**Low**	**Long Term**	**Medium**	Employment creation is vital for improved livelihoods within the community and serves as one of the major benefits of SEZs
	The influx of people in the region will create a greater demand for goods and services, which stimulates the economy	Encourage purchases of construction and other materials from small and emerging businesses within the area (where possible)	**Medium**	**Long Term**	**High**	It is important to consider the increase in demand for goods and services when an increased number of people stay in a certain area. Income can be generated if purchases of materials are made locally

	Summary of Implications and Mitigation		Assessments of Impacts			
	Potential Impacts	**Mitigation**	**Significance Before Mitigation**	**Duration**	**Significance After Mitigation**	**Reason for Identifying Impact**
	Income will be generated from the lease agreements for land-use purposes	Income generated from lease agreements will benefit the livelihood of local landowners	**Low**	**Long Term**	**High**	Land-use income generated will create supportive host community perceptions and enhance the livelihoods of applicable landowners
Noise	Throughout the construction and operations phases, noise levels are likely to be high	None	**High**	**Medium Term**	**N/A**[20]	Due to the high number of protected and natural resources in the area, noise will disturb tourists visiting destinations in proximity
Depletion of Valuable Resources	Infrastructure development put pressure on natural resources found in the surrounding area	None	**High**	**Long Term**	**N/A**	Due to the region's rich heritage and natural resources it is important to ensure responsible

[20] **N/A- Not Applicable due to now mitigation measure identified**

	Summary of Implications and Mitigation		Assessments of Impacts			
	Potential Impacts	**Mitigation**	**Significance Before Mitigation**	**Duration**	**Significance After Mitigation**	**Reason for Identifying Impact**
	Infrastructure development might be close to heritage sites which causes a reduction in its environmental and aesthetic value	None	**High**	**Long Term**	**N/A**	activities are encouraged throughout all phases of the SEZ and where possible.
Water Resources	An influx of people and operational activities will put pressure on the current water shortage of the area	Identify alternative water bodies to reduce the additional demand for water from local municipalities	**High**	**Long Term**	**Medium**	A major water shortage already exists within the province and local people will increasingly be affected by extra water demand
	Water quality can be affected by the release of contaminants, run-off from waste body	Properly design containment with required storm water infrastructure to prevent run-off into the environment	**High**	**Short Term**	**Low**	The reduction of water quality is dangerous to the health and livelihoods of local communities
Land Degradation	Construction activities increase pressure put on resources and landscapes	None	**High**	**Short Term**	**N/A**	Even though construction activities are short-term, land degradation can have long-term consequences for the quality of natural resources

	Summary of Implications and Mitigation		Assessments of Impacts			
	Potential Impacts	**Mitigation**	**Significance Before Mitigation**	**Duration**	**Significance After Mitigation**	**Reason for Identifying Impact**
	Erosion	None	**High**	**Long Term**	**N/A**	Trampling and walking the same routes causes erosion within natural landscapes and damage biodiversity
Air Pollution	Air quality is affected by transportation, waste disposal and construction activities	Ensure all activities align with legislative limits to reduce the impact on air quality	**High**	**Long Term**	**Medium**	Transport by air, road, and rail increase air pollution along with storage, treatment and disposal of waste that entails strong chemical odours
Sewage	Improper Waste Disposal can have an impact on the quality of the environment	Implement measures and evaluate management procedures regularly	**Medium**	**Long Term**	**Low**	Improper waste disposal can affect the natural environment such as rivers, scenic areas, and roadsides[21]

[21] Tourism Teacher, 2020.

	Summary of Implications and Mitigation		Assessments of Impacts			
	Potential Impacts	**Mitigation**	**Significance Before Mitigation**	**Duration**	**Significance After Mitigation**	**Reason for Identifying Impact**
Aesthetic Pollution	Re-zoning, infrastructure, roads, housing, parking, service areas and waste disposal can affect the visual attractiveness of a tourist destination	Identify sensitive receptors, conduct a visual impact study and design facilities in a way that links with the area's visual qualities (where possible)[22]	**High**	**Short Term**	**Low**	Aesthetic pollution is important to consider due to the changes in pristine landscape of the area through waste body, dust emissions, heavy vehicle traffic and industrial infrastructure
	Facilities for waste disposal alter the perceptions of an area	Proper implementation and procedures of waste will reduce the impact it has on visitor perceptions	**Medium**	**Long Term**	**Low**	Tourist perceptions might be affected by the decrease in visual quality and scenery due to waste management facilities
Loss of Habitats	The removal of vegetation, disposal facilities and the construction of buildings will affect the area's biodiversity	The site layout was designed to avoid wetlands and areas with high conservation	**High**	**Short Term**	**Low**	Due to the area's rich natural and heritage resources, loss of habitation will negatively impact its biodiversity

[22] EMSEZ-Industry Waste Management Master Planning, 2019

	Summary of Implications and Mitigation		Assessments of Impacts			
	Potential Impacts	**Mitigation**	**Significance Before Mitigation**	**Duration**	**Significance After Mitigation**	**Reason for Identifying Impact**
Deforestation	Construction activities and the establishment of buildings can require clearing of forested lands	None	**Medium**	**Short Term**	**N/A**	Forests forms part of the pristine landscapes and have an important purpose in nature and oxygen provision
Traffic	Upgrading of the N1 and R525 roads will lead to an increase of vehicles accessing the area	None	**High**	**Long Term**	**N/A**	Increase in infrastructure degrades land and can affect or damage surrounding natural resources important to the area's tourism features
Load Shedding	Increased use of electricity due to SEZ activities can lead to increased and regular load shedding schedules	Make use of solar alternatives and smart appliances where possible	**Medium**	**Long Term**	**Low**	Load shedding due to high uses of electricity will affect the service delivery and operations of accommodation establishments, restaurants, etc

	Summary of Implications and Mitigation		Assessments of Impacts			
	Potential Impacts	**Mitigation**	**Significance Before Mitigation**	**Duration**	**Significance After Mitigation**	**Reason for Identifying Impact**
Health Risks	Inhalable chemicals and odours can cause health risks	None	**Medium**	**Long Term**	**N/A**	It is important to consider the health and livelihoods quality of surrounding inhabitants

Source: Urban-Econ Development Economists, 2020

The table above highlights the impact the SEZ will have on surrounding tourism activities, landscapes, and destinations. It is important to take these potential impacts into account prior to the SEZs establishment. Furthermore, it is important to note that the SEZ sites are in proximity of various nature reserves, activities and towns comprising of tourism offerings. The SEZ will benefit the region's economic growth, create employment opportunities, and attract investors to the area. Therefore, it is important to take sensitive landscapes and receptors into account to ensure sustainability and strong relationships with host communities.

8.7 Assumptions, Uncertainties and Gaps

The establishment of the Musina-Makhado SEZ will impact tourism activities in the surrounding area. It is important to note that certain assumptions according to existing knowledge and information can be made, along with potential uncertainties and gaps. The sub-headings below list several assumptions, uncertainties and gaps identified based on the impact of the SEZ on surrounding tourism activities.

8.7.1 Assumptions

- Due to the ***COVID-19 pandemic***, South Africa's tourism sector are not yet fully operational and can be affected long term in terms of performance. The SEZ will stimulate economic activity within the region that can benefit tourism sector operations.
- The establishment of the SEZ can attract both international and national ***investment and opportunities*** due to increased economic activity.
- The SEZ will enhance ***positive host community perceptions*** due to employment opportunities created.
- ***Waste disposal*** would be managed and done responsibly in a way that limit the effect on the area's visual attractiveness and features.
- Establishment of the SEZ would focus on limiting the effects on natural and heritage resources of the region by thorough ***assessments*** done prior to development.
- It is assumed that the SEZ's establishment and operations ***practice responsibly*** towards surrounding biodiversity.

- Mitigation measures will be implemented to reduce ***health risks*** caused by odour, chemical inhalation, etc.
- Due to the current ***water shortage*** in Limpopo, the SEZ will obtain water from Zimbabwe.
- Infrastructure development will aim to align designs with the current characteristics of the area and not affect its ***visual attractiveness***. Furthermore, infrastructure development creates opportunities for employment, healthcare, and education.
- An increase in ***demand for goods and services*** will increase profitability for local businesses. It is assumed that materials required for SEZ operations and other necessities will be purchased from local businesses in the area (where possible).
- ***Degradation*** of the surrounding environment will be avoided as much as possible to reduce negative impacts caused by the establishment of the SEZ.
- ***Domestic tourism opportunities*** and income will increase due to an increase of people living in the area. Tourist activities and offerings will be explored and supported by new inhabitants.
- ***Local resources*** like electricity and water will be under additional pressure due to the increased activities caused by the establishment of the SEZ.
- It is assumed that continuous ***monitoring and evaluation*** measures will be implemented to ensure efficiency, sustainability, and responsible activities.
- ***Community involvement*** will be prioritised during all phases of the SEZ establishment for maximum beneficiation.

8.7.2 Uncertainties and Gaps

- The duration of the ***COVD-19 pandemic*** is still unknown and may influence the performance of the tourism sector and the overall economy long term. It is also unclear how future, and post COVID-19 impacts will affect ***tourists' travel habits.***
- Additional water that will potentially be obtained from Zimbabwe is also uncertain as Zimbabwe are also experiencing ***limited availability of water***. The SEZ can increase the water usage in Limpopo which will worsen the current water shortage.
- ***Load shedding*** is implemented regularly in South Africa due to high demand and limited resources. Load shedding affects business activities and productivity. The development of the SEZ will put increased pressure on the electricity usage of the area and can lead to more regular load shedding implementation.
- Even though mitigation measures can be put in place, the extend of the SEZ's ***long term impacts*** on surrounding natural and heritage resources are uncertain.
- It is uncertain how the ***waste disposal facility*** will affect tourists' perceptions of the surrounding area and how it will visually affect the area.
- Due to the characteristics of the province's tourism sector, tourists travelling to the region will be interested in the natural and heritage landscapes of the area. The SEZ activities might influence the ***quality of visits*** due to noise, pollution, industrialisation, etc which will affect the competitiveness of the destination.
- It is uncertain what protocol will be established to ensure ***strong communication*** between residents and the SEZ.
- ***Direct and indirect impacts*** the SEZ will have on tourism on the short, medium, and long term is difficult to determine prior to its establishment and activities.
- It is not clear to what extend ***locals will benefit*** from the SEZ in terms of employment opportunities, business support, etc.

