

ENVIRONMENTAL IMPACT ASSESSMENT FOR THE PROPOSED MUTSHO POWER PROJECT NEAR MAKHADO IN THE LIMPOPO PROVINCE

**Socio-Economic Impact Study
Scoping Phase Input
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Prepared for:



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ABBREVIATIONS

CAGR	Compounded Average Growth Rate
CFB	Circulating Fluidised Bed
DM	District Municipality
DoE	Department of Energy
EIA	Environmental Impact Assessment
EMF	Environmental Management Framework
ESP	Electrostatic Precipitator
GDP	Gross Domestic Product
GDP-R	Gross Domestic Product per Region
Ha	Hectare
I&AP	Interested and Affected Parties
IDZ	Industrial Development Zone
IPP	Independent Power Producer
IPAP	Industrial Policy Action Plan
IRP	Integrated Resource Plan
LM	Local Municipality
MW	Mega Watt
NDP	National Development Plan
NEA	Not Economically Active
NGPF	New Growth Path Framework
PC	Pulverised Coal
SDF	Spatial Development Framework

1. INTRODUCTION

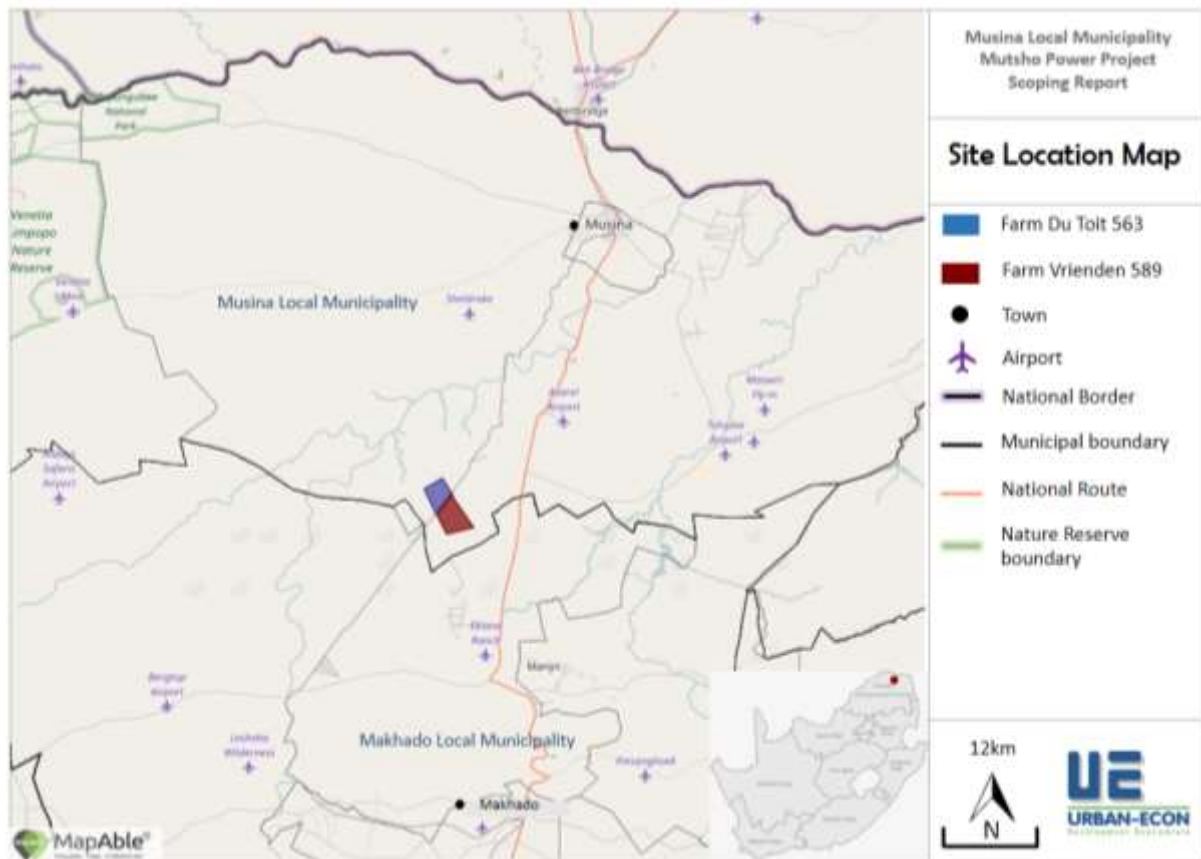
This document is prepared by **Urban-Econ Development Economists** (Urban-Econ) in response to a request by **Savannah Environmental (Pty) Ltd** (Savannah Environmental) to undertake a scoping report for the proposed Mutsho Power Project located near Makhado, in the Musina Local Municipality, Limpopo. The study is conducted as part of the scoping inputs process for the project managed by Savannah Environmental, which will inform the Environmental Impact Assessment (EIA) process. The aim of the study is to determine the current socio-economic baseline characteristics of the preliminary delineated study area and to identify the potential influence of the proposed project on the surrounding economic activities and communities in order to guide the assessment during the next phase.

1.1 Brief description of the project

Mutsho Power (Pty) Ltd proposes to develop a 600MW coal-fired power plant near Makhado, Limpopo. The project will make use of either Pulverised Coal (PC) or Circulating Fluidised Bed (CFB) technology. The footprint of the development site is envisaged to be around 600ha. The following development infrastructure will need to be constructed on site:

- Power island consisting of:
 - Pulverised Coal (PC) with Flue Gas Desulphurisation scrubbing or clean-up; or Circulating Fluidised Bed (CFB) boiler technology
 - Electrostatic Precipitator (ESP) or bag filtration systems and flue/smoke stacks
 - Direct or indirect air-cooling systems
 - Balance of plant components
- Coal and limestone/lime rail spur and road offloading systems
- Upgrading or establishment of a rail siding
- Coal crusher (for CFB); or coal milling plant (for PC)
- Strategic and working coal stockpiles
- Limestone or lime (hydrated or de-hydrated) storage and handling area (for use with CFBC or PFC technology)
- Ammonia storage and handling area (for use in flue gas clean-up with PC technology)
- Ash dump (dry-ash has been proposed with the recommendations of the National Development Plan (NDP) and Integrated Energy Plan (IEP))
- Water infrastructure
- HV Yard and substation components with HV overhead transmission lines connecting to the Eskom infrastructure.
- Control room, office or administration, workshop, storage and logistics buildings
- Upgrading of external roads and establishment of internal access roads
- Security

The project is located in the Musina Local Municipality (LM) within the Vhembe District Municipality (DM) in Limpopo.



Map 1-1: Location of Proposed Coal-fired Power Plant

1.2 Scope and purpose of the study

The purpose of the scoping report is to determine the key issues and potential impacts of the proposed project during the scoping phase. The report is prepared as part of the socio-economic study and is used as an input into the scoping report that is compiled by Savannah Environmental.

The scoping phase inputs address only a portion of the scope of the work involved in the Socio-Economic Impact Assessment Study and enable the project team and the client to make more informed decisions regarding the way forward for the proposed project, from an environmental management point of view. The purpose of the socio-economic scoping report is as follows:

- * Undertake a policy review and assess the alignment of the proposed project with the national, provincial, and local socio-economic policies
- * Create a socio-economic profile for the study area using secondary data
- * Identify potential negative and positive economic impacts that could be generated by the proposed site during the project life cycle
- * Identify impacts and project effects (direct, indirect, induced, and cumulative) that will require further investigation and evaluate them in terms of the nature, extent, and potential significance
- * Identify gaps in knowledge and data that will need to be addressed during the EIA phase
- * Propose an impact assessment approach to be adopted in the EIA phase

1.3 Methodology

The methodological approach adopted for conducting the scoping study includes three phases:

- **Data collection:** Secondary research encompassing the examination of relevant policies, local and provincial strategic documents, and secondary data presented by Stats SA and Quantec. The information obtained assists in providing a preliminary profile of the socio-economic environment that could potentially be affected.
- **Baseline profiling:** A description of the study area is given in terms of selected socio-economic variables. It includes the analysis of spatial context and regional linkages, population size and household numbers, structure and growth of the economy, labour force and employment situation, as well as access to basic services and the state of the local built environment. Profiling for the study is done by making use of the Quantec Research Database, Stats SA's Census 2011 data, and various strategic documents produced for the relevant municipality. A brief profile of the directly affected zone of influence is also provided.
- **Identification and evaluation of the anticipated impacts:** This step includes the identification of the socio-economic impacts that could be expected during various phases of the project's life cycle and the way forward with respect to the collection of data required to quantify and qualify the impacts.

1.4 Data gathering and consultation process

Due to the remote location of the project and absence of settlements and high density of economic activities in the vicinity from the project, the assessment during the scoping report relied on the secondary data obtained from various documents and databases. A site visit and primary data gathering focusing on interviews with various Interested and Affected Parties (I&APs) will be conducted during the EIA phase, after the collection of initial feedback obtained during and after public meetings.

