# EXECUTIVE SUMMARY

**Background Information**

The Musina-Makhado Special Economic Zone (MMSEZ) is made up of two sites and located in two municipalities namely, Musina and Makhado Local Municipalities within the Vhembe District of the Limpopo Province. This report specifically relates to the EIA application for the authorisation to clear limited vegetation for the construction and installation of bulk services infrastructure and fencing of the Musina Makhado Special Economic Zone (MMSEZ) South Site.

The impacts of the proposed MMSEZ South site have been assessed in terms of vegetation clearance, installation of bulk services and fencing of the site. However, the scope of some specialist assessments was broadened to also include future planned industrial developments (such as the climate change, air quality and biodiversity offset). The intent was to ensure that aside from the immediate impacts, a holistic view was also undertaken for the full life of the MMSEZ South site for key aspects.

The EIA application and Scoping Report (SR) were submitted to LEDET (appointed as the Competent Authority (CA) by DEFF) on 1 February 2019. The SR was approved on 31 May 2019 by the CA and the EIA process and assessments commenced. The Draft Environmental Impact Assessment Report (EIAR) was made available for comment on 1 September 2020. The EIR was amended based on received comments and responses from Interested and Affected Parties (I&APs) and the second draft EIAR was made available for public review on 7 December 2020. The Final EIAR was submitted to LEDET on 1 February 2021. The Final EIAR was reviewed by the CA identified some information gaps and requested additional studies, more PPP and a revised EIAR.

The Environmental Assessment Practitioner (EAP) from Delta BEC initiated the EIA application and concluded the EIA process up to submission of the Final EIAR to LEDET. LEDET has reviewed the report and requested some additional information. Much of the original report was kept as it is EnvirXcellence understanding that due process was followed. EnviroXcellence Services (EXS) as the newly appointed EAP has updated the EIAR with the final information and concluded the public participation process for final submission of the EIAR to LEDET.

The specialist reports that were updated to address the gaps include the following:

- Updated Biodiversity Offset Report
- Updated Climate Change Report
- Updated Socio Economic Report
- Inclusion of an Avifauna Report

In addition to the above, the CA requested that clarity be provided on the following, with the focus on the long-term life of the development:

- Water security for the MMSEZ South site
- Energy supply for the MMSEZ South site
- Waste disposal for the MMSEZ South site

**Alternatives assessed**

Alternative sites were assessed on a high economical level that included areas such as Lephalale, Polokwane, Tubatse and the Musina-Makhado area. Cabinet approved the location and designation of the MMSEZ South site in July 2017 (LEDA, 2017) and the Department of Trade and Industry (DTI) designated the MMSEZ South on 01 December 2017. Therefore, no other sites were assessed.

Various layout options within the MMSEZ South site were assessed that included previously disturbed areas, site optimisation and avoidance of sensitive areas (based on specialist recommendations and the updated biodiversity offset report). The final master layout plan has been amended to reduce the overall footprint of the project to 3862ha. Important ecological support areas on the sites have been excluded from the development footprint (total reduction of 51% development area) making it available for conservation opportunities and maintaining ecological linkages in the area. Based on the mitigation hierarchy that has been incorporated into the revised footprint, Layout 3 is recommended. Alternative technologies focussed on material to be used for the roads that included a recommendation for impermeable road surfaces in areas where the industries will be located and permeable surfacted in administration and residential areas.

**Biophysical Environment**

The MMSEZ South site is situated in a semi-arid zone to the north of the Soutpansberg. There are cultivated low scale commercial fields on farms Antrobus 566 MS (975.02662 ha) and Somme 611 MS (989.295716 ha) located on the eastern extent of the proposed MMSEZ South site. The general soil pattern for the MMSEZ South site is classified as non-arable grazing woodland/wildlife land and wilderness capability.