- It is uncertain to which extend ***accommodation establishments*** will be affected in terms of ambience, noise, pollutions, traffic, limited local resources, etc.
- It is uncertain as to how the SEZ can reduce ***health risks*** caused by its activities in the area.
- The availability of ***updated tourism data*** in terms of indicators, growth and performance are challenging in South Africa. Updated trends, behaviours and statistics can assist to monitor the exact impact the SEZ will have on surrounding tourism activities.
- Tourism performance are directly affected by ***seasonality***, which means most tourist destinations rely on peak months. Infrastructure development activities during peak months can lead to further tourism sector challenges.
- ***Ever-changing behaviour*** of tourists creates challenges as to what exactly tourists are looking for when visiting a destination which makes it difficult to determine where to apply mitigation measures and where to avoid changing features within a destination.
- ***Skilled labour*** can be a problem in terms of employment opportunities created by the SEZ. A gap might exist between the requirements expected for certain positions and the skills locals comprise of.
- Severe ***climate changes*** and other external factors caused by global warming can affect the local tourism sector mainly depending on its natural and heritage resources.
- ***Safety and security*** are a concern in the tourism sector nationwide, however if an increase of criminal activities is recorded, it might be blamed on the establishment of the SEZ.
- Due to uncertainty as to how exactly infrastructure of the SEZ will look after completion, the possibility does exist that it will affect the ***aesthetic value*** of the area due to industrial buildings, increased traffic, etc. A disturbance of the aesthetic features and possible damage to biodiversity in the area can affect visitor experiences and influence future tourist visits.
- Any infrastructure development will increase ***pollution*** in the surrounding areas. There are no specific (or limited where available) mitigation approach to reduce or avoid pollution caused through infrastructure development.
- During stakeholder engagements it was noted that the region is lacking efficient ***tourism signage***. It is important for awareness and visitor experience purposes to ensure adequate signage are provided in and around destinations (nature reserves, game farms, accommodations, heritage sites areas, etc.).
- During stakeholder engagements, the communities identified a gap for the development of a ***cultural village*** based on Venda and Tsonga cultures where culture and heritage would be promoted and preserved for sustainability and awareness purposes. There is currently a lack of attention given to the Tsonga and Venda communities in the area.

8.8 Summary and Recommendations

This sub-section will provide findings and recommendations identified throughout the report on both the North and South Site of the Musina-Makhado SEZ. These recommendations are purely based on the SEZ's impact on tourism.

8.8.1 North Site

The North site's location would ultimately have a low impact on surrounding tourism activities due to the vast distances between tourism related activities and the identified North site. According to the sensitivity table most tourism offerings will be impacted on low and medium levels. Low and medium impact levels are based on the type of activity and its sensitivity towards development. Due to the distances between tourist activities and the SEZ site, it can be concluded that the development of the

SEZ will not have a significant effect on tourism activities in the surrounding area. The aesthetic value of the area will also remain pristine as the SEZ are not located close enough to reduce visual quality.

According to the sensitivity table, ***medium*** sensitive areas carries ***moderate risks*** of impacting sensitive landscape features where development may be limited, or impacts can be reduced through mitigation measures. ***Low*** sensitivity areas have large expansive landscape scale, few landscape and scenic constraints, absence of protected areas and a few sensitive areas. These areas also carry a moderate risk of impacting tourism landscapes and features but is considered best suited for development. Since most tourism related activities will be impacted on low and medium scales the effect of the SEZ establishment on surrounding tourism activities will not be significantly.

Ultimately, based on the information provided above, development on the North Site of the SEZ will not have significant negative impacts on surrounding tourism activities due to vast distances between the SEZ site and its tourism surroundings. However, it is important to ensure responsible practices and mitigation measures are implemented where tourist areas are likely to be affected.

The following recommendations were made based on the North SEZ site:

- **Degradation and deforestation** of land that will affect the quality of the surrounding environment are recommended to be limited to preserve the environmental quality, where possible.
- A few nature reserves were identified as **high-level sensitivity areas** and mitigation measures must be prepared to limit the effect SEZ activities will have on these areas.
- **Local resources** such as water and electricity (load shedding) is already a challenge in the area and it is recommended that other water resources are used to minimise the demand required from the relevant local municipalities. If the demand for local resources is to high, tourist establishments such as accommodation and restaurants will be negatively affected.

8.8.2 South Site

The South site is regarded a more sensitive area in comparison with the North site due to its location. The site is located within the parameters of the Nzhelele Nature Reserve which directly impacts tourism activities in the surrounding area. However, the remaining surrounding tourism activities are not located in proximity of the site. These areas are identified as low sensitivity areas. The closest tourism activities, except for the Nzhelele Nature Reserve, are situated approximately 8km from the SEZ's South site.

Due to the aesthetic value of nature reserves, it is important to ensure that minimum damage is done to its environment, habitats, resources, and visual attractiveness. The reserve will be exposed to land degradation, loss of aesthetic value, pollution, and traffic and noise disturbance. Tourists might prefer other nature reserves rather than trying to explore a destination surrounded by noise, polluted, and industrialised. However, there is a possibility to design infrastructure in a way that will soften the industrial look and reduce visual impacts.

Despite the location of the nature reserve, most surrounding tourism activities (except for Nzhelele Nature Reserve) are located within vast distances of up to 60km from the South site. The Nzhelele Nature Reserve will therefore be identified as a high-level sensitive area, where the remaining tourism activities identified will be low level sensitivity areas. ***High sensitivity areas*** include high topographic diversity and landscapes and development in these areas carries high risk of impacting sensitive landscape features. Development in these areas are discouraged and viable alternatives should be

investigated where possible. Alternatively, ***mitigation measures*** can be implemented to reduce the level of impact on tourism activities.

The following recommendations were made based on the South site:

- Effective ***mitigation measures*** must be implemented to reduce the impact of the SEZ on tourism activities in the surrounding area, especially on Nzhelele Nature Reserve.
- Continuous ***monitoring and evaluation*** must be implemented to protect the quality of the surrounding and affected tourism environment.
- The visual impact of the SEZ on the nature reserve can be mitigated through softer infrastructure designs that will adjust to the natural surroundings and limit aesthetic reduction.
- The ***industrial developments*** of the SEZ will disturb tourist visits due to noise, aesthetic disturbance, and pollution. If possible, mitigation measures must be implemented to reduce these disturbances.
- ***Efficient signage*** must be erected that promotes responsible tourism activities and illustrates mitigation measures the SEZ implemented to limit damage done to the surrounding environment that will keep positive perceptions of the area amongst tourists.

Due to the low sensitivity level of most surrounding tourism activities, the area is regarded as suited for development. However, the Nzhelele Nature Reserve will be impacted on a high level through SEZ activities and operations due to its location. With the efficient implementation and management of mitigation measures these impacts can be reduced. Mitigation measures must therefore focus on successfully establishing the SEZ while protecting sensitive tourism areas where possible.

9 AGRICULTURAL SECTOR ANALYSIS

This section of the report will review the performance of the agricultural sector in various important performance areas, relating to the provincial and regional agricultural performance within Limpopo's changing context.

9.1 Current agricultural activities

Agriculture is a vital component of food security, and as such, an identification of the agricultural activities in the Vhembe DM will highlight which commodities will be potentially impacted by the introduction of the MMSEZ, with special focus on the South Site's Metallurgy Cluster, and agro-processing opportunities at the North Site. This section will include an analysis of the types of emerging farmers in the district.

Approximately 4,72% of the Vhembe DM is considered suitable for cultivation, of which 20% of the arable land is irrigated and 72% is utilized for dry land production. 78% of the district is suitable for livestock grazing, of which 16% is currently used for conservation and forestry (The Limpopo Province Freight Databank, 2020).

9.1.1 Significant Agricultural Regions

The main Vhembe DM's agricultural activities occur in regions where significant production levels are achieved. The location of these regions in relation to the MMSEZ will determine the level of impact that the SEZ will have on the district farmers. The significant agricultural regions, as seen in in Map 9, are:

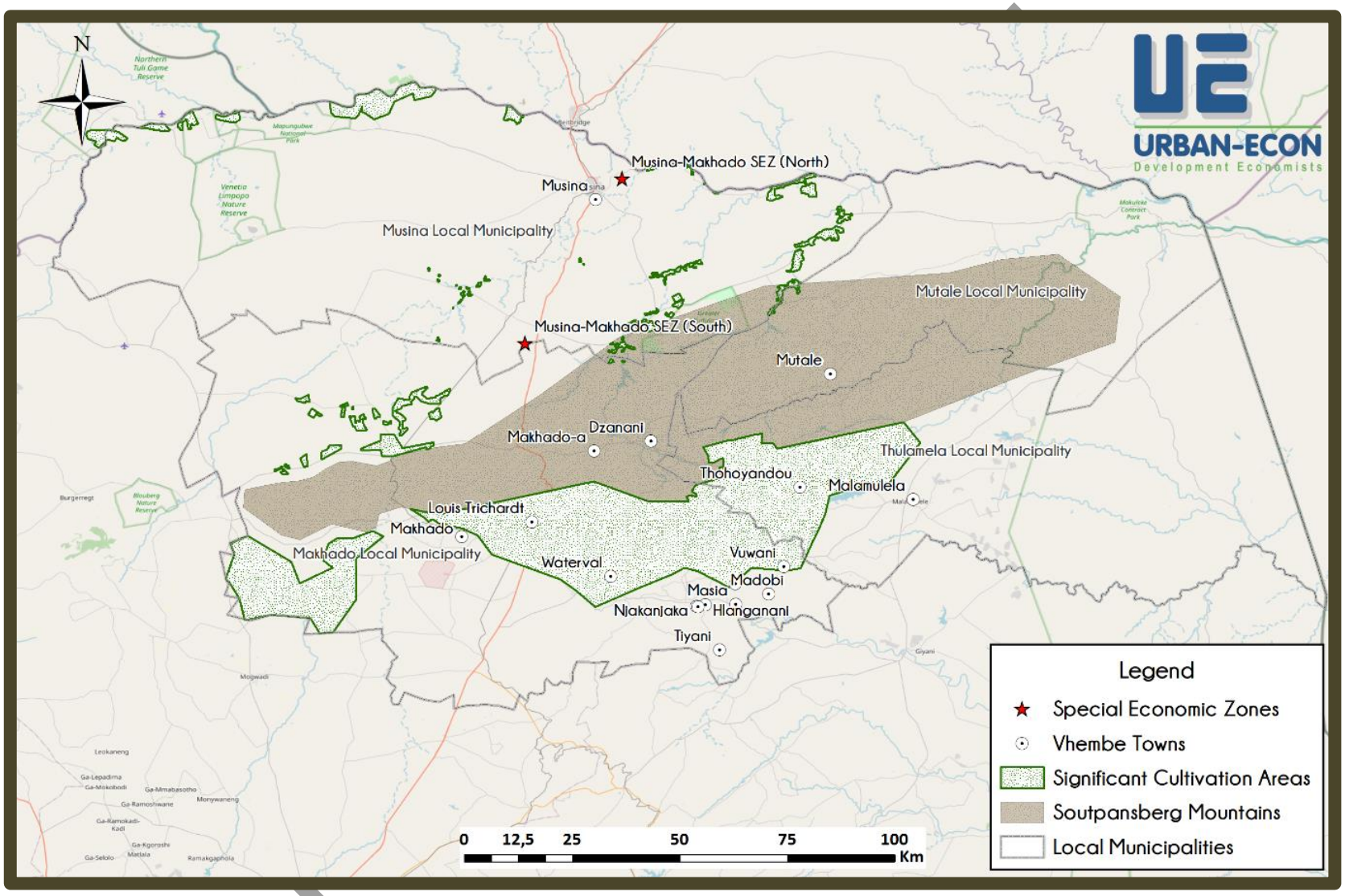
- **Soutpansberg Mountains** - is suitable for extensive livestock and wildlife farming and is an important forestation area and 15 563 ha are planted with soft and hard woods.
- **Major River Systems** - regions along the major rivers host a number of irrigated agricultural activities, such as the Limpopo, Nzhelele and Nwanedi Rivers.
- **Thohoyandou district** - (which falls largely in the Levubu irrigation area) has high agricultural potential and is suitable for the production of crops such as Avocado, Macadamia, Mango, Citrus and Paprika.
- **Limpopo Valley** - is well suited for the production of Dates, for which there is a proven market. This area (Dry and Wet Soutpansberg) is also suitable for the production of crops such as Avocado, Macadamia, Citrus and Flowers.