The following data sources were considered:

- * Stats SA Census, 2011
- * Quantec Research Standardised Regional Data, 1995-2013
- * National, provincial and local government strategic documents and policies

The reliance on secondary data does not allow the socio-economic team to determine the locality-specific socio-economic issues. However, considering that the project is not envisaged to be located near concentration of any of the sensitive receptors (households, farms, tourism facilities, etc.), the absence of the primary data at this stage is not deemed to be critical and does not prevent the specialist's team from identifying the potential socio-economic issues that could ensue from the project and using the expertise and past experience with similar projects adequately assess the extent, nature and potential significance of these impacts.

2. POLICY REVIEW

A policy review plays an integral role in the initial stages of a project. The review provides an indication of whether a project is aligned with the goals and aspirations of the developmental vision across the three spheres of government. 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.

The following government strategic documents applicable to the delineated study areas were examined:

- * National (South Africa):
 - New Growth Path Framework (NGPF) (2011)
 - National Development Plan (NDP) 2030 (2011–2030)
 - Integrated Resource Plan for Electricity (IRP) 2010-2030 (2016)
 - Industrial Policy Action Plan (IPAP) (2016/2017–2018/2019)
 - South African Coal Roadmap (2013)
- * Regional (Limpopo Province):
 - Limpopo Employment, Growth and Development Plan 2009-2014 (2009)
 - Limpopo Development Plan (2015)
- * Local (uThungulu DM and uMhlathuze LM):
 - uThungulu DM Growth and Development Plan (2015)
 - uThungulu DM Integrated Development Plan (IDP) 2011/12-2016/17 (2016)
 - City of uMhlathuze Municipality Integrated Development Plan (IDP) (2016)
 - Richards Bay Integrated Development Zone (RBIDZ) (2016)
 - uThungulu Spatial Development Framework (SDF) (2015)
 - City of uMhlathuze Spatial Development Framework (SDF) (2016)

2.1 Project alignment with National policies and strategic documents



The vision of the **New Growth Path Framework (NGPF)** is to ensure that jobs and decent work are at the centre of economic policy (Development D. o., 2011). The key problem issues are mass joblessness, poverty, and inequality. In addition, the lack of access to energy is identified as a major concern for the growth of the economy. Therefore, increased access to energy would have a profound effect on curbing poverty and unemployment. The framework states that public investment can create 250 000 jobs per annum in energy, transport, water, communications infrastructure, and housing. 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 (Development D. o., 2011).



The **National Development Plan (NDP)** aims to address the South Africa's triple development challenges of poverty, unemployment, and inequality by 2030. The plan is informed by the NGPF and envisages that by 2030 the South African energy sector will promote economic growth and development through adequate investment in energy infrastructure (Commission, 2011).

Furthermore, the plan states that coal will contribute much less to primary energy needs; however, in terms of fuel, coal will continue to dominate over the next 20 years (Commission, 2011). Cleaner coal technologies will be promoted through research and development investments and technology transfer agreements.



The **Integrated Resource Plan for Electricity (IRP) 2010 – 2030** argues that the development of the electricity generation sector can support the growth of the national economy (Energy, 2013). According to Eskom (2015), South Africa has more than 66 billion tonnes of coal resources and reserves remaining. At current production rates, it is estimated that coal supply is in excess of 200 years. More than 70% of these resources lie in the Waterberg Coalfield in the Limpopo province.

The IRP provides for a diversified energy mix, in terms of new generation capacity, that includes coal at 14.7% of the total capacity. The alternatives considered for this extension include the establishment of new and more efficient coal-fired generation capacities with lower emission rates. Although the contribution of coal-based power plants towards electricity generation capacity in the country is expected to slowly diminish towards 2050, it can be argued that the coal-fired power stations will remain to be significant contributors to the generation of electricity in the country (Department of Energy, 2016).

In 2012, the Minister of Energy had made a determination to procure baseload energy generation capacity to the value of 2 500 MW, which is to be generated from coal. These are to be procured through one or more Independent Power Producer (IPP) procurement programmes.



The **Industrial Policy Action Plan (IPAP) 2017/2018 – 2019/2020** represents a significant step forward in scaling up the country's efforts to promote long-term industrialisation and industrial diversification (Department of Trade and Industry, 2017). The plan calls for radical economic transformation whereby decent sustainable jobs-particularly for the most marginalised and vulnerable

groups of society are created. In addition, the plan calls for shared and inclusive growth (Department of Trade and Industry, 2017).



The **South African Coal Roadmap** was developed to explore the required interventions in support of the coal industry to 2040 (Fossil Fuel Foundation and SANEDI, 2013). The roadmap asserts that coal has an important role in the South African economy and is the primary energy source for electricity generation. To maintain a flourishing country, energy security is a priority. Approximately 224 million tonnes of coal is mined annually; 28% of this coal is exported, 53% is utilised for electricity generation, and the remainder is distributed across various industries (Eskom, 2016). In a quest to advance coal power station technologies, an assessment and applicability of coal combustion technologies and the deployment of carbon capture and storage is proposed.

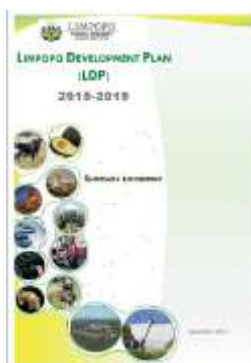
National policy surmises that the energy sector is an avenue for job creation, economic growth, and development. Employment in the energy sector is said to lie in construction, operation, maintenance, and manufacturing of selected components. The national policies are in sync with the view that coal dependence will continue in the long-term, which suggests that coal-fired power stations will continue to be a prominent part of the south African energy mix the foreseeable future. However, a proposal for research and development of cleaner coal technology with reduced emission rates is put forward. Evidently, the proposed coal-fired power station correlates with national policy.

2.2 Project alignment with Provincial policies and strategic documents



The **Limpopo Employment, Growth and Development Plan** argues that there is a pressing need to fast-track sustainable socio-economic development. This includes a mass-scale roll out of physical, social, and economic infrastructure. The central aspects of socio-economic infrastructure include bulk electricity infrastructure. Like the IRP, this plan confirms that there are rich coal reserves in the Waterberg Coalfield. To make use of these resources, a coal-fired power station is identified as a potential growth sub-cluster. The plan thus sought to attract investment in coal and energy.

Lastly, the plan aims to promote coal and the energy SMME Growth initiative (Limpopo Provincial Government, 2009).



The **Limpopo Development Plan** serves to provide a framework for the strategic plans of each provincial government department. Similar to policies reviewed, the plan makes a case for the investment in a strong network of economic infrastructure designed to support economic and social objectives. This, it is stated, is a precondition for providing basic services such as electricity, among others. To achieve this, basic services must be robust and extensive enough to meet industrial, commercial, and household needs. The Limpopo Provincial

Government commits to ensuring that the supply of energy is reliable and sufficient for a growing economy (Limpopo Provincial Government, 2015).

The Limpopo Provincial Government views economic infrastructure as a base for economic and social upliftment. As a means to achieve this, the provincial government sought to attract investment in coal and energy. Furthermore, to expand business activities in the province, the coal and energy SMME growth initiative is promoted. The energy sector is thus powered to maintain and contribute to the growth of the economy. The proposed coal-fired power station is thus in alignment with the objectives of the Limpopo Provincial Government.

2.3 Project alignment with Local policies and strategic documents

VHEMBE DISTRICT MUNICIPALITY

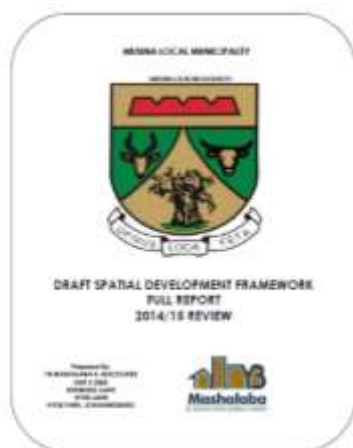


2016/17 IDP REVIEW FINAL DRAFT

The vision of the **Vhembe DM Integrated Development Plan (IDP)** is “a developmental municipality focusing on sustainable service delivery and socio-economic development towards an equal society” (Vhembe District Municipality, 2016:5). 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).