The MMSEZ South site falls within the Musina Mopane Bushveld. The Musina Mopane Bushveld is categorised as least threatened with a target of 19% to be conserved. The MMSEZ South site is located within the Vhembe biosphere reserve. It does not form part of the core or buffer areas of the biosphere reserve but are located within the transitional zone that need to support development of sustainable activities. The MMSEZ South site is bounded by the Blouberg Langjan National Protected Areas Expansion Strategy focus area to the north (approximately 6 km from the MMSEZ South site) and to the south-east (approximately 20 km from the MMSEZ South site). Based on the Limpopo Conservation Plan, the majority (northern part) of the MMSEZ South site falls within the category Ecological Support Area 1 (ESA 1). The most critical area of biodiversity conservation is located within the southern portion of the MMSEZ South site and is categorised as Critical Biodiversity Area 2 (CBA 2). The remainder of the proposed MMSEZ South site is on Ecological Support Area 2 (ESA 2), an area that is no longer intact, but potentially retains significant importance from a process perspective, e.g., maintaining landscape connectivity. In terms of terrestrial ecosystems, the proposed site is located outside of any threatened terrestrial ecosystems. The MMSEZ South site does not fall within any IBA. However, the Mapungubwe, Soutpansberg and Blouberg Important Bird and Biodiversity Areas surround the site.

Due to the potential ecological linkages that are present on the MMSEZ South site (more specifically on the southern part of the site), LEDET requested that the Biodiversity Offset specialist report be updated. In addition the layout plan for the various proposed

developments has been revised taking the biodiversity offset specialist study recommendations into consideration. This has reduced the overall footprint of the final development. By implementing a more optimised layout and avoiding sensitive areas, the overall project has reduced its footprint from 8013,91ha to 3862ha, committing over 51% of the original site for conservation and ecological linkages. This ensure that critical habitats within the MMSEZ South site, as pointed out by the fauna & flora-, wetland- and avifauna specialists, are conserved. The offset site options that have been proposed include the following:

- Site option 1: Expansion of the Musina Nature Reserve.
- Site Option 2: Offsetting on the northern part of the MMSEZ South site.
- Site Option 3: Expansion of Avarel Private Nature Reserve.
- Site Option 4: Expansion of Baobab Private Nature Reserve or declaring neighbouring portions as a protected area.

The availability of multiple options for implementing the MMSEZ South site offset programme provides a high level of confidence that the implementation programme is feasible and the chances of meeting the offset objectives are high, provided that other mechanisms of the implementation, such as stakeholder engagement; implementation planning and execution; establishment and functioning of governance structures; monitoring and evaluation are adequately established and functional.

**Social Environment**

Three residential settlements are located within the MMSEZ South site study area boundary and will likely be relocated once the area is to be developed.

**Water Security**

It is recognised that the MMSEZ South site currently has limited access to water that include access to groundwater and the Nzhelele Dam (that is currently being utilised for irrigation). Although access to large amounts of water is not a key requirement in the initial MMSEZ South site establishment (this EIA), it is however a core requirement for any further industrial developments on the MMSEZ South site.

Currently three main water supply projects / options are planned for the area. This includes:

1. the planned Mutasshi/Musina Corridor Bulk Water Supply, whereby at least 30 million cubic meters water is planned to be transferred from the Zhove Dam, located in Zimbabwe to South Africa;
2. Development of the Musina Dam; and
3. Access to groundwater.

It is understood that access to a dedicated water supply will need to be secured to allow for further development of the metallurgical hub of the MMSEZ South site.

**Energy Security**

For this EIA (the vegetation clearance, bulk services and fencing) little energy will be required. However, sustainable supply to energy will be pertinent for the future industrial developments of the site. Eskom indicated that they will be able to supply 5 MW of the electricity required during the first year of industrial operation of the MMSEZ South site. For these reasons various other technologies and options were also considered during this EIA for power supply to the subsequent industrial development of the MMSEZ South site. These options included i) advanced nuclear, ii) solar PV, iii) biomass, iv) combined cycle gas turbine (CCGT) and v) clean coal technology.