The production potential of Thohoyandou, Dzanani and Vuwani districts are negatively impacted by high population concentrations which sterilize high potential agricultural land and place much pressure on the water resources. The average population density varies from 100 to 200 persons per km² (The Limpopo Province Freight Databank, 2020).

The significant agricultural production regions are located mainly in the south-central parts of the Vhembe DM, spanning from the west to the east. These regions are in close proximity to the MMSEZ (South) site, which will have a direct impact on the farmers in these areas. The MMSEZ (South) will feature a metallurgy cluster that will require land and water resources currently utilized by agriculture, and the MMSEZ (North Site) will accommodate various related agro-processors that will have a positive impact on the potential marketing channels of both emerging and commercial farmers alike.

The urban regions in these areas reflects a large number of informal villages of varying sizes that were originally established and have since grown organically with very little planning. Large sections of the agricultural land falls within tribal lands, and as such, creates challenges for development as the land tenure is unsuitable for commercial farming.

Map 9: Significant Agricultural Regions



Source: Google Earth, 2020

9.1.2 Current Production Commodities

The Vhembe District's agricultural sector is characterized as extensive crop farming along rivers and livestock farming on the remaining land. Crop farming relies on intensive irrigated production, due to low annual rainfall, on limited arable soil. This environmental feature gives rise to very diverse commodities produced in the District, as seen in **Figure 22**.

Figure 22: Main Agricultural Production Commodities

Cash Crops

- Pigeon pea
- Macadamia nuts
- Mango
- Guava
- Baby vegetables
- Avocadoes
- Tomatoes
- Cabbage
- Carrots
- Cauliflower

Livestock

- Red meat
- Venison
- Poultry - Layers and Broilers

Source: (The Limpopo Province Freight Databank, 2020).

The most important agricultural commodities are nuts (about 50% of provincial production), and subtropical fruit (26% of provincial production). The most important production area for these commodities is the Levubu Valley, to the east of Louis Trichardt, Makhado LM. The Makhado, Thohoyandou and Musina LM are the most important regions for agricultural production in Vhembe DM. (The Limpopo Province Freight Databank, 2020).

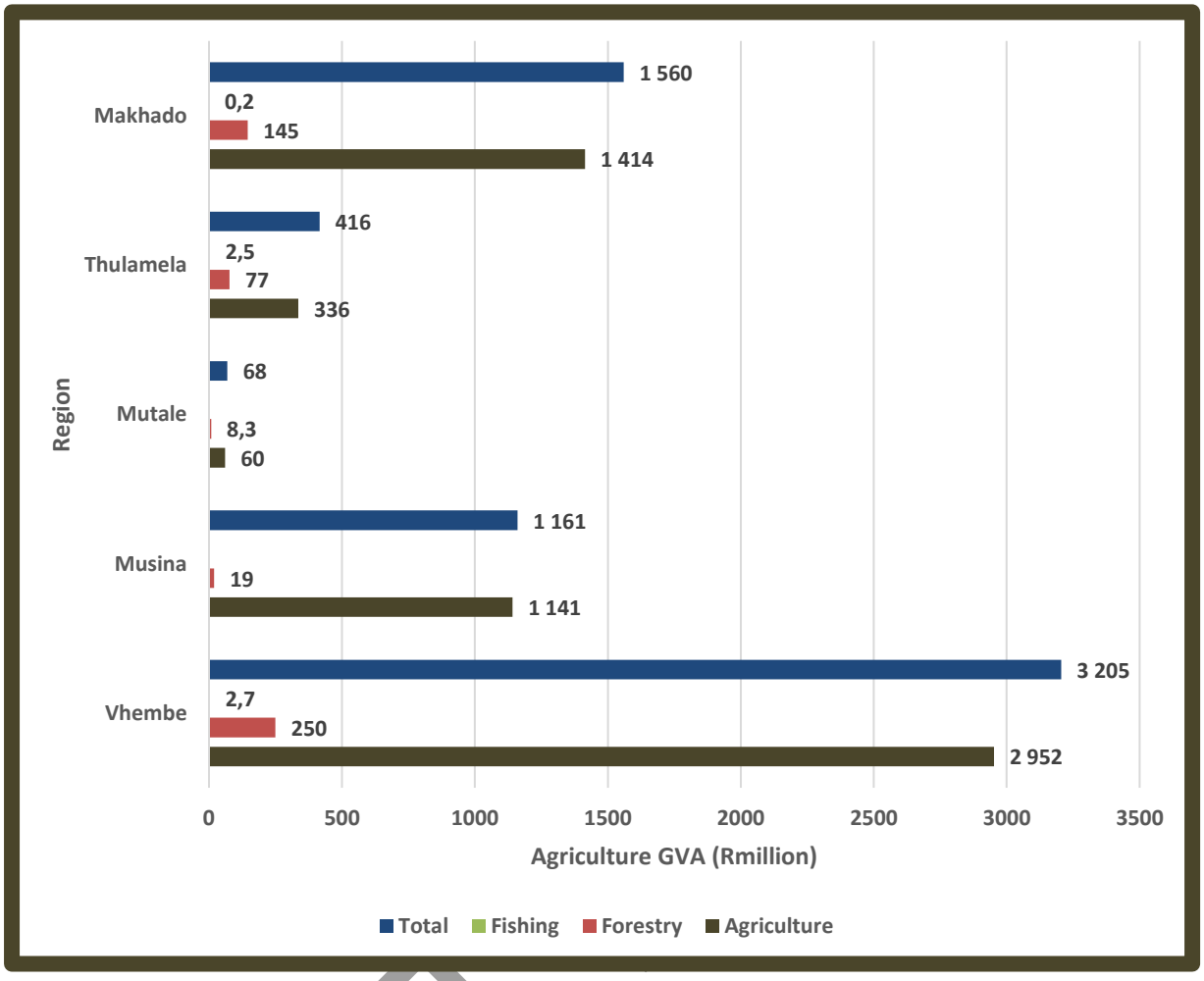
9.1.3 Agriculture Financial Contribution

The Agriculture, forestry and fishing sector contributes to food security, as well as financially, to the study region. The financial contribution of each subsector will be measured in millions of Rands of GVA, at current prices. Each LM of the Vhembe DM will be analysed in order to gain an understanding of the value created through farming annually.

The Agriculture, forestry and fishing sector produced R3,2 billion in revenue during 2019, as seen in **Figure 23**, with the agriculture sub-sector earning an estimated R2,95 billion, followed by the forestry sub-sector, with R250 million and the fishing sub-sector with R2,7 million, which indicates relatively small, none commercial fishing activities.

The Makhado LM contributed the largest value to the Agriculture, forestry and fishing sector, followed by the Musina, Thulamela and Mutale LM's. The Thulamela and Makhado LM's produced R2,7 million and R200 000, respectively, through fishing activities, while Mutale and Musina had no significant fishing industries. Forestry is predominantly located in Makhado and Thulamela LM's.

Figure 23: Agriculture, forestry, and fishing GVA (current prices) – 2019



Source: Quantec

It is common that agriculture is the main activity in comparison with forestry and fishing within in-land regions, as is evident in the figure, and is largely responsible for food security. The four (4) LM's of the Vhembe DM are largely reliant on the Makhado and Musina LM's, as the largest agricultural producers, thus the welfare and success of these farmers is vital for food security.

As the MMSEZ will be located within these LM's, the operations on the site will have an impact on both the production levels, availability of land and water resources, as well as the overall financial contribution and food security. The following section will analyze the Agriculture, forestry and fishing sector, followed by the impact of the MMSEZ on the current agricultural activities in the region.

9.2 Sector analysis

One of the aims of this report is to assess the impact of the MMSEZ on food security, which is directly related to the performance of the agriculture sector. This section will focus on economic growth, employment and value chains of the agriculture sector in Vhembe, with a focus on Musina and Makhado LM's.

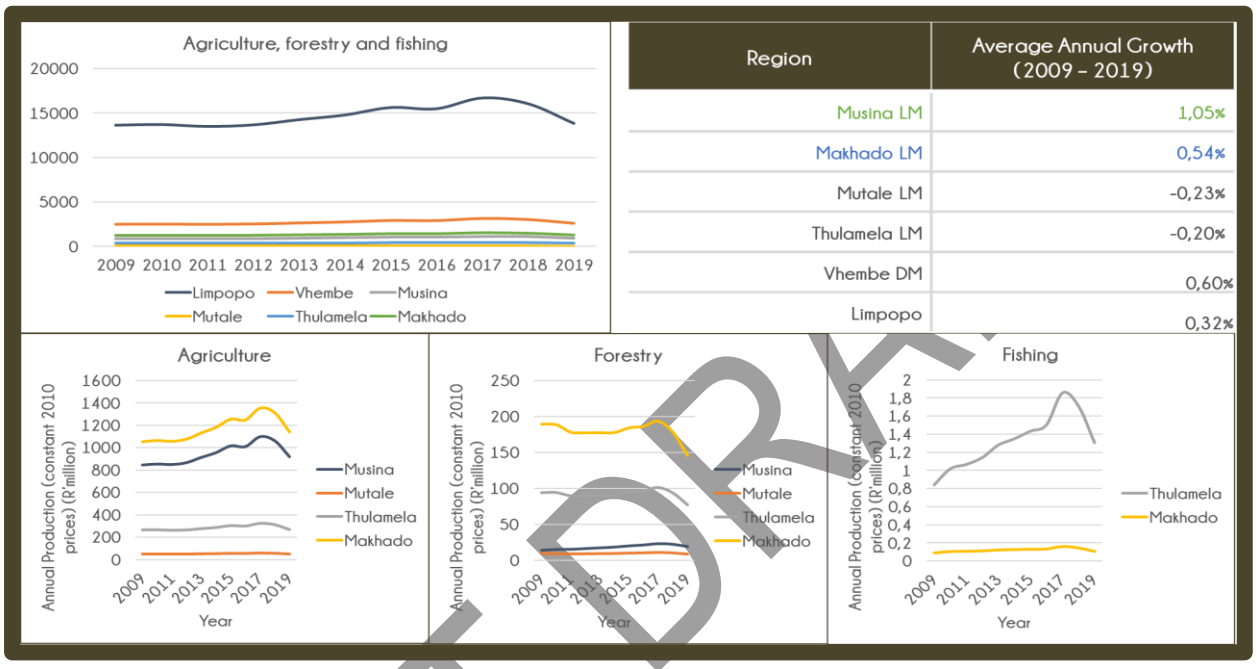
9.2.1 Agricultural Productivity

The annual productivity of the agriculture sector is measured in Gross Value Added (GVA). In order to eliminate the distorting effect of annual inflation, the production quantities of each year are valued at the prices of a base year, in this case, 2010. Productivity in the Vhembe province has increased at a

slower rate in comparison to the population growth in the district (see section 5.1), which indicates that food insecurity in the district is prevalent.