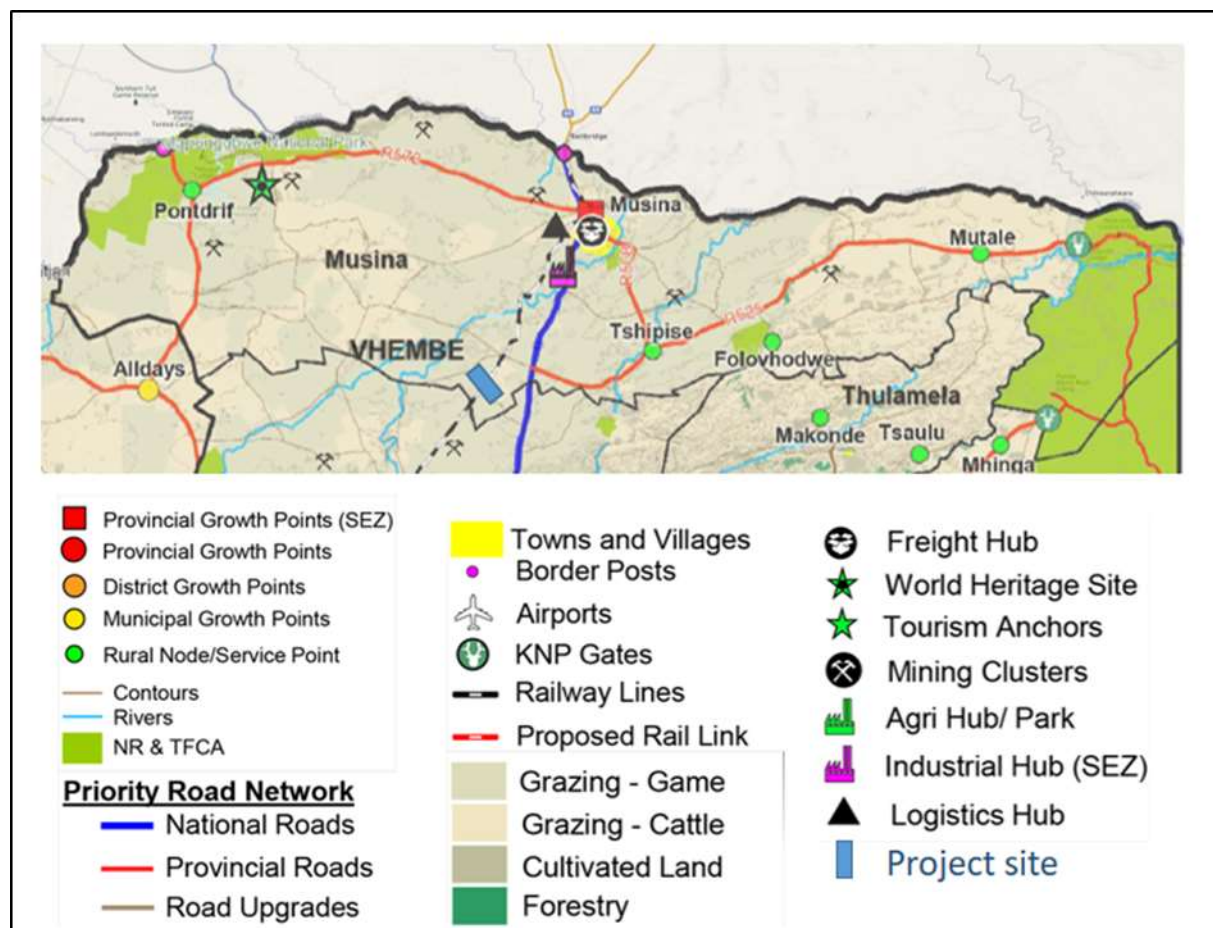


The mission of the **Musina LM IDP** is to be a “vehicle of affordable quality services and stability through socio-economic development and collective leadership” (Musina Local Municipality, 2016:14). One of the major challenges in the municipality is bulk electricity capacity. Additional challenges are energy supply and interruption, lack of capacity to meet demand, and insufficient capacity of the power station to supply all areas in the district. A backlog in rural areas is prevalent; however, no backlog in urban areas exists. One key performance area is to initiate and improve the quantity and quality of municipal infrastructure services (Musina LM, 2016).



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 iterated in the SDF is to be a vibrant, viable, and sustainable gateway city to the rest of Africa. Musina has been identified as a provincial growth point and is a key district development priority area. Key areas are connected by development corridors include Mopane, which is in close propinquity to the proposed project site. The Vhembe DM SDF does not, however, state spatial implications of the mineral deposits or how it will impact or contribute to the development of the region (Musina Local Municipality, 2014).

As indicated in the figure below, the area where the proposed project is envisaged to be established is demarcated for game grazing. The SDF states that unlimited development can be supported on site, although a letter from the regional office of the Department of Agriculture should confirm that the site has low agricultural potential (Limpopo Provincial Government, 2015).



Map 2-1: Limpopo Provincial Spatial Development Framework (Limpopo Government, 2016)

Local policy echoes socio-economic development sentiments from national and provincial policy. Service delivery is a priority in the Musina Local Municipality. The proposed project is a tool to improve the current limitations in energy provision in the municipality.

3. BASELINE PROFILE

This chapter examines key socio-economic characteristics of the study area. This is essential as it provides both qualitative and quantitative data relevant to the communities and economies under observation, creating a baseline that will assist in identifying the sensitive receptors and potential impacts.

The following socio-economic indicators are analysed in this chapter:

- » Spatial Compositions and Land-Use

- » Demographic Profiling
- » The Economy and its Structure
- » The Labour Force and Employment Structure
- » Status of Infrastructure

3.1 Study area's composition and locational factors

a) Spatial context and regional linkages

The proposed Mutsho Power Project is planned to be located in the Musina LM within the Vhembe DM in the Limpopo province. The Limpopo province is located in the north-east of South Africa and has a land area of 125 755km² which constitutes just over 10.3% of South Africa's land area (Stats SA, 2011). This makes it the fifth largest province in South Africa.

The Limpopo province is considered to be the gateway to Africa as it shares borders with Botswana, Zimbabwe and Mozambique, placing it in a favourable position for economic collaboration with other parts of Africa (Department of Government Communications and Information System, 2014). Most of the trans-South African freight headed to / from landlocked Zimbabwe, Zambia, and Malawi is already transported through Limpopo. Furthermore, the Maputo Development Corridor links the province directly with the Port of Maputo in Mozambique, creating development and trade opportunities. Limpopo also connects to the corridor via the Phalaborwa Spatial Development Initiative, a network of rail and road corridors linked to major seaports. This is complemented by airports in centres such as Phalaborwa and Musina as well as Polokwane International Airport. It is evident that the province is well connected regionally and internationally.

The Vhembe DM(DM) is a Category C municipality, which denotes that the municipality has a municipal executive and legislative authority in an area that includes more than one municipality (Statutes of Republic of South Africa, 1996). It was established in the year 2000 through the process of transformation of local government. The municipality is one of five district municipalities in the Limpopo province. It is comprised of four local municipalities, namely Musina, Thulamela, Makhado, and Collins Chabane. The Vhembe DM is predominantly rural and is a cultural hub and a catalyst for agricultural and tourism development.



Figure 3-1: The four municipalities located in the Vhembe District Municipality (Local Government Handbook, 2017)

The Musina LM was merged with the Mutale LM on the 3rd of August 2016. The Musina LM is a Category B municipality, which means it shares municipal executive and legislative authority with a Category C municipality within whose area it falls (Statutes of Republic of South Africa, 1996). It is the largest LM of the four municipalities in the Vhembe DM in terms of land mass.

b) Major towns and settlements

The largest towns in close propinquity to the proposed project site are Musina, Makhado and Thohoyandou located in the Musina, Makhado and Thulamela local municipalities, respectively (Vhembe District Municipality, 2016). Makhado is located 42kms from the proposed project site. In 2003, the town was renamed Makhado from Louis Trichardt. However, in 2007 an appeal was made in South Africa’s Supreme Court and was won resulting in the town being renamed to Louis Trichardt, once again (Footprint, 2017).

Musina is located 42kms from the proposed project site and is the northern most town in South Africa. The town was developed as a result of the region’s abundant mineral wealth, which includes iron ore, graphite, coal, magnetite, diamonds, asbestos, and most notably copper (South Africa, 2017). The closest settlement to the project site is Mudimeli.

c) Locational Factors and Major Tourism attractions

The terrain around Musina supports low-shrub and thorny tree vegetation and animal life. These features enabled a tourist attraction, where offerings such as lodges and safaris are prevalent. The Musina Nature Reserve is 38kms north from the planned Mutsho coal-fired power station. It is characterised by its abundance of the oddly shaped baobab trees. In addition, 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. Mapungubwe is located approximately 65kms north-west and is said to be South Africa’s first kingdom (South Africa, 2017).

d) Sense of place, history and cultural aspects

The principle languages in Musina are Venda and Sotho followed by Tsonga and Afrikaans. The extensive natural features and resources hold great sentiment to the locals and are embodied in the naming of the district and local municipalities.

- * Vhembe is a Venda name for what is also known as the Limpopo River and is a symbol of a fountain of life (Vhembe District Municipality, 2016).
- * Musina is a Venda word for 'spoiler' which expresses the disappointment of the settlers who were in search for minerals to trade and considered copper as a poor substitute for iron.

