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TRANSALLOYS 120-150 MW COAL-FIRED POWER PLANT
SOCIAL IMPACT ASSESSMENT: ADDENDUM

APRIL 2019

Prepared for

SAVANNAH ENVIRONMENTAL

By

Tony Barbour

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1. INTRODUCTION AND BACKGROUND TO REPORT

Savannah Environmental (Pty) Ltd was appointed by Transalloys as the lead consultants to manage the Environmental Impact Assessment (EIA) process for the establishment of a proposed 120-150 MW Coal Fired Power Plant located adjacent to its smelter complex near Witbank in the Mpumalanga Province. The smelter is used to produce export grade Siliconmanganese. The proposed power plant is required to meet Transalloys current electricity demands and future expansion requirements.

Tony Barbour Environmental Consulting was appointed by Savannah to undertake a specialist Social Impact Assessment (SIA) as part of an Environmental Impact Assessment (EIA) process. The EIA and SIA assessed a 150 MW plant. The SIA report was submitted to Savannah in December 2014. Authorisation for the construction of a 55 MW coal-fired power plant was granted to Transalloys in March 2016. This study is therefore conducted as an amendment to the impact assessment study conducted in 2014 (with an originally proposed capacity of 150MW). The study also reflects the new power plant and ash storage facility layout located within the project implementation sites assessed in 2014 and successfully approved through the 2 March 2016 Environmental Authorisation (as per the final EIR dated May 2015). Currently, both a Water Use Licence (WUL) process and an Atmospheric Emissions Licence (EAL) is being submitted in parallel to the proposed Part II amendment process required for the amendment of the layout, amongst others.

However, following additional studies by Transalloys the need for a 150 MW plant was reassessed. Based on these studies the capacity was reduced to a gross power capacity of 120 to 150 MW. The proposed 120 to 150 MW facility is located on the same site proposed for the 150 MW plant. The only change is that the location of the 120 MW plant is on the area originally proposed for the ash dump, while the ash dumps have been moved to the area where the original 150 MW plant was proposed. The change will not involve any changes in the technology type, or design, or infrastructure layout.

Figure 1 illustrates the original location of the proposed 150 MW coal power plant and the associated ash dump. In terms of the changes the proposed 120-150 MW plant will be located in the blue area and the ash dump in the green area. The general site area remains the same.

The objective of the Addendum Report is to comment on the potential implications of the proposed change on the findings of the SIA undertaken in 2014, and to indicate if any changes in impacts or impact ratings are expected, or if any new impacts may arise, due to the proposed amendment layout and associated activities.