The total Vhembe District contributed 19% to the total Limpopo Province agriculture sector. As seen in **Figure 24**, the District experienced an estimated average annual growth of 0,6% between 2009 and 2019. The productivity of Musina and Makhado LM's, the key focus areas, increased at 1,05% and 0,54%, respectively, over the same period. In 2019. Mutale and Thulamela LM's both experienced an estimated negative annual growth.

Figure 24: Agricultural Production per Region(2009- 2019)



Region	Average Annual Growth (2009 – 2019)
Musina LM	1,05%
Makhado LM	0,54%
Mutale LM	-0,23%
Thulamela LM	-0,20%
Vhembe DM	0,60%
Limpopo	0,32%

Source: Quantec

As seen in the figure above, agriculture productivity increased at an estimated average annual rate of 0,89%, forestry with -1,79% and fishing with 5,14%. The total Vhembe District's agricultural production decreased at an estimated average rate of 8,72% per annum between 2018 and 2019, as the international community reduced investment in South Africa, owing to the downgrading of South Africa's credit rating by such rating agencies as Standard and Poors. This has had a very significant impact on food security in the region, and thus an analysis of the agriculture sector's business cycle is important to assess if this occurrence is recoverable.

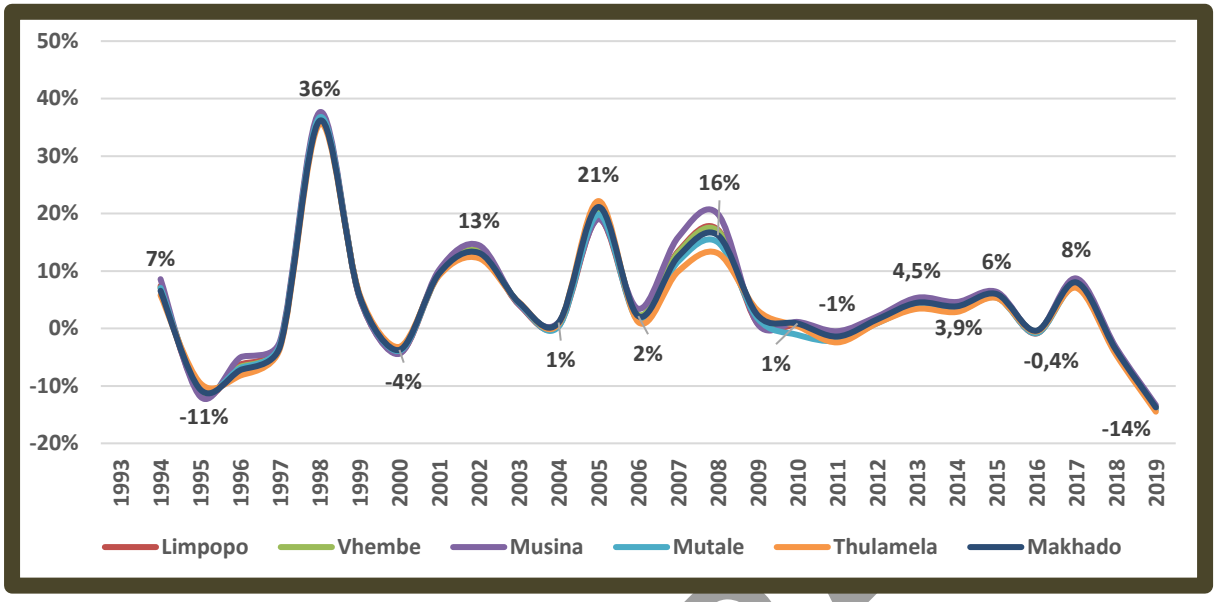
9.2.2 Business Cycle

A business cycle is characterised by upswings (upward trends) and recessions (downward trends) in business activities over a period of time. Business cycles exist due to producers' response to market behaviour, such as reinvesting capital (e.g. withholding dividends) in recessions in order to increase productivity, which creates upswings in the economy. A business cycle is measured from a peak in growth to the following peak. In order to determine the duration of the business cycle, annual percentage changes in RGVA are analysed to identify patterns of upswings and downswings.

In the Limpopo Province, the agriculture sector's annual change in productivity is almost perfectly correlated to those of the individual LM's, as seen in **Figure 25**, and therefore an observation of the illustrated annual change in real growth will give an indication of the length of the business cycle. As the figure illustrates, the business cycle appears to be shortening over time, as the cycle lasted four

(4) years between 1998 and 2002; three (3) years between 2005 and 2008; and two (2) years between 2005 and 2017.

Figure 25: RGVA Annual Change (2009 - 2019)



Source: Quantec

The shortening of the business cycle indicates that the agriculture sector in Limpopo is becoming extremely sensitive to market forces, enjoying significantly shorter upswings than in the late-1990's/early-2000's. This may be due to the growing uncertainty of the South African economy for foreign direct investment, or the increase in producers' access to industry data, which accelerates responses to markets, but also increases competition with domestic and foreign producers with similar information.

The significant decrease in the agriculture sectors growth between 2017 and 2019 indicates that external market forces are responsible for the decline, as the lowest annual increases were estimated between 2018 and 2019 than any other time since 1993. Compared with the impact of the national drought between 2015 to 2017, a large investment in the sector is required for the industry to recover, as has previously occurred between 1995 and 1998.

The introduction of agro-processing at the MMSEZ is vital to stimulate the agriculture sector in Vhembe District, to strengthen the value chain. Additionally, the introduction of a metallurgy cluster at the MMSEZ South Site may hamper agricultural productivity and have a negative impact on food security. The following section will identify how the MMSEZ North Site is related to agriculture and food security.

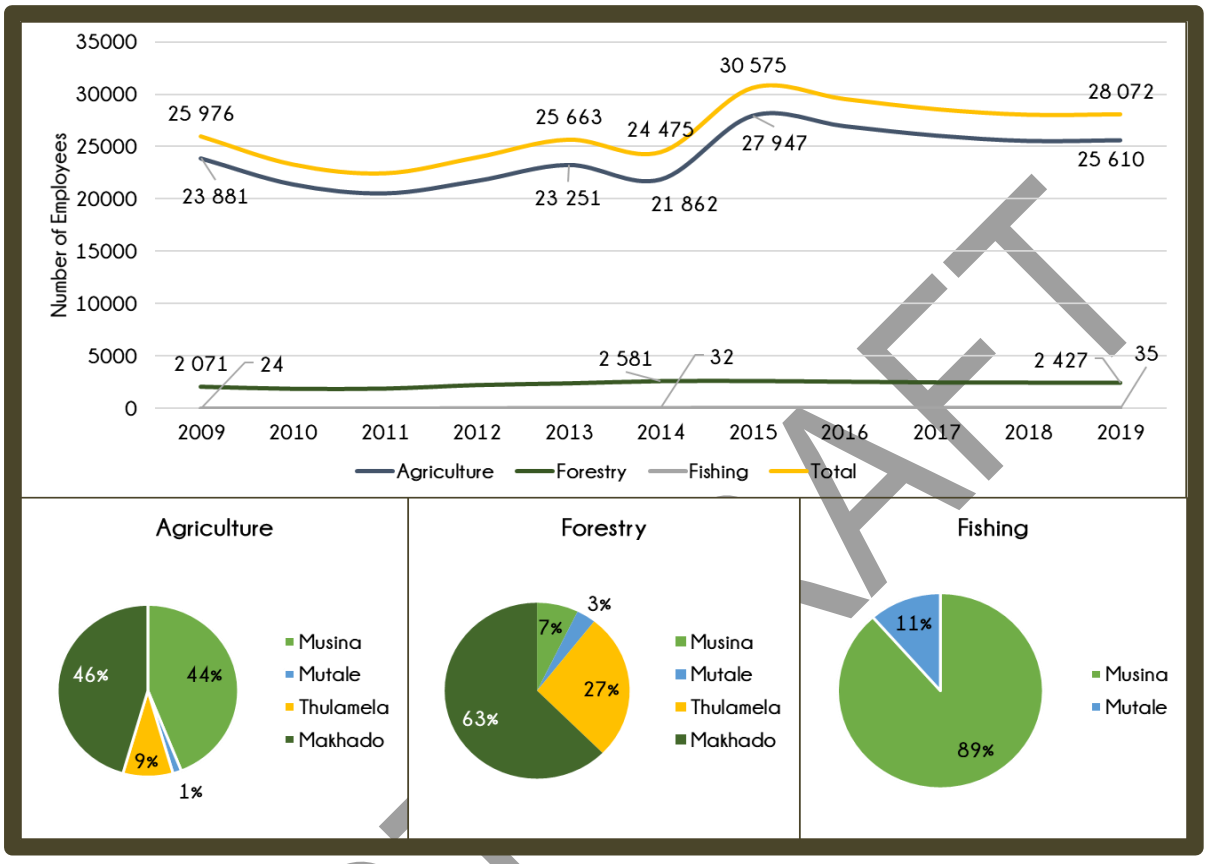
9.2.3 Agricultural Employment

The agriculture sector is a vital employer in both the Musina and Makhado LM's.. As such, it is important to identify employment data within the sector to indicate historic employment trends. The employment contribution of the sector can be divided into three (3) groups, namely agriculture, forestry and fishing.

Agricultural employment in the Vhembe District increased at an estimated average rate of 1,2% per annum, as illustrated in **Figure 26**, between 2009 and 2019. In 2019, the Agriculture subsector employed the most workers, at 91,2% of the total workforce, followed by Forestry (8,7%) and Fishing (0,1%).

Makhado LM employs the largest number of workers in the Agriculture subsection (44%), followed by Musina LM (44%), while Makhado employs 63% of the forestry workforce in Vhembe District, highlighting the importance of agriculture within Musina and Makhado LM's, Musina employs the largest proportion of the Fishing workforce.

Figure 26: Agriculture Sector Employment



Source: Quantec

The impact of the MMSEZ will have a most significant impact on Musina and Makhado LM's agricultural employment than on Thulamela and Mutale LM's, as the MMSEZ will be based in these LM's. Any negative externalities brought about due to the introduction of the MMSEZ will result in job losses in the agriculture sector, which will also impact food security. The following section will identify the relevant value chains of the agriculture sector to identify the role the MMSEZ may play withing the sector.

9.2.4 Agricultural Value Chain

Although the preceding assessment of agricultural potential and current production volumes are key to understanding the development context for agriculture in the Vhembe Province, the agricultural value chain extends beyond primary production. Value addition through agro-processing offers valuable opportunities for enhancing the impact of agriculture on the economy of the Province. The agro-processing companies to be based at rhe MMSEZ North Zone will strengthen the agricultural value chains, while creating competition for local agro-processors.