'Sense of place' is the distinctiveness of place resulting from cultural transformations and traditions associated with the historic use and habitation of the area (Stedman, 2003). Place attachment is the symbolic relationship formed by people attributing culturally shared emotional meanings to a particular piece of land. Many areas in the region under analysis have strong historical meanings. For instance, Mapungubwe is a protected site characterised by an extensive wilderness and extraordinary history. Thus, it can be suggested that the sense of place in the area is that of strong natural aesthetic and is dominantly rural, suggesting that the character of the place is associated with rural features.

3.2 Demographic Profile

The population of any geographical area is the cornerstone of the development process, as it affects the economic growth through the provision of labour and entrepreneurial skills and determines the demand for the production output. Examining population dynamics is essential in gaining an accurate perspective of those who are likely to be affected by any prospective development or project. This sub-section describes the status quo of the study area's population.

a) Population Demographics

The demographic profile reflects the amalgamation of Mutale LM with Musina LM that was effective from 3rd August 2016. The Musina LM has a population of approximately 172 932, with a total of 47 300 households (Quantec, 2015).



Figure 3-2: Snapshot of demographic profile of Musina LM (Quantec, 2015)

The Musina Municipality constitutes just over a tenth of the population of the Vhembe DM. Furthermore, similar to the population size, 13% of the total households in the Vhembe DM are located in the Musina LM. A large portion of 58% of the population resides in tribal areas, followed by 28% located in urban areas, and the remaining 13% resides on farm land. Of the population, 97% are Black, 2% are White, whilst Asian/Indian and Coloured constitute the remaining 1%. A slightly greater proportion of the population is comprised of females.

Close to two-thirds of the population are of working age (15-64), whereas a third are aged below 15. Just over 4% of the population in the Musina LM are aged over 65. Evidently, the majority of the population is of working age and the minority is senior citizens.

b) Income Levels

The average monthly household income in the Musina LM was R4 991 in 2011, with 7% earning no income. Overall, 65% of the households within the Musina LM earn up to R3 200 per month. In the town of Musina, 7% of the households have no income and 55% earn up to R3 200. The closest settlement to the proposed project site is Mudimeli, which is not located within the Musina LM but is located in the Makhado Local Municipality. As the closest community and possible labour pool, it has also been analysed. A great proportion of the study areas observed earns between R1 – R3 200 per month, as indicated in Figure 3-3. The household incomes indicate that low-income earners dominate and conversely high-income earners are a minority.

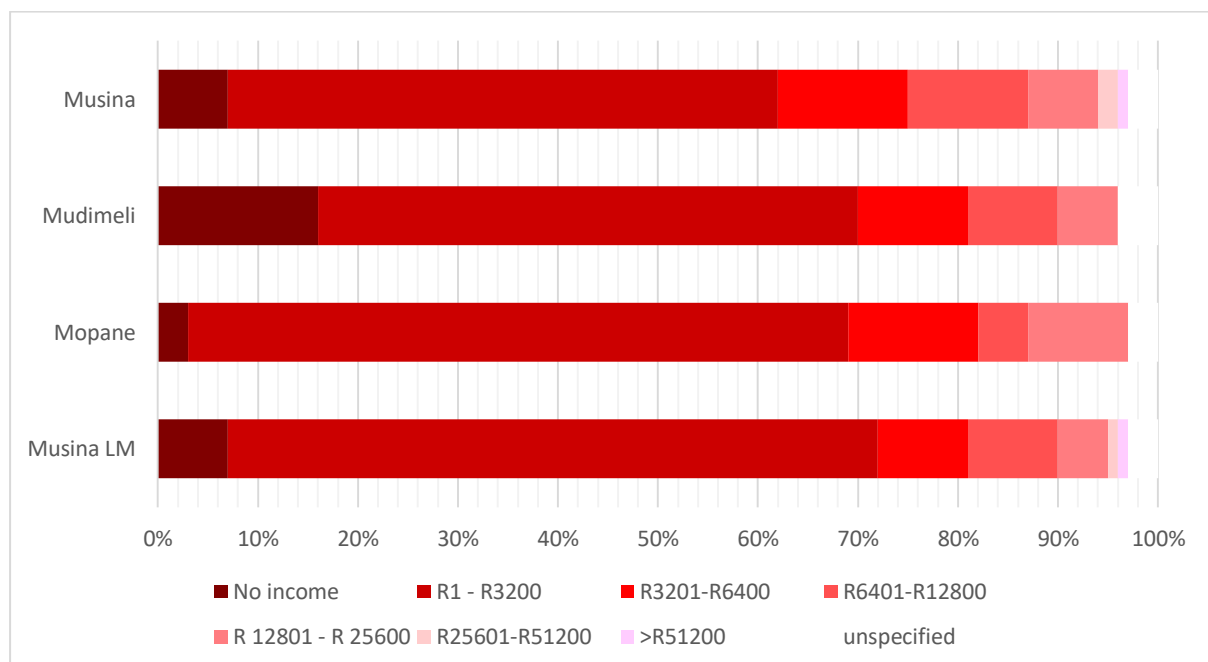


Figure 3-3: Income Levels across study areas (Quantec, 2016)

c) Education Levels

Of the adult population (+20 years), 15% do not have schooling. In the Musina LM, 71% of the adult population do not hold a Matric certificate. The remaining 29% have obtained a Matric certificate of which 8% have also attained a higher qualification.

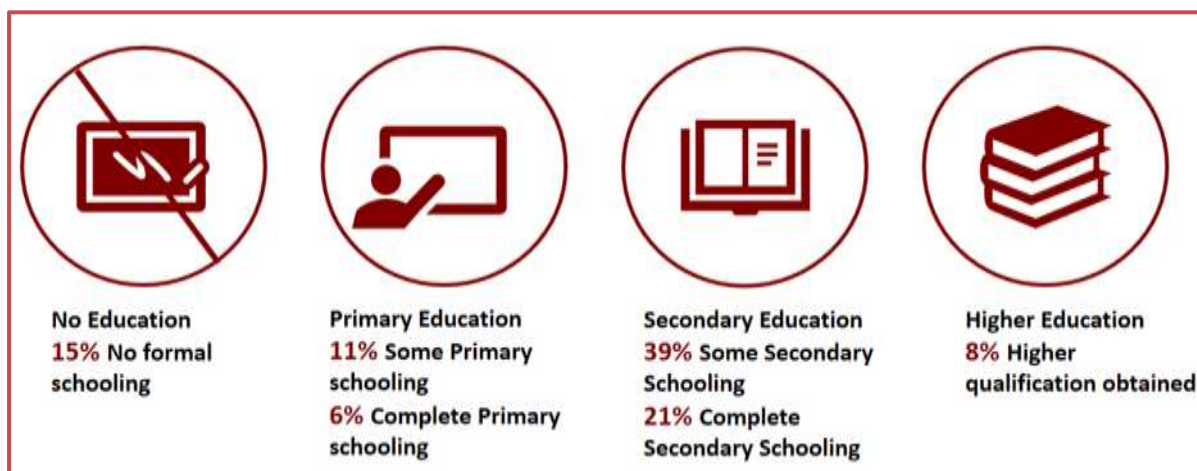


Figure 3-4: Education Levels in Musina LM (Quantec, 2015)

The education levels are indicative of an education completion problem. In addition, these education levels may correlate with the dominant low-income earned in the municipality as most of the adult population do not have qualifications to attain better earning jobs.

3.3 The Economy

In 2016, The Musina Local Municipality's economy was valued at R7 405 million in current prices. The Musina LM contributes 16% to the economy of the Vhembe DM and 3% to the economy of Limpopo. Over a period of 10 years (2005-2015), the municipality's economy grew at a positive Compounded Annual Growth Rate (CAGR) of 1.6% per year. This is similar to the district and provincial growth rates, but suggest of a stagnating economy.

Table 3-1: Limpopo and Musina LM structure of economies (2016, nominal)

Economic Sector	Limpopo			Musina LM		
	GDP (R'mil)	% of GDP	CAGR (2005-2015)	GDP (R'mil)	% of GDP	CAGR (2005-2015)
Agriculture, forestry and fishing	6 458	7.3%	1.8%	452	6.1%	2.6%
Mining and quarrying	76 354	9.5%	0.0%	1 645	22.2%	-6.9%
Manufacturing	8 794	10.1%	0.8%	127	1.7%	1.8%
Electricity, gas and water	12 216	17.0%	-0.8%	236	3.2%	1.0%
Construction	8 886	14.3%	4.4%	197	2.7%	4.1%
Trade	43 162	10.8%	2.0%	1 508	20.4%	5.0%
Transport and communication	14 756	7.3%	2.1%	468	6.3%	2.8%
Finance and business services	39 652	8.2%	2.3%	894	12.1%	4.0%
General government	55 269	10.7%	2.9%	1 586	21.4%	3.9%
Personal services	11 857	7.6%	1.6%	293	4.0%	2.0%
TOTAL	277 404	100%	1.5%	7 405	100%	1.6%

Urban-Econ Calculations based on Quantec, 2017

The economic sectors with the greatest contribution to the GDP-R of the Limpopo province are mining and general government. Similarly, the mining sector and general government are among the highest contributing economic sectors in the Musina LM. The wholesale and trade sector closely follow and contribute a fifth to the Musina LM economy. The manufacturing and construction sectors make the least contribution to the GDP-R of the municipality.