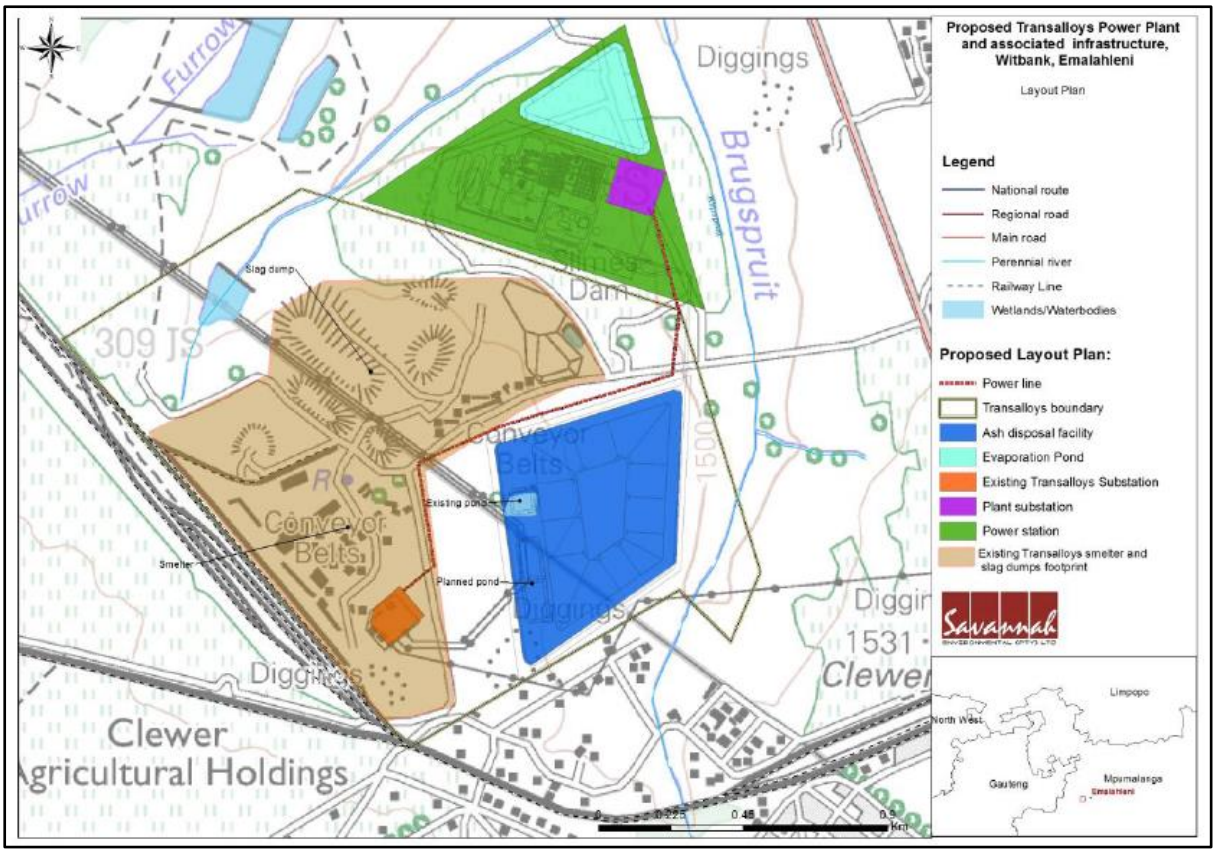


Figure 1: Original location of 150 MW plant and associated ash dump (2014)

2. APPROACH TO STUDY

The approach to preparing the Addendum Report is based on the Western Cape Department of Environmental Affairs and Development Planning Guidelines for Social Impact Assessment (DEADP, 2007). These guidelines are based on international best practice. The key activities included:

- Reviewing and up-dating key policy and land use planning documents for the study area;
- Reviewing and up-dating the socio-economic baseline data for the study area.
- A review of the findings of the SIA undertaken in 2014 (Barbour) and comment on the findings of the SIA in relation to the proposed changes outlined above;
- Commenting on the relevance of the findings of the SIA undertaken in 2014 for the proposed changes.

3. ASSUMPTIONS AND LIMITATIONS

4.1 Assumptions

Findings of SIA undertaken in 2014
It is assumed that the key findings of the SIA undertaken in 2014 remain valid.

Findings of air quality assessment undertaken in 2014
It is assumed that the key findings of the air quality assessment undertaken in 2014 remain valid.

Socio-economic baseline data
The baseline socio-economic data included in the 2014 SIA is based on the 2011 Census data. While this data reflects the latest Census data and is regarded as sufficient for the purposes of assessing the potential impact of the revised project it has been updated using information from the 2016 Community Household Survey.

4.2 Limitations

Limitations
Based on the experience of the consultant there are no limitations that have a material bearing on the findings of the Addendum Report.

4. SPECIALIST DETAILS

Tony Barbour is an independent specialist with 25 years' experience in the field of environmental management. In terms of SIA experience Tony Barbour has undertaken in the region of 230 SIAs and is the author of the Guidelines for Social Impact Assessments for EIA's adopted by the Department of Environmental Affairs and Development Planning (DEA&DP) in the Western Cape in 2007. Annexure A contains a copy of Mr Barbour's CV.

5. DECLARATION OF INDEPENDENCE

This confirms that Tony Barbour, the specialist consultant responsible for undertaking the study and preparing the Addendum Report, is independent and does not have any vested or financial interests in the proposed project being either approved or rejected. A signed declaration is contained in Annexure B.