Therefore, this sub-section provides an overview of each of the key agro-processing value chains that exist within the Vhembe Province. The value chains are analyzed in the context of the current industry environment and seeks to identify where the MMSEZ agro-processors will feature within the value chain, as well as identifying the main processors that will be affected by increased competition.

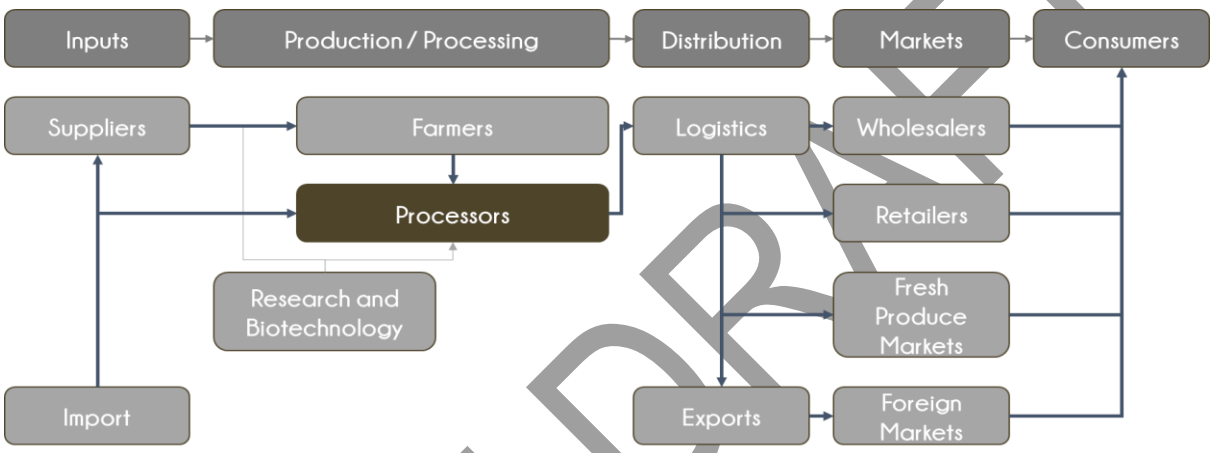
The value chains to be investigated are listed as follow:

- Horticulture value chain
- Beef value chain
- Pork value chain
- Venison value chain

9.2.4.1 Horticulture Value Chain

Horticulture is defined as the branch of agriculture dealing with the growing of fruits, vegetables, nuts, and other plants. For this report vegetables fruits and nuts will be discussed and not be specified by different species. **Figure 27** below demonstrate the value chain for the horticulture.

Figure 27: Horticulture Value Chain



Source: (Department of Rural Development and Land Reform, 2016)

The value chain for horticulture begins with the production phase. This phase involves the sufficient growing and harvesting of crops in order to meet the markets requirements. After harvesting the farmer can either allocate the harvest as fresh produce to Fresh Produce Markets or allocate them for further processing in order to produce agro-processed products. Once the harvest has gone to through the processors or Fresh Product Markets it will go to the wholesalers and retailers. The final stage involves the consumer receiving the final product for consumption.

9.2.4.1.1 Horticulture Agro-processors

The Limpopo Province has a variety of horticulture processors that compete for raw crop inputs from the Vhembe district, thus, it will be advised to identify the current competitors, the produce offered and the relevant location of operations, as seen in Table 14.

Table 14: Horticulture Processors

Processor	Produce	Location
Frimax	Potato: Crisps	Polokwane
Levubu cultivators	Avocado	Levubu

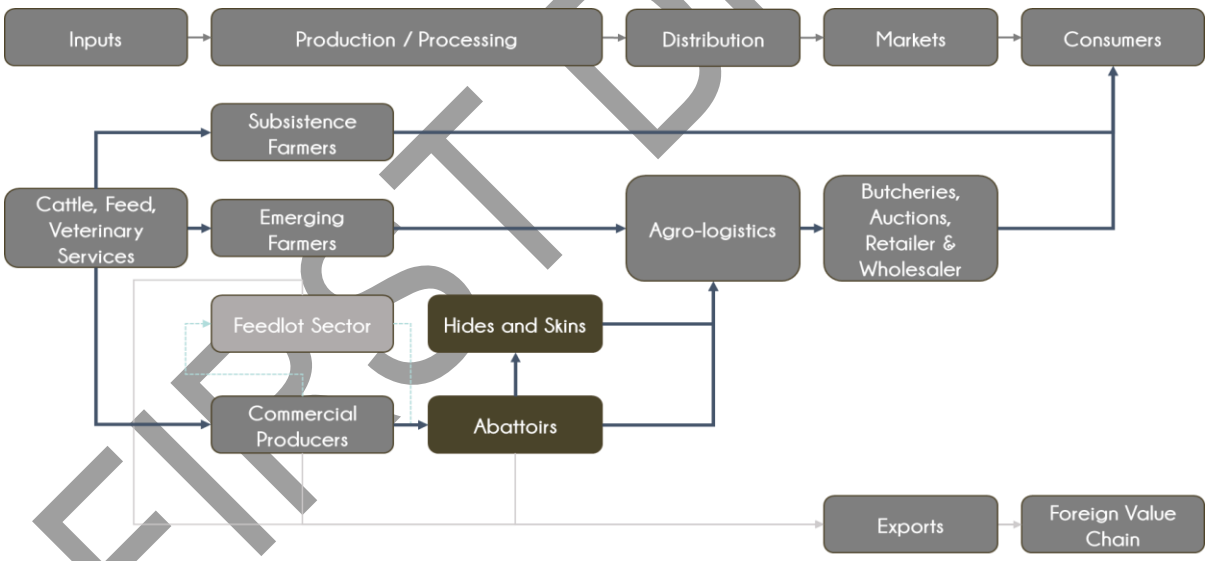
Miami Canners	Onions: Pickled	Letsitele
Rhodes Food Group	Baby Vegetable	Makhado
Sandquest	Tomatoes	Musina
Tshalata Farms	Tomatoes	Sane Village, Nwanedi
ZZ2	Onions: Fresh, Tomatoes	Mooketsi, Politsi, Polokwane and Musina

Each of the abovementioned horticulture agro-processors currently do not profit from the benefits offered by the MMSEZ, in terms of development support and reduced taxation, therefore operational and expansion costs are higher than those based at the MMSEZ. The unlevel playing field may create unfair competition, resulting in the closure of competing businesses that do not move to the MMSEZ site. This may lead to an increase in unemployment within these regions.

9.2.4.2 Beef Value Chain

Cattle farming is the core of the cattle value chain as illustrated in Figure 28. The success of the primary cattle farmers is a crucial catalyst for the value chain as it propels the success of the rest of the value chain.

Figure 28 Cattle Value Chain



Source: (Department of Rural Development and Land Reform, 2016)

The feedlots and auctions mainly function as throughways for the cattle to reach the slaughtering process at the abattoirs. The abattoir is where the various products derived from cattle are separated and sent for processing in their relevant sections. The carcases can then be sent to butcheries or retailers for cutting, packaging and sale.

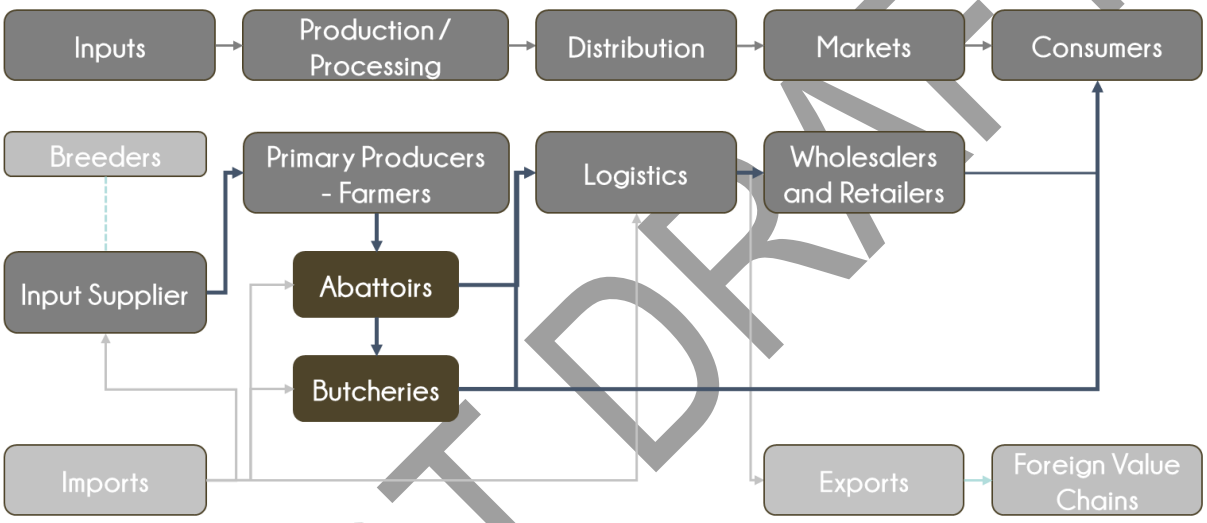
Carcases can alternatively be sold to agro-processors for further processing into a variety of products, as described in the following sub-section. The hides are sent to the tannery where they are softened and processed into leather which is transformed into various leather products.

9.2.4.3 Pork Value Chain

The pork value chain, as illustrated in **Figure 29**, is centered around the pig farmers who raise pigs for slaughter. The pigs remain in the piggeries until they reach slaughter age, then are sold to abattoirs for slaughter. From the abattoir, carcasses are sold to wholesalers, retailers or to processors for further transformation. The remains of a pig carcass are processed into by-products such as those listed below.

Some of the pork sold to wholesalers and retailers also undergoes light processing into meat products such as burgers, sausages, and smoked goods. Pork is the most popular processed meat of all other meats and it is also often used in combination with other meats in what is referred to as *bulking.*

Figure 29 Pork Value Chain



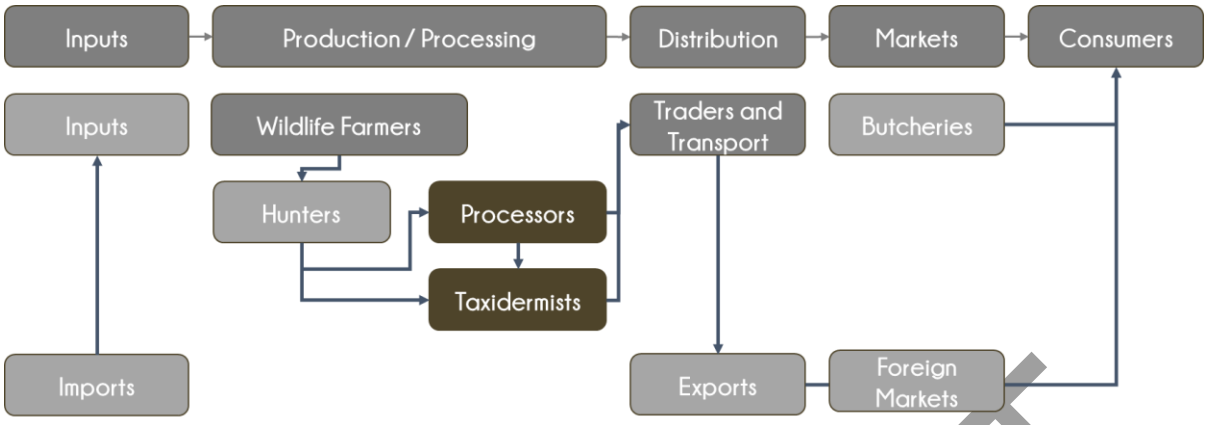
Source: (Department of Rural Development and Land Reform, 2016)

9.2.4.4 Venison Value Chain

Wildlife/game in this case refers to undomesticated animal species like ostrich, crocodile, and several buck species, bred for processing and human consumption. The wildlife industry, as with any other industry is constantly experiencing changes mostly because of the economic and currency fluctuations.