Over the years, the mining industry has been declining, which considering its large contribution to the local economy has had a negative effect on the Musina LM. This negative impact was possible to offset by the above-average growth rate observed among the tertiary industries and specifically the trade and general government sectors, which as mentioned previously are among the top three contributing industries to the local municipality's economy.

3.4 Labour Force and Employment Structure

Employment is the primary means by which individuals who are of working age may earn an income that will enable them to provide for their basic needs and improve their standard of living. As such, employment and unemployment rates are important indicators of socio-economic well-being. The following paragraphs examine the study area's labour market from a number of perspectives, including the employment rate and sectoral employment patterns.

a) Labour Force Composition

According to Census 2011 data, the working age population of the Musina LM was about 105 884. Amongst these, 50 624 were economically active. Not economically active (NEA) persons are those who were neither employed nor unemployed, including discouraged job seekers. The Musina LM had 46 992 NEA persons in 2011. The employed labour in the LM was estimated at 35 576, whilst the unemployed labour was about 15 048. This results in an unemployment rate of 30%.

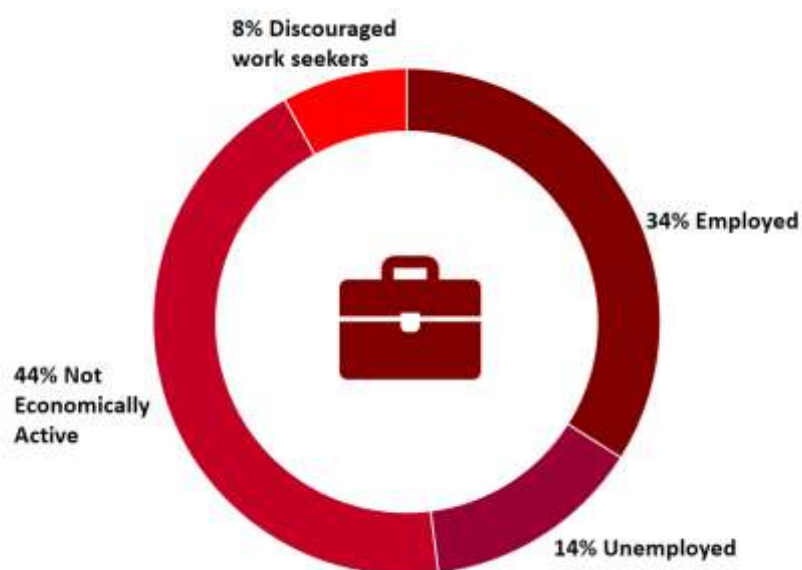


Figure 3-5: Labour Force Statistics for Musina LM2011 (Stats SA, 2011)

In the town of Musina, 13 484 of the working age population are employed, whereas 4 760 are unemployed. This indicates a 26% unemployment rate. In the case of Mopane, the unemployment rate (7%) is significantly lower than that of the municipality and closest town due to the small population size. Conversely, Mudimeli has the highest unemployment rate of 33%.

In terms of skills levels, the largest proportion of the labour force is semi-skilled in the Limpopo province and the Vhembe DM. In the Musina LM, the labour force is dominantly low-skilled.

b) Employment Structure

In the Vhembe DM, the wholesale and trade sector employed the most people whereas the mining sector employed the least. A decline in employment across all sectors of the economy took place between 2008 and 2010. The manufacturing sector particularly experienced a decline in employment numbers from 2007 to 2012 in the Vhembe DM. The exception has been the general government sector, which has consistently experienced growth in employment over the past 10 years.

Close to a third of the Musina LM labour force are informally employed. Just over two-thirds of the employed individuals are employed in the formal sector. As indicated in the diagram below, the agricultural sector employed the largest number of people in the Musina LM in 2015, whereas the electricity, gas and water sector employed the least (Quantec, 2017). Observing 2010 and 2015 employment figures, it is evident that most economic sectors have increased their labour absorption during this period. Only the mining sector employed fewer individuals in 2015 than in 2010.

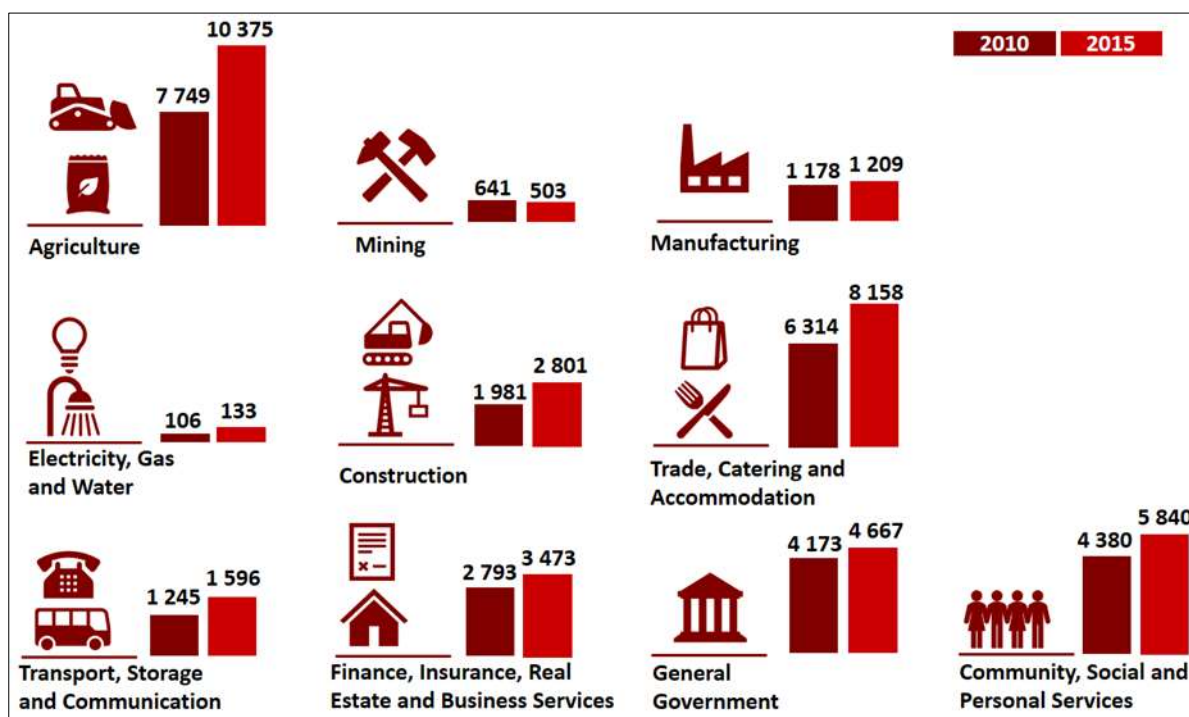


Figure 3-6: Employment Figures per Economic Sector for 2010 and 2015 in the Musina LM (Quantec, 2017)

3.5 Status of infrastructure and basic service delivery

Access to basic service delivery and infrastructure such as shelter and transport are indicators that assist in understanding the standard of living of the households residing in the study areas. Comprehension of the extent to which households in the area have access to water, sanitation, and electricity assists in the understanding of communities' living standards and their needs. The availability of service infrastructure such as roads, educational and health facilities, etc., further indicates the nature of the study area, which is valuable in developing a complete profile of the circumstances in which communities are living.

a) Basic service delivery

According to the Musina LM IDP (2016), **housing** development has reached crisis levels due to the ever-increasing demand. The challenge to supply housing at required quantities is the shortage of land for human settlement. In addition, the majority of people do not qualify to receive government subsidy houses. The backlog in 2016 was 3 200 houses.

The Vhembe DM is both a **water** authority and water provider. The Musina LM then reticulates water to households through household water tap connections and standpipes. In the urban area of Musina, 8 108 households have metered connections and 2 811 households receive free basic water. A large number of households have access to water; however, upgrading, resource extension, operation, and maintenance as well as refurbishment needs are immense.

In 2014, the district managed to complete 3 950 Ventilated Improved Pit latrines (VIP). Nonetheless, a backlog of 87 658 remained. The challenges in **sanitation** are the bucket system and the lack of policy clarity (Musina LM, 2016).