Advanced nuclear power generation was not regarded as feasible due to the timeline for the development and regulatory and licencing of an advanced nuclear power plant, and nuclear power generation and its associated health and safety concerns. Solar PV studies indicated that a solar field covering 1ha of PV panels could generate approximately 1MW of AC power during peak irradiation levels. A PV Solar farm capable of generating 1320MW (MMSEZ South site first phase only demand) during most of daylight hours (not only at peak) would need to be on approximately 2000ha of PV panels. As such this option was not regarded as viable. With regards to biomass and access to natural gas the challenge is that currently there are no natural gas reserves, new explorations, pipelines or LNG import facilities in the MMSEZ South site or surrounding areas.

Thus, at the moment, the best available energy sources are regarded as a combination between renewable energy (for future administration buildings) and a scaled down independent coal fired power plant (for future industries for 24/7 power supply) that will enable power generating capacity outside the state-owned power utility, Eskom. Due to the perceived impact of the coal fired plant on GHG emissions it is proposed that a separate EIA be undertaken for it due to the fact that establishment of power generating facilities exceeding 20MW is a listed activity that should be undergo the EIA process and authorised prior commencement. This will allow for further investigations into a phased plant, clean technology as well as the option to access electricity from possible other more renewable sources.

**Climate Change**

The impacts of the MMSEZ South site project's GHG emissions have been assessed in terms of future planned industrial developments. Thus, although the current EIA may not have a significant impact on climate change due to limited vegetation clearance and construction for the bulk services and fence, it was though pertinent to look at the possible longer term future industrial impacts to obtain a holistic view.

The report highlighted the following key future aspects of an industrial development:

- Heat stress: The climate change models predict that temperatures are to increase in the Limpopo province by as much as 2°C by 2035. The culmination of increased average temperatures and heat stress can result in a greater number of people at risk of heat-related medical conditions.

- Water stress: The MMSEZ South site is located within a water stressed area that is currently experiencing issues of water scarcity and water quality. Climate change will

exacerbate water issues in this area particularly with predicted increases in drought, rainfall, winds variability.

- Economic stress: As evident in Vhembe District Municipality's Climate Change Vulnerability Assessment and Response Plan, climate change will impact the municipality's Local Economic Development Strategy. With the municipal population growing, further pressure will be placed on demand for services and the overall regional economic base.

- Ecosystem Vulnerability: Increased frequency of veld fires associated with drought induced winds may impact on endemic biota and eventually lead to a change in the biome.

The majority of the MMSEZ South site emissions will occur during the industrial operational phase with an anticipated HIGH impact and not during this EIA. For this reason, it is advised that the climate change assessment be updated as industries apply for development within the MMSEZ South site.

**Air Emissions**

The area is dominated by winds from the east-south-east and therefore it is anticipated that pollutants' long-term air quality impacts will be the most significant to the west-northwest, north-west, west and west-south-west of the future industrial operations.

The main sources currently contributing to background PM concentrations likely include vehicle entrained dust from local roads, train operations, biomass burning, household fuel burning, vehicle exhaust, windblown dust from exposed areas, industrial (mining) operations and agricultural activities.

The temporary nature of the construction activities for the MMSEZ South site that include limited vegetation clearance for services infrastructure, installation and fencing will entail localised air quality impacts (predominantly dust) related to site clearance on these selected areas. As such, the specialist indicated that (provided that the required mitigation measures are implemented) authorisation is granted.

Future activities / phases of the project may however require separate EIA's, based on the development activity, as well as an Air Emission's Licence (AEL). Each development will need to be assessed individually, and all subsequent developments will need to be assessed in terms of their combined cumulative impacts within the site and immediate surroundings.

**Project overview and description**

The Limpopo Provincial Government was requested by the Department of Trade and Industry (DTI) to submit location areas for evaluation considered as strategic for the development of the Limpopo economy through industrialisation. Preliminary studies were conducted, and the Limpopo Provincial Government submitted four areas that align with potential growth points in the province.