Game hunting, as part of the wildlife industry is a large contributor to the economy as it not only increases the demand for trophy breeding but simultaneously contributes to wildlife tourism, as hunters often visit wildlife parks with their families. Hunting can be noted as the backbone of the South African private wildlife industry. The wildlife value chain can be viewed in Figure 30 below.

Figure 30 Venison Value Chain



Source: (Department of Rural Development and Land Reform, 2016)

Inputs regarding wildlife includes proper fencing, medicine and to some extent feed in times of droughts. Wildlife mainly roams free and their diet consists out of wild grass and leaves. Wildlife farmers usually hunt themselves or sell live game to professional or tourist hunters. After hunting the game is usually processed by either taxidermy, butcheries, or the hunters themselves. Only in the case of ostrich is the game processed by abattoirs. After processing the game products is sold by butcheries or hunters to consumers.

9.2.4.4.1 Red Meat Agro-processors

The Limpopo Province has a variety of abattoirs that compete for livestock inputs from the Vhembe district. The If the MMSEZ receives investment into abattoirs, it will be advised to identify the current competitors, the produce offered and the relevant location of operations as there are a large number of red meat abattoirs in the Vhembe District, as seen in Table 15.

Table 15: Abattoirs in Vhembe

Name of Abattoir	Location	Name of Abattoir	Location
Deelkraal	Louis Trichardt,	**Tshifhiwa**	Lwamondo
Deugsaamheid	Louis Trichardt	**Mukwevho**	Sibasa
Eckstein	Louis Trichardt,	**Langanani**	Lwamondo
Leeuwkuil Abattoir	Louis Trichardt	**Mathule**	Lwamondo
Sirkel F	Louis Trichardt,	**Mutanda**	Sibasa
Thohoyando Correctional Services	Louis Trichardt	**Saselamani**	Saselamani
Ground Zest T/A Vygeboomsdrift Varke	Bandelierkop,	**Brotherhood**	Nzhelele
P. J. Ludick	Louis Trichardt	**Azwinndini**	Louis Trichardt
Tredway	Louis Trichardt	**Shibisani**	Tshigalo,

Tolwe	Kutama	**Thathe Phiphidi Abattoir**	Vhufuli
Mathelemusa	Thohoyandou	**Kangi's Abattoir**	Munzhedzi
Mapitas	Louis Trichard	**Valdezia**	valdezia
Shayandima Butchery	Shayandima	**Vele Meat Abattoir**	Thohoyandou
C Net	Shayandima	**Nermutandani Abattoir**	Vuwani
Fly	Sibasa	**Thand's Abattoir**	Louis Trichardt
Nkhumeleni	Makhado	**Vhangani**	Masia
Netshikhudeni	Tshakhuma	**Tshedza**	Sagole

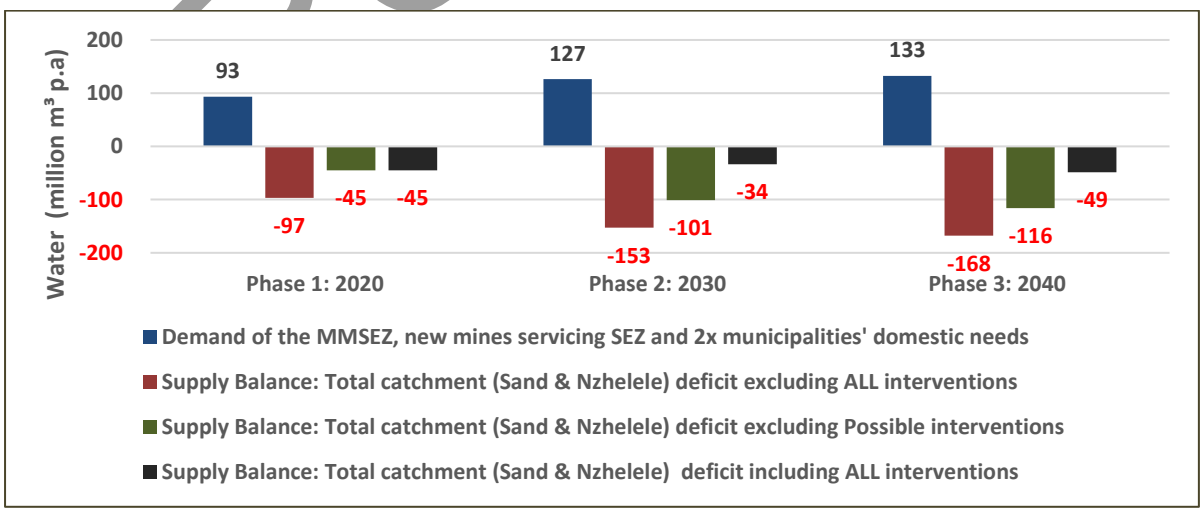
Source: (Department of Agriculture, Forestry and Fishing, 2020)

Each of the abovementioned abattoirs do not currently profit from the benefits offered by the MMSEZ, in terms of development support and reduced taxation, therefore operational and expansion costs are higher than those based at the MMSEZ. The unlevel playing field may create unfair competition, resulting in the closure of competing businesses that do not move to the MMSEZ site. This may lead to an increase in unemployment within these regions.

9.3 MMSEZ Impact on Available Water Resource

The proposed SEZ falls within the Limpopo Water Management Area and the Sand Sub-Water Management Area, within a river National Freshwater Ecosystems Priority Areas (NFEPA). The SEZ site also falls within primary drainage region A of the Limpopo Water Management Area and Quaternary drainage regions A71K and A80F. As a result of the low rainfall in the Vhembe District, the nature of the location of the MMSEZ South Site imposes potential critical strain on the available water resources required by local agriculture.

Figure 31: MMSEZ Water Demand and Supply



Source: (iX engineers (Pty) Ltd, 2019)

As part of the scoping report for the MMSEZ, it was established that the MMSEZ, as well as the two municipalities, would require 93 million m³ of water over the first phase, as seen in **Figure 31**. At full

operation, the MMSEZ is projected to require 127 million m³ p.a. between 2030 and 2040 and 133 million m³ p.a. after 2040. Three scenarios were formulated to assess the water supply from the Sand and Nzhelele Rivers to determine the water supply deficits excluding all interventions, excluding possible interventions, and including all interventions. All three scenarios indicate that there will be a deficit ranging from 168 million m³ p.a. and 34 million m³ p.a.

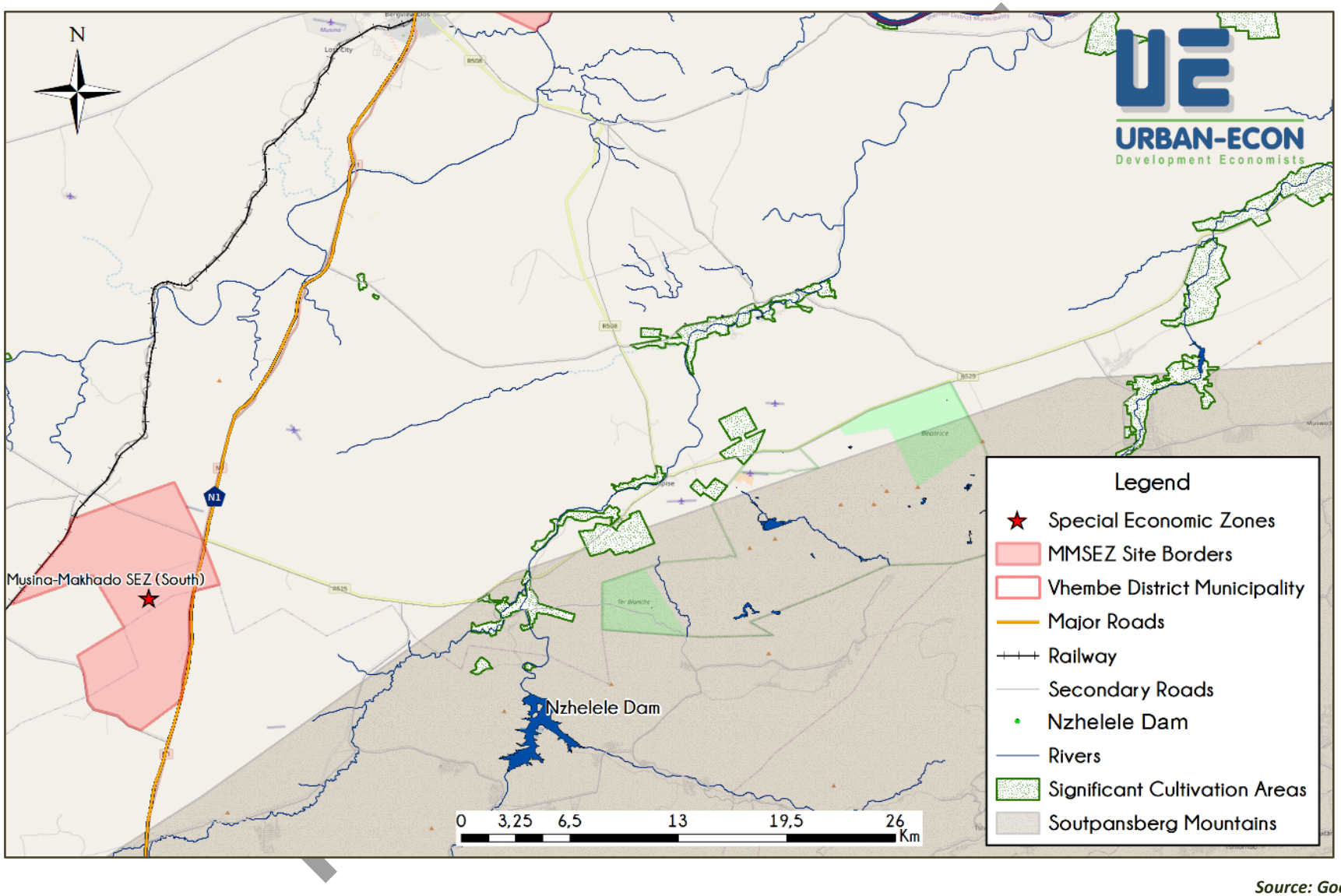
As part of the Limpopo Department of Water and Sanitation's preliminary studies, a water sources of 80 million m³ in Zimbabwe was identified that is not currently in use, making Zimbabwe a potential water supply source. A cross border water transfer from Zimbabwe will require an international water user agreement. This water source will relieve some of the deficit, although, in the best-case scenario of a deficit of 34 million m³ p.a., there will be a 46 million m³ p.a. surplus, considering all other interventions are successful and no significant changes in water supply due to drought or increased demand in water from other developments.