There is no backlog in **electricity** in the municipal areas, whereas the total backlog in electricity in the villages is 1 013. The main source of energy used in the Musina LM is electricity, followed by wood. The key challenges are energy supply, energy interruption, cable theft, illegal connections, poor project management, and the slow rate of construction (Musina LM, 2016).

In terms of **road infrastructure**, the Musina LM has one cost centre maintaining 413km surfaced and 650km unsurfaced roads. Roads in the LM are generally in bad condition and many are not numbered. Roads that need to be tarred and re-surfaced are 20kms in distance (Musina LM, 2016).

b) Status of Social Facilities

With regard to **healthcare**, there is a shortage of healthcare facilities in the Musina LM resulting in overcrowding in all health centres. In addition, residents travel long distances for healthcare as certain areas do not have health care facilities and are remotely located.

The Musina LM IDP (2016) states that community **safety** is a matter of concern as crime is a problem across the municipal area. It attributes this to, amongst others, the high

unemployment level and alcohol and drug abuse. There are three police stations and one magisterial district court in the Musina LM (Musina LM, 2016).

Regarding **education**, there are nine secondary schools, 29 primary schools, and no tertiary institutions in the Musina LM. In addition, some educational facilities do not meet required norms and standards. The vast backlog of classrooms and learner support material, particularly in rural areas, impedes adequate teaching and learning. As indicated in Section 3.2, the education levels in the LM are dire. Moreover, older persons are not actively participating in ABET programmes (Musina LM, 2016).

The provision of libraries is a key instrument for social and educational upliftment, specifically in areas where low literacy levels prevail. The current library provision is inadequate to serve the community, in both size per service point and location. Moreover, the lack of technical skills institutions to support mining operations, amongst others, leads companies to source the skills from other towns. The lack of educational facilities will exacerbate the negative culture of learning and prolong the high illiteracy rate of the Musina LM.

Sport is perceived as an avenue to enable residents, particularly children, to keep away from negative influences such as crime and drugs and provides the prospect for future opportunities in sport. **Sport and recreation facilities** provision is very low and there is a demand for new and upgraded facilities.

Improvement across all service delivery departments is required. Of utmost importance is education as the high illiteracy rates have ripple effects of a dominantly non-participatory, unemployable and highly government dependent society. This is not progressive and also worsens social ills. With the merging of Musina and Mutale LMs, a positive result may prevail as the consolidated efforts may possibly address all current challenges more efficiently.

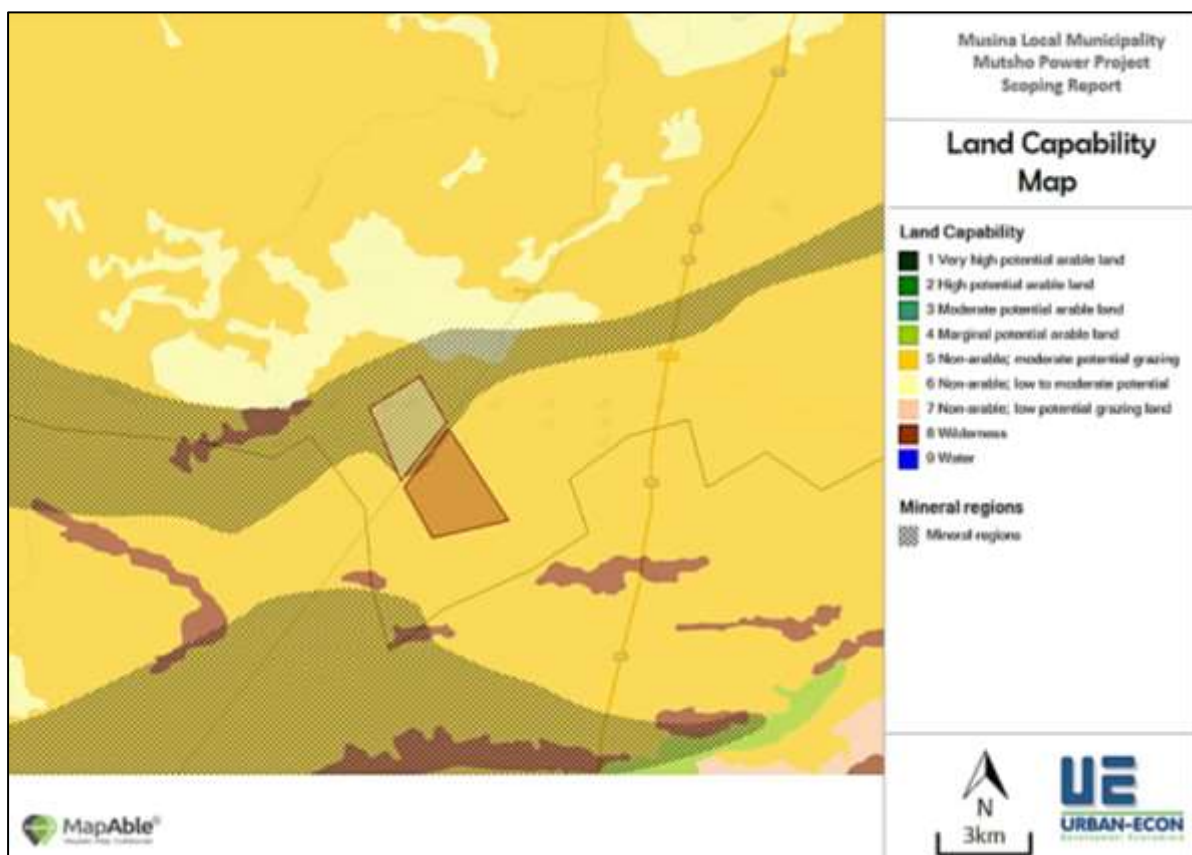
4. SITE RELATED INFORMATION: ZONE OF INFLUENCE BASELINE

The site-related information section investigates the various dynamics of the proposed site. Map 4-2 indicates the current land uses of the proposed project site and its surroundings.

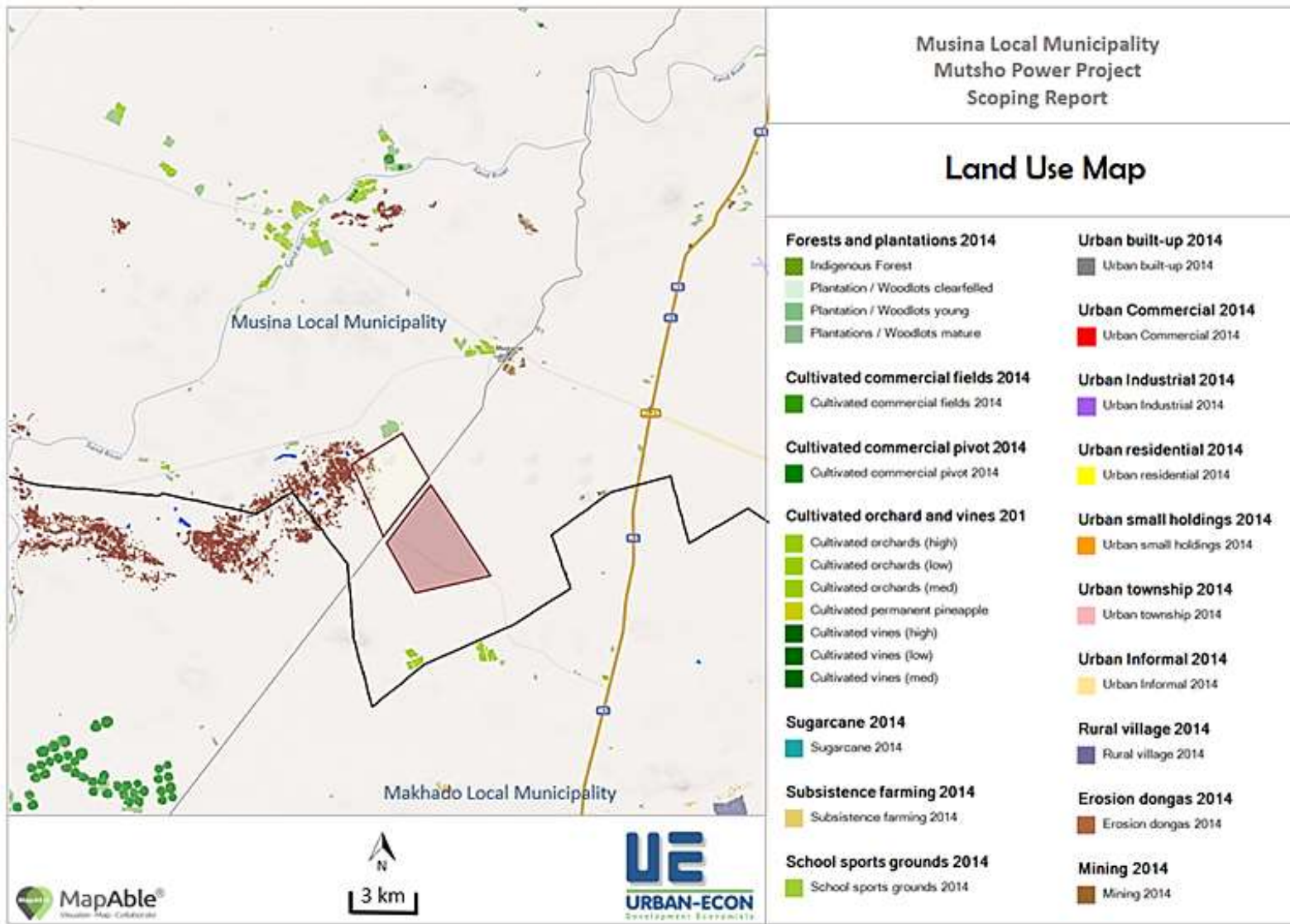
The proposed site is currently a greenfield site with no development and no service connections. The property is not used for any commercial activity and is not occupied. Similarly, the direct surrounding is largely not developed. The north-western portion of the proposed project site has erosion dongas. Directly south and to the north-west area from the project site are cultivated orchards. In addition, north to the project site, erosion dongas and plantations are found.