The Department of Trade and Industry evaluated the submission and approved two of the areas for further feasibility investigation, including Musina-Makhado and Tubatse. The Limpopo Provincial Government subsequently motivated that the proposed Musina-

Makhado Special Economic Zone (MMSEZ) will include two components and sites situated in close proximity but at two different locations. This site is located approximately 50 km to the south of Musina town, referred to as the Musina-Makhado Special Economic Zone South (MMSEZ South), with a focus on the metallurgical and energy cluster of heavy industrial activities. This Environmental Impact Assessment (EIA) report deals specifically with the installation of support service infrastructure and fencing of the site MMSEZ South site.

The MMSEZ South site comprises of 8 013.915 ha of land that falls both within the adjoining local municipality areas of Musina and Makhado and within the Vhembe District municipal area of the Limpopo Province. The site is located adjacent to the N1 national road forming part of the North-South Development Corridor and adjacent to the west the international north-south railway line. Two adjoining townships are proposed - one within each of the municipal areas to accommodate the planned predominantly heavy industrial plants that will produce various types of steel products as described in the internal master plan document for the MMSEZ South site that forms part of this report. It should be noted that each development will need to be assessed on its own merits and will need to obtain separate environmental authorisation for the activities that the future development will trigger.

The availability of coal and coking coal and proximity to input minerals required for power generation and smelting at higher temperatures, according to the Limpopo Economic Development Agency (LEDA), are amongst others a key reason for locating the MMSEZ South at this location. For now, it is proposed that these beneficiation plants will be powered by an on-site coal-based power plant.

The objective of this SEZ will ultimately aim to create 53 800 jobs of which 95% will be local jobs. The total capital investment is estimated to be approximately R247 billion. Cabinet approved the designation of the MMSEZ South in July 2017 (LEDA, 2017) and the Department of Trade and Industry (DTI) designated the MMSEZ South on 01 December 2017.

**Activity Need and Desirability for the project**

The South African Government, through the Department of Trade and Industry (the dti) spearheaded the establishment of Special Economic Zones (SEZs) across the country's nine provinces with the aim to attract foreign direct investment (FDI), accelerate the production and export of value-added products and the creation of a favourable environment for job creation. The MMSEZ South site forms part of the Trans-Limpopo Spatial Development Initiative (SDI) and has been developed as part of greater regional plans to unlock investment and economic growth and address the development of skills and employment.

The proposed Makhado-Musina SEZ South (MMSEZ South) site is ideally located on the on the N1 north-south corridor. The proposed site is in close proximity to available land, existing infrastructure linkages, proximity to sources of raw materials and markets.

The National Development Plan (NDP) aims to eliminate poverty and reduce inequality by 2030. The goal is to increase employment from 13 million in 2010 to 24 million in 2030. To reach this target, policies and investment are aimed, amongst others, at labour intensive industrial development. The plan clearly states that, 'Understanding and responding appropriately to complex global challenges is the first task of planning'. As part of this process

and in line with several national plans and policies government identified the need to investigate, plan and develop SEZ's within the respective provinces.

A SEZ is an economic development tool of government to promote national economic growth and exports by using targeted support measures to attract foreign and domestic investments and technology. Traditionally, SEZs are 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 SEZ Policy of the DTI provides a framework for the development, operation and the management of SEZs. The policy provides a wide range of incentives to expand the focus of strategic industrialisation to cover diverse regional development needs and contexts; to provide a clear, predictable, and systemic planning framework for the development of a wider array of SEZs to support industrial policy objectives.

The National Development Plan (NDP), National Growth Path (NGP), and the Industrial Policy Action Plan (IPAP), clarify and strengthen governance arrangements, and expand the range and quality of support measures beyond the provision of infrastructure. It is believed that SEZs in South Africa have the ability to accelerate the rate of industrial development, skills development, and infrastructure development and ultimately job creation. Incentives that are available to investors include VAT and custom relief linked to a customs-controlled area, employment tax incentive (ETI), building allowance and reduced corporate income tax rates. A critical focus of these endeavours is job creation and economic growth.