As part of the scoping study, a number of alternative bulk water sources have been investigated, such as treated sewage effluent from Musina/Makhado towns, buy-out of irrigation rights and increasing the height of the Nzhelele Dam wall. The high water requirements of the MMSEZ will reduce the volume of water available for irrigation farmers on the Nzhelele River, which will impact approximately 3 000 hectares of potential high value crop production, as seen in **Map 10**.

A reduction of cultivation activities on Vhembe will have a significantly negative impact on food security, as the agriculture sector is already restricted due to limited available water resources. The financial impact of water shortages on the agriculture sector in Vhembe may cripple the agriculture economy of the region. For example, if the total affected area planted Tomatoes, at a yield of 45 tons per hectare and at price of R5 671/ton, the agriculture sector will lose an estimated R765, 59 million in annual revenue.

The supply of water to satisfy the high demand may be sourced from neighbouring regions, through piping water from river and dam systems, and water recycling. The MMSEZ must therefore identify alternative measures to minimize the impact of water usage on the local farming communities that are vital for food security.

Map 10: Potentially Impacted Irrigated Lands



Source: Google Earth

9.4 SEZ Impact on Surrounding Agricultural Activities

The new MMSEZ development will be placed on land currently utilized by agriculture, and therefore the sites will have a direct impact on the agricultural productivity of the land. This subsection aims to identify the direct impact the industries operating within the site will have on the surrounding agricultural activities.

The MMSEZ South Site will is situated on an undeveloped property that has an area of approximately 3 500 ha, along the Southern banks of the Limpopo River and the Western Bank of the Sand River The property, Antonvilla Farm, as marginal grazing capabilities, although the most significant agricultural impact at the site will be the experienced by downstream irrigation farms due to abstraction.

As seen in **Map 11**, sporadic cultivation occurs on the southern banks of the Limpopo River. The majority of cultivation consists of irrigated activities which rely heavily on water from the Limpopo River. If the available water resources are utilized by the SEZ, approximately 2 000 ha of cultivation land may be lost.

The introduction of the metallurgy cluster at the MMSEZ South Site will have a potentially substantial impact on the food security in the Makhado LM, as well as in the Mutale LM. As discussed in the previous section, mining and metallurgy require large volumes of water during operations, and as such these operations would ideally be located on coal reserves near a water source, where cultivation currently occurs.

The MMSEZ would stimulate the mining sector in the Musina, Mukhado and Mutale LM's which would attract miners to the region. Most of the significant cultivation regions north of the Soutpansberg mountains are located along rivers, as seen in **Map 11**, with approximately 20 940 ha within potential coalfields.

The introduction of new mines in these regions has the potential to encroach on the current agricultural activities, which may decimate cultivation along the rivers, as well as downriver cultivation the requires water from the river for irrigation. The mining of the coalfields within the Vhembe district has the potential to negatively impact approximately 689 000 ha of livestock and wildlife grazing lands in the following ways

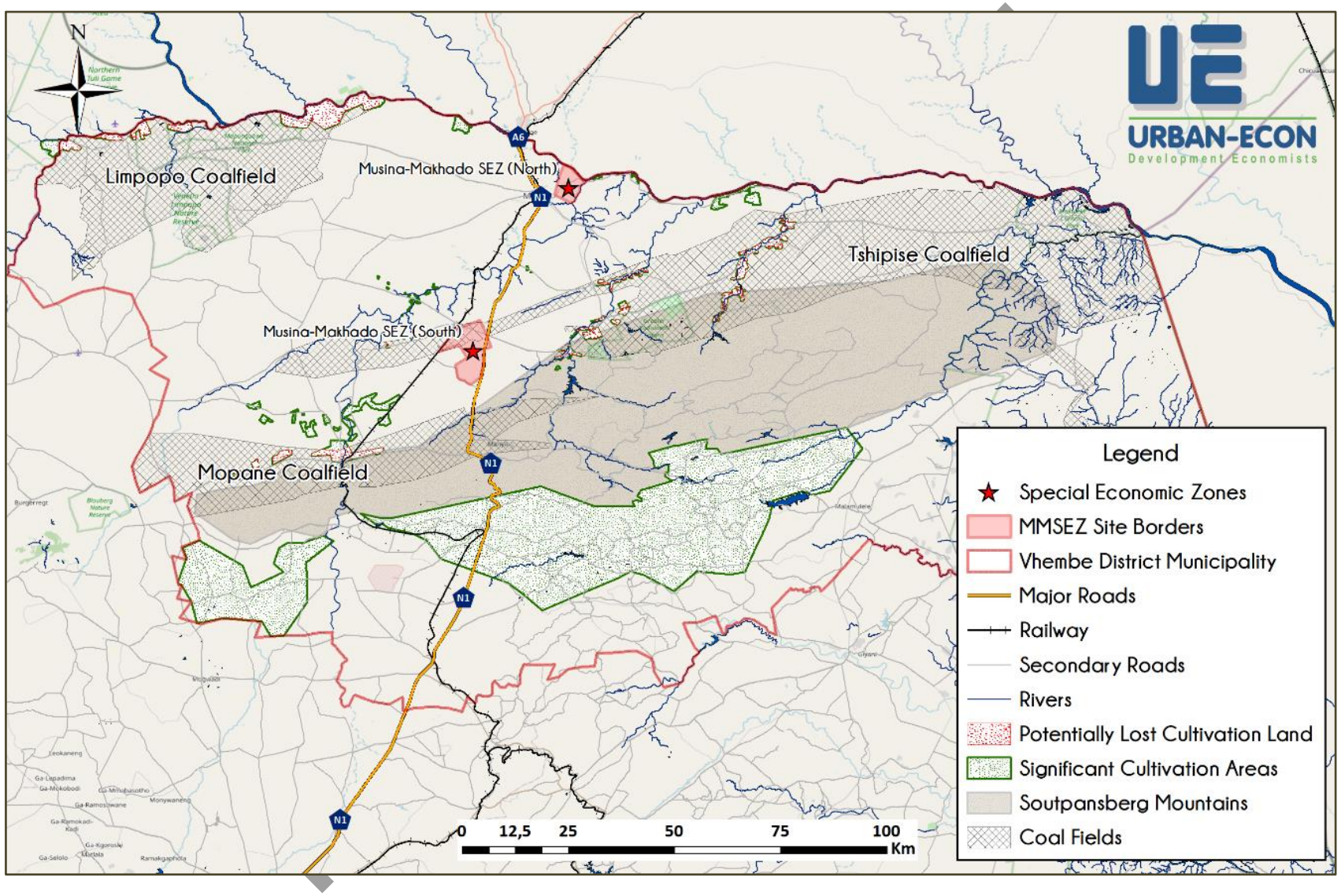
- Decimation of grazing land due to the extraction of all the available coal through open cast mining.
- Air pollution as a result of the burning of fossil fuels during mining operations and processing
- Fresh water supply required for agriculture may be affected by contaminated water lost into rivers and ground water reservoirs

Discharged water from the MMSEZ (South Site) may be pumped into the Sand River, north of the site, which will have a direct impact on downstream farming along the riverbanks. The impact on agriculture will depend on the quality of the discharged water, Approximately 4,43 million m^3 of

water is projected to be discarged into the rivers per year at full operation (iX engineers (Pty) Ltd, 2019).

If the water treatment plants are successful in decontaminating the water to quality levels suitable for agriculture, there will be an increase in agriculture activities downstream, due to the increase in water supply. In the scenario where the water discharged is contaminated, the risk of poisoning all types of agricultural commodities down stream may decimate farming.

Map 11: Coal Reserves and Significant Agriculture Regions



Source: (Limpopo Department of Economic Development, Environment and Tourism, 2015)

9.5 Stakeholder Consultation Inputs

TBC

9.6 Risk Factors & Mitigation

The development of the MMSEZ (North and South Sites) pose potential risks on the proposed sites and the surrounding agricultural activities, which will therefore have an impact on food security. This subsection as aimed at identifying the risks associated with the individual MMSEZ sites, potential mitigation measures and the socio-economic impact of each risk. Table 16 outlines the potential negative impact on the MMSEZ on agriculture and food security.

Table 16: Risks, Mitigation and Socio-Economic Impact

CATEGORY	Summary of Implications and Mitigation		Assessments of Socio-Economic Impact		
	Potential Impacts	Mitigation	Significance before mitigation	Duration	Significance after mitigation
EMPLOYMENT CREATION	Construction Phase: growth in new jobs	First preference of employment should be to the locals	Low	Short term	Medium
	Operation Phase: Direct and Indirect Employment	Recruit from local communities	Low	Long term	Medium
	The production effect refers to that which is created when demand for the goods generated requires construction which then creates business sales as developers require a supply of operational input	Purchase construction materials and other materials from small and emerging local businesses	Medium	Long term	Very High
MMSEZ South Site					
NATURAL RESOURCES	Loss of Agricultural Land due to MMSEZ property and stimulation of mining in the surrounding region	Review mining rights holders to assess the scale of the short-term growth in the mining sector	High	Short Term	High
	Stress on water resources for downstream irrigation	MMSEZ may develop infrastructure to source water from other regions	Very High	Long Term	High

CATEGORY	Summary of Implications and Mitigation		Assessments of Socio-Economic Impact		
	Potential Impacts	Mitigation	Significance before mitigation	Duration	Significance after mitigation
	Loss of downstream commodity production due to toxic discharge into rivers	Water treatment plants that purify affected water, recycle and discharge only suitable water	Very High	Long Term	Low
	The gap in information of the future effects of Global Warming on agriculture, which may reduce water supply from natural sources.	The MMSEZ development may be approached with caution to avoid over-stressing available natural resources	High	Long Term	High
	Air Pollution caused by MMSEZ Metallurgy Cluster	Invest in new technologies that reduces the carbon footprint of the MMSEZ	Low	Long Term	Low
Infrastructure	The increase in heavy transportation on the N1 access road will cause damage to the current road infrastructure	The Musina and Makhado LM's must budget to upgrade the road infrastructure to be suitable for heavy loads	Medium	Long Term	Low
	Electricity consumption of the MMSEZ in full operation may lead to Load Shedding which will affect irrigation of crops	MMSEZ must development sufficient energy generation plants to minimize the reliance on the already strained power grid.	High	Short Term	Low