The Mopane area is located 7kms to the west of the project site. Here, a small residential area is located as well as mining activity. In addition, a residential settlement called Mudimeli is located 15kms from the proposed project site.

In terms of land capability, the project site and its surroundings are largely non-arable land, with a low to moderate potential for grazing. In addition, there are portions of wilderness in the direct zone of influence. Directly south from the project site is arable land with marginal potential. Farm Du Toit 563 is located on a mineral region, which expands from the west to the east of the farm.



Map 4-1: Land Capability on project site and surrounding areas



Map 4-2: Land Use Map of project site and surrounding areas

5. POTENTIAL SOCIO-ECONOMIC IMPACTS

Considering the project background and the understanding of the socio-economic environment, where the proposed project is to be located, the following impacts are most likely to be raised and will need to be investigated in the EIA phase in greater detail:

- » During construction:
 - * Increase in Production and GDP-R of the national and local economies due to capital expenditure
 - * Temporary employment creation in local communities and elsewhere in the country
 - * Skills development due to the creation of new employment opportunities
 - * Household income will lead to the improved standard of living for households directly or indirectly benefitting from employment opportunities
 - * Change in demographics of the area due to the potential influx of workers and job seekers
 - * Increased demand for affordable accommodation
 - * Pressure on basic services and social and economic infrastructure by migrant labour and job seekers
- » During operations:
 - * Sustainable increase in Production and GDP-R of the national and local economies due to operations expenditure
 - * Long term employment creation in local communities and elsewhere in the country
 - * Skills development due to the creation of employment opportunities
 - * Household income will improve the standard of living for households directly or indirectly benefitting from employment opportunities
 - * Increase in government revenue stream due to payroll taxes and income taxes
 - * Improved energy security and opportunities for local economy development due to increased supply of electricity

The preliminary assessment of the extent and significance of the above-mentioned impacts is provided further in this section.

5.1 Construction Phase Impacts to be Considered

<p>Impact Increase in Production and GDP-R of the national and local economies due to capital expenditure.</p> <p>Desktop Sensitivity Analysis of the Site: No sensitivity identified.</p>			
Issue	Nature of Impact	Extent of Impact	No-Go Areas
Stimulation of national and local economies due to capital expenditure which will increase production and GDP-R.	A positive impact to production and GDP-R due to the investment made.	The scale of the impact will be from the local to the national level.	None identified.
<p>Description of expected significance of impact</p>			

The Musina LM is relatively small; the development of a coal-fired power station on the other hand will require significant investments. Although due to the relatively small and undiversified economic base, the majority of investments will be spent on procurement of goods and services from other parts of the country (and abroad), the local municipality is likely to benefit too. Overall, the impact will possibly be of medium to high significance (positive) due to injected investment, which will further improve the GDP of the Musina LM and the country in general.

Gaps in knowledge and recommendations for further study

Information on total, breakdown, and local content of capital expenditure is required to determine not only direct but also multiplier effects of the project on the local and national economies.

Duration of construction phase information is required.

Impact

Temporary employment creation in local communities and elsewhere in the country.

Desktop Sensitivity Analysis of the Site:

No sensitivity identified.

Issue	Nature of Impact	Extent of Impact	No-Go Areas
Impact involves the creation of direct, indirect and induced employment opportunities related to the construction of the proposed coal-fired power plant and facilities.	Job creation will reduce unemployment as a result of the construction of the coal-fired power plant.	The impact will occur at national and local levels.	None identified.

Description of expected significance of impact

Just over a third of the working age population in the local municipality is unemployed. However, considering its economic and labour profile, it is unlikely to be able to absorb all employment opportunities created on site, as well as through multiplier effect. Moreover, the number of jobs that is expected to be localised will be largely limited to low-skilled and unskilled labour. The impact is expected to have medium significance (positive) due to the number of jobs expected to be created and the temporary nature of the impact.

Gaps in knowledge and recommendations for further study

Information on employment to be created locally and at other scales is required.

The duration of employment information required.

Impact

Skills development due to the creation of new employment opportunities

Desktop Sensitivity Analysis of the Site:

No technical skills institutions in the area.

Issue	Nature of Impact	Extent of Impact	No-Go Areas
Skills will be created and/or enhanced for benefitting employees during the construction phase.	The impact is positive as it develops skills that are beneficial for future employment.	The impact will occur at national and local levels.	None identified.
Description of expected significance of impact			
A great portion of the Musina LM's labour force is semi-skilled individuals. The opportunity to be employed at the project will allow them to develop new skills or enhance their existing skills, making them more attractive for future employment. This impact will be of medium significance (positive) due to the long-term benefits associated with skills development.			
Gaps in knowledge and recommendations for further study			
Information on the types of skills to be developed during construction, as well as the percentage of different skill-level opportunities made available to the local labour, is required.			

Impact			
Household income will lead to the improved standard of living for households directly or indirectly benefitting from employment opportunities.			
Desktop Sensitivity Analysis of the Site:			
No sensitivity identified.			
Issue	Nature of Impact	Extent of Impact	No-Go Areas
Income will be temporarily derived from the employment created during the construction phase.	The impact is positive as it improves the standard of living for the benefitting households.	The impact will occur from local to national levels.	None identified.
Description of expected significance of impact			
The average income earned in Musina LM ranks the employed residents as low-income earners. This impact may thus be of medium significance (positive) due to the temporary income earned by employees.			
Gaps in knowledge and recommendations for further study			
The employment to be created locally and at other scales information required.			
The total amount to be sent on labour during construction is required.			
The duration of employment information required.			

Impact			
Change in demographics of the area due to the potential influx of workers and job seekers.			
Desktop Sensitivity Analysis of the Site:			

A portion of the greenfield sites cannot be developed; thus, housing expansion areas are limited.			
Issue	Nature of Impact	Extent of Impact	No-Go Areas
A possible increase in population to the area with a dominant male influx of job seekers and migrant labour.	The impact is negative as it may increase social pathologies and create informal settlements.	The impact will be experienced by the local communities.	Non-identified.
Description of expected significance of impact			
Not all skills required for construction can be attained in the local communities. A large influx of migrant workers and job seekers will be expected, which will change the current demographic profile of the area. The significance of the impact is rated at medium (negative) at this stage.			
Gaps in knowledge and recommendations for further study			
Plans for the hiring of people, accommodation for migrant labour, and procurement of local labour is required.			

Impact			
Increased demand for affordable accommodation			
Desktop Sensitivity Analysis of the Site:			
The key challenge in Musina LM is the shortage of suitably located land for housing development.			
Issue	Nature of Impact	Extent of Impact	No-Go Areas
The possible increase in population may result in an increased demand for housing.	The impact is negative due to the limited supply of developable land. In addition, the establishment of informal settlements may emerge.	The impact will be experienced at municipal level.	Non-identified.
Description of expected significance of impact			
The influx of migrant workers will result in the increased demand for affordable accommodation in the area, unless the contractor will provide on-site accommodation or a set up a construction camp. In both instances though the demand for accommodation will increase; however, the extent of this will depend on the plans for the developer with respect to provision of on-site accommodation. In the worst case scenario, the significance of the impact may be medium (negative).			

Gaps in knowledge and recommendations for further study

Plans for the accommodation for migrant labour are required.

Impact

Pressure on basic services and social and economic infrastructure by migrant labour and job seekers.

Desktop Sensitivity Analysis of the Site:

The site is not serviced.

Issue	Nature of Impact	Extent of Impact	No-Go Areas
Migrant labour and job seekers may increase pressure on service delivery and socio-economic infrastructure.	The impact is negative as it may place strain on the currently inadequate service delivery.	The impact may be experienced by the local communities.	None identified.