National government also adopted a National Infrastructure Plan in 2012. The plan aims to transform the South African economic landscape while also driving the creation of jobs and strengthening the delivery of basic services. Investment is targeted at improving access to healthcare facilities, schools, water, sanitation, housing, and electrification, as well as the construction of ports, roads, railway systems, electricity plants, hospitals, schools, and dams.

The plan has identified 18 Strategic Integrated Projects (SIPS), some of which are highlighted here:

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

SIP 2: Durban-Free State-Gauteng logistics and industrial corridor; and

SIP 17: Regional integration for African co-operation and development.

It is within this national context that the DTI identified the need for the respective provinces to identify locations that can be evaluated and targeted for SEZ development. The SEZ will form a key anchor within the planned Eastern Escarpment National Transformation Corridor designated in the Final Draft National Spatial Development Framework, 2019

Within the above context and in terms of the Limpopo Provincial, District and Local Plans aimed at addressing the challenges faced by the province, the need for the development of the MMSEZ has been identified to assist in:

- creating jobs and to alleviate poverty in the Limpopo Province, especially also within the Vhembe region and District Municipality area.

- the use and beneficiation of available mineral resources within the province to the benefit of the provincial population and South Africa, instead of the continuous export of raw materials, with limited localised benefits.

- promoting inclusive economic growth and human development also especially for the youth, within the province and the district, and

- developing infrastructure not only for the SEZ but for improving service delivery to the local communities within the Vhembe region.

The above needs have more recently further been exacerbated by the severe impact of the COVID -19 pandemic on the economy of the country and globally with significant pressure on government and its stakeholders to enable and promote investment and economic growth and to ensure job creation to alleviate poverty.

There is over reliance on the NDP without focusing on the problems in Limpopo in terms of GDP growth, poverty levels especially in the Vhembe area. That information is available in the Limpopo Development Plan and the Vhembe IDP.

**Requirement for an Environmental Impact Assessment (EIA)**

In terms of the National Environmental Management Act [NEMA], 1998 (Act No. 107 of 1998) as read with the EIA Regulations, 2014 (as amended) promulgated under Chapter 5 of the NEMA published in GN R327, R326, R325 and R324 in Government Gazette 40772, dated 4 December 2014, a full scoping and EIA process is required for the proposed project as it triggers various notices 1, 2 and 3 listed activities.

The purpose of the EIA was to identify, assess, and report on any potential impacts the proposed project, if implemented, may have on the receiving environment.

The Environmental Assessment therefore needed to demonstrate to the Competent Authority (CA), which is the Limpopo Economic Development Environment and Tourism (LEDET) of the Limpopo Provincial Government, and the project applicant, which is the Musina Makhado Special Economic Zone SOC Limited, what the consequences of their choices will be in terms of the impacts on the biophysical and socio-economic environment, and how negative impacts can be, as far as possible, minimised, mitigated and managed, or avoided and how positive impacts can be enhanced.

**Impact assessment and management**

The impact methodology to assess the significance before the impact and after the impact is provided in Chapter 4. All impacts identified and assessed, as well as the proposed mitigation measures and management actions, can be found in Chapters 6 and 7 of this report. In addition, all the mitigation and management measures proposed by the specialists, including those additional impacts and management measures identified by the Environmental Assessment Practitioner (EAP) have been included in the EMPr (Appendix AA).

The EIA aimed to address the impacts associated with the activities related to it but it also included a broader view on future anticipated industrial developments. As a result of this, and in terms of the environment, negative impacts of high significance were anticipated prior to

mitigation. Mitigation measures have however been stipulated by the various specialists and these will be incorporated into the EMPr that is considered a living document.

**Public Participation**

Various non-governmental organisations (NGOs), stakeholders, governmental departments, traditional community members, traditional community leaders and interested and affected party members participated during the public participation process which started from the pre-application phase of the project until 31 January 2021. An addition round of public participation is underway, ending 30 September 2021 to address raised PPP comments by the CA and provide registered I&AP's a further opportunity to comment on the minor amendments.

Once this process is concluded the Appendix G (Comments Received) and Appendix H (Comments and Responses report) will be updated.