CATEGORY	Summary of Implications and Mitigation		Assessments of Socio-Economic Impact		
	Potential Impacts	Mitigation	Significance before mitigation	Duration	Significance after mitigation
CRIME	The MMSEZ will attract jobseekers to the site, which may result in a large number of settlers, and increase the risk of criminal activities on the surrounding farms	Develop relationships with farmers and Installation of security cameras and security personnel	High	Long Term	Low
Food Security	The potential loss of agricultural land due to the development of the SEZ and supporting mining activities will reduce agricultural production, thus reduce food security	In increase in the number of jobs created by the MMSEZ will increase wages of the population, thus importing food from other regions will be more affordable	Very High	Medium to Long Term	Low
MMSEZ North Site					
Competitors	The increase in competition for local agro-processors that do not have access to the same benefits as those located within the MMSEZ will lead to job losses in the industry.	The MMSEZ agro-processors must employ experienced staff who are willing to relocate	Very High	Medium Term	Medium
NATURAL RESOURCES	Loss of Agricultural Land along the Limpopo River would lead to unemployment	The MMSEZ agroprocessors should priorities the employment of local workers that become unemployed	Low	Short Term	Low

CATEGORY	Summary of Implications and Mitigation		Assessments of Socio-Economic Impact		
	Potential Impacts	Mitigation	Significance before mitigation	Duration	Significance after mitigation
	Increase in water usage may hamper downstream agricultural activities	MMSEZ may develop infrastructure to recycle water to minimize abstraction from the Limpopo River	Medium	Long-Term	Low
CRIME	The proximity to the Musina urban region may result in criminal activities at the MMSEZ Site	Develop relationships with farmers and Installation of security cameras and security personnel	High	Long Term	Low
Infrastructure	The increase in heavy transportation on the N1 and other access roads will cause damage to the current road infrastructure	The Musina and Makhado LM's must budget to upgrade the road infrastructure to be suitable for heavy loads	Medium	Long Term	Low
	Electricity consumption of the MMSEZ in full operation may lead to Load Shedding which will affect irrigation of crops	MMSEZ must development sufficient energy generation plants to minimize the reliance on the already strained power grid.	High	Short Term	Low

As the table indicates above, water resources for the MMSEZ, specifically the South Site, are of the utmost importance to the overall impact of the MMSEZ Metallurgy Cluster on agriculture and food security in the Musina and Makhado LM's. The limited water supply, considering all mitigations, will create significant stress on the surrounding agriculture activities, as well as residential water requirements.

In the case where an insecure water supply is utilised, the investment in the MMSEZ businesses may put pressure on the Local Municipalities to prioritise the MMSEZ's water requirements over that of the population, in order to maintain production levels and job security, which will both cripple irrigation farming and lead to a loss of welfare in the LM's.

9.6.1 Assumptions

In compiling this report, certain gaps in information were identified which creates uncertainty in projecting the impact of the MMSEZ on food security, therefore assumptions were made to fill in these gaps of information. The list of assumptions may be seen in Table 17.

Table 17: Gaps in Information and Assumptions

Gaps in Information	Uncertainties	Assumption
The Covid-19 Lockdowns have impacted the economy, but the extent thereof will only be known in future financial periods	Future economic growth	The effects of Covid-19 will be minimal
Lack of current commodity production levels in the Musina /Makhado region	Inability to accurately estimate production levels of individual commodities	General agricultural output is utilised
There are no reliable price projections due to the effect of Covid-19 on the economy	Fluctuations in prices	Constant commodity prices are inflated annually
Climates change annually, therefore only averages in climate characteristics can be utilised	Agriculture output is dependent on climatic factors	Climate conditions remain constant
There is currently no agreement with the Government of Zimbabwe to utilise the 80 million m³ suggested, therefore an alternative water supply is unknown	The MMSEZ may be unable to source sufficient water supply	The Zimbabwe water supply agreement will be finalised
The volume of water used by irrigation farmer per year is unknown, as some river water will not be abstracted	The volume of unutilised water	All available water allocated to irrigation is utilised
Farmers often rotate crops annually/seasonally, and thus not information is available on current and future crop selections	Choice in crops planted	Annual commodity production selection remains constant each year
Future MMSEZ energy consumption is based on projections that are dependent on future investment. In the case that investment does not materialise, no information is available for alternative energy sources	The energy consumption of the MMSEZ during the construction of a power plant that may hamper agricultural activities	There will be sufficient electricity available for the development of the MMSEZ

9.7 Recommendations

The following section concludes the Agricultural Sector Analysis of the impact of the MMSEZ, specifically the South Site which includes the metallurgy cluster, with a list of recommendations to minimise the impact of the MMSEZ on agriculture.

- **Water Source** – a water source of a minimum of 133 million m³ must be identified to ensure the MMSEZ can operate without impacting agriculture and the surrounding residential areas. Water from Mozambique, Botswana and neighboring provinces must be investigated to secure sufficient water supply
- **Discharged Water** – water discharged from the MMSEZ can positively impact downstream agriculture is the water is of a suitable quality. The water treatment plant must consistently decontaminate discharged water, as a decrease in quality level may result in toxic water polluting the rivers.
- **Pollution Regulations** – the MMSEZ (South Site) is situated within a water management area, above ground water reserves. The MMSEZ must maintain strict regulations regarding the runoff of contaminants into the soil which may pollute ground water that is essential for agriculture activities dependent on boreholes.
- **Mining Development** – the MMSEZ (South Site) will attract mine prospectors to the regions, as the infrastructure will receive large investment. The resulting mines that develop will encroach on agricultural land; therefore, stricter regulation will be required to deter prospectors from mining agricultural land essential for food security
- **Partnerships with Competitors** – the MMSEZ (North Site) should partner with existing provincial agro-processors to avoid creating competition with established businesses, therefore giving development preference to local investors should be prioritised.
- **Partnerships with Farmers** – in the case where sufficient water is sourced from outside the identified sources, the MMSEZ should enable farmers to access any excess water to improve the agriculture sectors output, therefore improving food security. The MMSEZ may also invest in the development on new farming technologies to improve food security.
- **Training and Education** – the MMSEZ may establish study bursary and training programmes for agricultural students and workers to upskill the population which would lead to greater competence and an improvement of commodity quality for the betterment of food security

10 MAIN FINDINGS AND RECOMMENDATIONS

- **Water Supply** – There is currently a deficit of 97 million m³ of water required to satisfy the requirements of the development phase of the MMSEZ, before interventions, and a projected deficit of 168 million m³ during the final phase of operation. Reliable water sources must be captured that do not hamper agriculture activities.
- **Lost Agricultural Land** - the development of the MMSEZ will attract new mining prospectors that will aim to mine the available resources, resulting in the potential loss of more than 600 000 ha of agricultural land, in the case of all coal reserved being mined. Strict regulation will be required to minimise the impact of mining on food security
- **Pollution** – the Metallurgy Cluster based at the MMSEZ (South Site) has the potential to create vast volumes of pollution. Very strict regulation must be imposed on producers regarding waste management to avoid contaminating air, soil and water resources.

11 BIBLIOGRAPHY

DEA, 2018. *Biodiversity Economy.* [Online]
Available at:
https://www.google.co.za/search?q=wildlife+economy+in+south+africa&rlz=1C1EJFC_enZA810ZA810&oq=wildlife+econo&aqs=chrome.0.35i39j69i57j0l4.6842j0j7&sourceid=chrome&ie=UTF-8

Department of Agriculture, Forestry and Fisheries, 2011. *Comprehensive Rural Development Programme - Progress Report,* s.l.: s.n.

Department of Agriculture, Forestry and Fisheries, 2014. *Agricultural Policy Action Plan,* s.l.: Department of Agriculture, Forestry and Fisheries.

Department of Agriculture, Forestry and Fishing, 2020. *List of Abatoirs in South Africa.* [Online]
Available at:
https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=&ved=2ahUKEwipl-eu87TrAhUH4aQKHRbkCTIQFjAAegQIBRAB&url=http%3A%2F%2Fwebapps.daff.gov.za%2FAmisAdmin%2Fupload%2FLIST%2520OF%2520LIVESTOCK%2520ABATTIORS%2520IN%2520SOUTH%2520AFRICA%25202011.doc&u

Department of Economic Development, Environment and Tourism, 2013. *Limpopo Green Economy Plan,* s.l.: Limpopo Provincial Government.

Department of Economic Development, 2011. *The New Growth Path: Framework,* Pretoria: s.n.

Department of Planning, Monitoring and Evaluation, 2018. *Draft National Spatial Development Framework,* s.l.: s.n.

Department of Rural Development and Land Reform, 2016. *Thabo Mofutsanyane District Municipality Rural Development Plan,* s.l.: Department of Rural Development and Land Reform.

Department of Tourism, 2012. *National TourismSector Strategy,* s.l.: Department of Tourism.

Economic Development Department, 2010. *New Growth Path Framework,* s.l.: Department of Economic Development.

Gomme, G., 1987. Lectures on the principles of the local government. pp. 1-2.

Heymans C, &. G. T., 1988. The politics of a local government. p. 6.

iX engineers (Pty) Ltd, 2019. *EMSEZ – Internal Master Planning: Extract of Land Use & Infrastructure,* Pretoria: iX engineers (Pty) Ltd and Hoimor.

Limpopo Department of Economic Development, Environment and Tourism, 2015. *Prospectors and Developers Association Of Canada 2015 Meeting,* s.l.: Limpopo Department of Economic Development, Environment and Tourism.

Limpopo Economic Development Agency, 2019. *Musina-Makhado Special Economic Zone Development, Final Scoping,* s.l.: Limpopo Economic Development Agency.

Limpopo Provincial Government, 2005. *Limpopo Provincial Growth and Development Strategy,* s.l.: Limpopo Provincial Government.

Limpopo Provincial Government, 2015. *Limpopo Development Plan,* s.l.: Limpopo Provincial Government.

Makhado Local Municipality, 2013. *Makhado Local Economic Development Strategy,* s.l.: s.n.

Makhado Municipality, 2019. *Makhado Municipality Intergrated Development Plan 2019/2020 - 2021/22,* s.l.: s.n.

Musina Local Municipality, 2014. *Draft Spatial Developemnt Framework,* s.l.: s.n.

Musina Local Municipality, 2016. *2019/20 Draft Integrated Developemt Plan,* s.l.: Musina Local Municipality.

National Planning Commission, 2012. *National Development Plan 2030,* s.l.: National Planning Commission.

Robson, W., 1937. The development of Local Government. p. 574.

South African Department of Agriculture, Forestry and Fisheries, 2016. *Profile of the South African Forestry Market Vaue Chain,* s.l.: South African Department of Agriculture, Forestry and Fisheries.

The Department of Trade and Industry, 2012. *Policy On The Development of Special Economic ZonesIn South Africa,* s.l.: The Department of Trade and Industry.

The Department of Trade and Industry, 2018. *The Industrial Policy Action Plan (IPAP) 2018/2019 – 2020/2021: Economic sector, employment and infrastructure development cluster,* s.l.: s.n.

The Limpopo Province Freight Databank, 2020. *Vhembe District Municipality - Physical & Locational Characteristics.* [Online]
Available at: http://www.safiri.co.za/lpfdb/authorities-vhembe.html

Vhembe District Municipality, 2016. 2016/17 Intergrated Development Plan Review Final Draft.