Description of expected significance of impact

Service provision in the local municipality is currently not on par with the country-average and minimum, which is evident by numerous backlogs experienced. The influx of job seekers is likely to exert additional pressure on service delivery due to the increased demand for basic and social services in the area. The impact may possibly be of medium to high significance (negative).

Gaps in knowledge and recommendations for further study

Plans for the accommodation for migrant labour required and provision of social and basic services to these.

5.2 Operational phase impacts to be considered**Impact**

Sustainable increase in Production and GDP-R of the national and local economies due to operations expenditure.

Desktop Sensitivity Analysis of the Site:

No sensitivity identified.

Issue	Nature of Impact	Extent of Impact	No-Go Areas
Increase in production and GDP-R of national and local economies.	A positive impact to production and GDP-R due to operational expenditure.	The scale of the impact is from local to national.	None identified.

Description of expected significance of impact

The local economy has a relatively small base, with the electricity, gas and water sector making a negligible contribution to its development and growth. The operation of a coal-fired power plant will increase the size of the local economy and specifically the utilities sector, contributing to the local economy's growth. This impact will possibly be of

medium to high significance (positive) due to the long-term of benefits and the size of operational expenditure, which will further improve the GDP of Musina LM.

Gaps in knowledge and recommendations for further study

Data regarding operational expenditure, local content, and its breakdown per industry are required.

Duration of operation phase information required.

Impact

Long term employment creation in local communities and elsewhere in the country.

Desktop Sensitivity Analysis of the Site:

No sensitivity identified.

Issue	Nature of Impact	Extent of Impact	No-Go Areas
It involves the creation of direct, indirect and induced opportunities related to the operation of the proposed coal-fired power plant and facilities.	A positive impact on job creation will occur as a reduction in unemployment as a result of the operation of the power plant, will take place.	The impact will occur from local to national levels.	None identified.

Description of expected significance of impact

The impact may have medium significance (positive) due to the sustainability of the potentially notable number of jobs to be created. Importantly, most of these jobs will be created and located in the LM, which will improve the local labour force situation even if some of the jobs are to be filled by individuals who would need to relocate to the local municipality from other parts of the country.

Gaps in knowledge and recommendations for further study

The employment that will be created locally and at other scales are required.

The duration of employment information required.

Impact

Skills development due to the creation of employment opportunities

Desktop Sensitivity Analysis of the Site:

No sensitivity identified.

Issue	Nature of Impact	Extent of Impact	No-Go Areas
Skills will be created and/or enhanced during the operations phase for employees.	The impact is positive as it develops skills that can be used in similar projects in future.	The impact will occur from local to national levels.	None identified.

Description of expected significance of impact

A great portion of the Musina LM is semi-skilled, but a certain percentage of the employment opportunities available at the plant will be made available to the local communities, which will improve their skill levels. This impact will be of medium significance (positive) due to the long-term benefits of skills development for the employees.

Gaps in knowledge and recommendations for further study

Skills development programmes to be implemented during the operations phase.

Impact

Household income will improve the standard of living for households directly or indirectly benefitting from employment opportunities.

Desktop Sensitivity Analysis of the Site:

No sensitivity identified.

Issue	Nature of Impact	Extent of Impact	No-Go Areas
Income will be derived from the sustainable employment created during the operations phase.	The impact is positive as it improves the standard of living for the benefitting households for a sustainable period.	The impact will occur from local to national levels.	None identified.

Description of expected significance of impact

This impact may be of medium significance due to the long-term income earned by employees.

Gaps in knowledge and recommendations for further study

The employment to be created locally and at other scales information required.
The duration of employment information required.

Impact

Increase in government revenue stream due to payroll taxes and income taxes

Desktop Sensitivity Analysis of the Site:

No sensitivity identified.

Issue	Nature of Impact	Extent of Impact	No-Go Areas
Payroll and income taxes during operations will increase government revenue.	The impact is positive as it will increase municipal and national fiscal revenue which can be used to the benefit of society.	The impact will occur at the municipal and national levels.	None identified.

Description of expected significance of impact

Operations of the plant will result in additional income earned by government on the local (rates and taxes) and national levels (taxes). This impact may be of medium

significance (positive) due to the long-term nature of the impact and the revenue to be derived by local and national government spheres.

Gaps in knowledge and recommendations for further study

The duration of operations and the rates and taxes to be paid during operations.

Impact

Improved energy security and opportunities for local economy development due to increased supply of electricity

Desktop Sensitivity Analysis of the Site:

No sensitivity identified.

Issue	Nature of Impact	Extent of Impact	No-Go Areas
Provision of electricity into the national grid.	The impact is positive as it will contribute to energy supply.	The impact will be experienced at a local and national levels.	None identified.

Description of expected significance of impact

This impact may be of medium to high significance (positive) due to the fact that it will create the supply of electricity in the area, where an Industrial Development Zone is planned to be established. Location of the electricity generating facility in close proximity to the demand will also assist in reducing transmission losses and improving energy security in the country.

Gaps in knowledge and recommendations for further study

Information on the amount of electricity to be generated annually

6. CONCLUSION

Mutsho Power Company is proposing to develop a coal-fired power station with a generation capacity of 660MW. The project is planned to be located in the Musina LM within the Limpopo Province. The proposed site will directly affect Farm Du Toit 563 and Farm Vrienden 589, near Mopane.

The review of key national, provincial, and local policy documents indicates that the development of coal-fired power stations is supported at all levels, from a socio-economic perspective. The national policies are in sync with the view that coal dependence will continue in the long-term, thus the contribution of coal-fired power stations towards the energy mix in the country will remain. However, a proposal for research and development for cleaner coal technology with reduced emission rates is put forward. In addition, at lower levels, service delivery is a key issue to be addressed, including electricity provision. After considering the reviewed documentation, no fatal flaws or contraventions from a socio-economic policy perspective exist for the implementation of the proposed project.

The Mutale LM was merged with the Musina LM in August 2016. This amalgamation has resulted in the GDP contribution of the Musina LM to Vhembe DM to be 16%. The municipality is well connected regionally and internationally. It is comprised mainly of mining activities, tourism, and largely undeveloped land. Overall, the economy has a small base despite its relatively large contribution to the district's economy, and in the past few years has been stagnating, showing a need for additional investment and diversification of its base.

Just over a third of the population in the local economy is employed and the unemployment rate is 26%. Key concerns are the low education levels and the skills shortage in the region. These are perpetuated by the vast backlog of classrooms and learner support material, particularly in rural areas. Furthermore, the communities where labour can potentially be sourced are not in close proximity to the project site.

The above suggests that the economy can utilise the investment to diversify its economic base and lead to the improvement of standards of living among local households through the increased income levels and access to improved services, which can be achieved by raising the local municipality's revenue base through taxes and rates paid by new businesses. The proposed project is therefore, likely to create a positive impact on the local economic development and the socio-economic environment in the municipality in general; however, some negative effect associated with the influx of people and migrant workers can be expected.

Overall, the **following impacts are envisaged to be investigated in greater detail during the EIA phase:**

- » During construction:
 - * Increase in Production and GDP-R of the national and local economies due to capital expenditure

- * Temporary employment creation in local communities and elsewhere in the country
 - * Skills development due to the creation of new employment opportunities
 - * Household income will lead to the improved standard of living for households directly or indirectly benefitting from employment opportunities
 - * Change in demographics of the area due to the potential influx of workers and job seekers
 - * Increased demand for affordable accommodation
 - * Pressure on basic services and social and economic infrastructure by migrant labour and job seekers
- » During operations:
- * Sustainable increase in Production and GDP-R of the national and local economies due to operations expenditure
 - * Long term employment creation in local communities and elsewhere in the country
 - * Skills development due to the creation of employment opportunities
 - * Household income will improve the standard of living for households directly or indirectly benefitting from employment opportunities
 - * Increase in government revenue stream due to payroll taxes and income taxes
 - * Improved energy security and opportunities for local economy development due to increased supply of electricity

During the EIA phase, the following **approach to the assessment of socio-economic impacts will be followed:**

1. Review of comments and feedback received on the scoping report from the Interested and Affected Parties (I&APs)
2. Determine the approach towards addressing the received comments, i.e. additional data collection or inclusion of the identified issues in the analysis during the EIA phase
3. Undertake a site visit and collect primary data, where required
4. Amend the baseline information based on the collected information
5. Gather project data from the client and undertake economic impact modelling exercise
6. Analyse, and where possible, quantify the potential socio-economic impacts ensuring that all issues and impacts raised by the I&APs are addressed
7. Rate the impacts according to the methodology supplied by the environmental specialist applicable to the EIA phase
8. Formulate the mitigation plan
9. Produce the report for the submission to the authorities and review by the I&APs
10. Obtain comments from I&APs on the submitted report and amend it accordingly responding to the comments and issues raised, if applicable

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