**Project Overall EAP's Opinion**

The current EIA for vegetation clearance for bulk services and fencing will have a limited and medium-term reversible impact on the site. It is however important that ecological no-go areas be clearly demarcated and that the ecological linkages with adjacent land uses be established.

The proposed development can however not be seen in complete isolation as it will prepare the site for future industrial developments. However, as the developments will trigger listed activities in terms of the EIA Regulations of 2014, as amended, each developer will be required to undertake a stand-alone EIA.

The socio-economic specialist study indicated that the MMSEZ South site, once in full operation, will potentially be economically and socially significant, creating sustainable jobs opportunities in Limpopo Province. Furthermore, a significant contribution will be made to the economic growth in the province and the country. Future long-term employment opportunities will be created, and these will occur once the environmental authorisations are awarded for the site-specific investor operations within the proposed MMSEZ South site.

Sensitive landscapes were identified and delineated by the respective specialists who recommended that these sites be actively conserved as no-go areas. Accordingly, the Final Layout Plan has been amended by the Applicant to exclude these sites from the current and future development footprint.

It is concluded that the limited vegetation clearance for bulk services and the fence will not significantly impact on the environment and it surrounding land uses.

**Key Recommendations**

The specific recommended mitigation and optimisation measures are presented in the Draft EMPr. The MMSEZ South site would need to implement these mitigation measures to demonstrate compliance with the various authorisations (should they be granted).

Key recommendations, which are considered essential, are:

1. Implementation of the EMPr to guide planning, construction and operations activities and to provide a framework for the ongoing assessment of environmental performance;

2. Implementation of the various specialist mitigation recommendations and any other relevant guidelines / specifications for design(architecture), construction, and revegetation;

3. Ensure the relevant permits (e.g. for search and rescue of protected vegetation, damage to protected trees, construction within 500 m of a watercourse are in place prior to commencement of construction;

4. Demarcate all identified No-Go areas, including stipulated buffers, to prevent access / disturbance during both construction and operation;

5. The implementation of a chance finds procedure as outlined in the EMPr, specifying the actions to be taken in the event of discovery of any heritage materials during vegetation clearing and construction;

6. Design and implementation of a site specific stormwater management plan that aligns with the MMSEZ South site's stormwater management protocol;

7. Any water required for construction related activities should be sourced from non-potable sources where possible;

8. Provide suitable traffic accommodation measures as part of construction contract to inform other road users of presence of construction related traffic, including speed restriction signage;

9. All construction operations should only occur during daylight hours if possible;

10. Measures to minimise impacts on the nearby wetland during construction:

    a. Construction immediately adjacent to the watercourse should take place during the drier months of the year;

    b. Construction should be limited to the development footprint and the wetland should be demarcated as a No-Go area with a buffer of 20m between the delineated wetland and the development footprint being maintained;

    c. Limitations on construction activities allowed within 50 m of the wetland.

11. Measures to mitigate climate change risk and vulnerability of the project and its future developments to climate change:

    a. Consider climate change impacts in the future engineering design of the power plant.

    b. Design of an on-site stormwater drainage system, and implementation of a stormwater management plan.

c. Use a closed-loop water system for the future industrial developments to minimise water losses to evaporation and reduce water consumption by the plants.

d. Implement disaster management policies and onsite employee training specifically for extreme weather event (including severe winds, extreme heat, and heavy rain and drought) risk management protocols.

**The Way Forward**

The PPP has given IAPs an opportunity to assist with the identification of issues and potential impacts. The Final EIAR has incorporated all comments received from IAPs and has been submitted to LEDET for a decision on the proposed development. This Executive Summary of the Final EIAR (this document) has been distributed to all registered IAPs.

The Final EIAR can also be accessed as an electronic copy on EXS's website.

The Final EIAR has been distributed to all relevant authorities and distributed to LEDET for a decision regarding Environmental Authorisation. All relevant authorities and IAPs registered for the process will be informed once a decision is communicated by LEDET.