6. UPDATED KEY POLICY AND LAND USE PLANS

As part of the amendment the 2017-2022 Emalahleni Local Municipality Integrated Development Plan (IDP) was reviewed. The 2015 Emalahleni Spatial Development Framework (SDF) was also reviewed. In addition, the baseline socio-economic data were up-dated using the information from the 2016 Community Household Survey (StatSA 2016). A summary of the 2017-2022 eMalahleni Local Municipality IDP, SDF and updated baseline information is contained in Annexure C.

7. IMPLICATIONS FOR SOCIAL IMPACT ASSESSMENT

As indicated above, the only changes to the previous project design are:

- Change from 150 MW to 120-150 MW;
- Change in location of the 120-150 MW plant to the area originally identified for the ash dumps. The ash dumps will be located in the area originally proposed for the 150 MW plant (See Figure 1). The general site area remains the same.

Based on a review of the available information and the author's experience of the study area, the proposed changes will have no bearing on the findings of the Social Impact Assessment dated December 2014. The findings of the SIA Report (December 2014) therefore remain valid for and apply to the proposed change from a 150 MW to 120-150 MW coal power station. In addition the change in the location of the proposed 120-150 MW plant site and ash dumps will not result in any changes in the findings of the SIA Report undertaken for the proposed 150 MW plant in 2014 and the associated significance ratings. The social impacts and associated significance ratings with enhancement and/or mitigation for the construction and operational phase are summarized in Table 1 and 2 respectively. Likewise, no additional mitigation measures

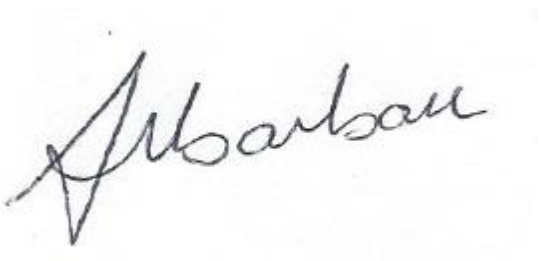
will be required over and above those listed in the 2014 SIA. The Executive Summary which summarises the key findings of the 2014 SIA is contained in Annexure D.

Table 1: Social impacts and significance ratings associated with construction phase (SIA December 2014)

	Significance No Mitigation	**Significance With Mitigation**
Creation of employment and business opportunities	Medium (+)	High (+)
Presence of construction workers and potential impacts on family structures and social networks	Low (-) for community as a whole) Medium-High (-) for individuals)	Low (-) for community as a whole) Medium-High (-) for individuals)
Influx of job seekers	Low (-)	Low (-)
Impacts associated with construction related traffic	Medium (-)	Low (-)
Impacts associated with construction related activities (dust and noise)	Medium (-)	Low (-)

Table 2: Social impacts and significance ratings associated with operational phase (SIA December 2014)

	Significance No Mitigation	**Significance With Mitigation**
Creation of employment and business opportunities	Medium (+)	Medium (+)
Market for low grade coal	Medium (-)	High (+)
Establishment of additional power generation infrastructure	Medium (-)	Medium (+)
Impact on air quality	Medium (-)	Low-Medium (-)
Impact associated with traffic	Medium (-)	Low (-)
Visual impact on sense of place	Low (-)	Low (-)



Tony Barbour
Tony Barbour Environmental Consulting and Research
1 April 2019

ANNEXURE A

Tony Barbour
ENVIRONMENTAL CONSULTING AND RESEARCH

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Tony Barbour's experience as an environmental consultant includes working for ten years as a consultant in the private sector followed by four years at the University of Cape Town's Environmental Evaluation Unit. He has worked as an independent consultant since 2004, with a key focus on Social Impact Assessment. His other areas of interest include Strategic Environmental Assessment and review work.

EDUCATION

- BSc (Geology and Economics) Rhodes (1984);
- B Economics (Honours) Rhodes (1985);
- MSc (Environmental Science), University of Cape Town (1992)

EMPLOYMENT RECORD

- Independent Consultant: November 2004 – current;
- University of Cape Town: August 1996-October 2004: Environmental Evaluation Unit (EEU), University of Cape Town. Senior Environmental Consultant and Researcher;
- Private sector: 1991-August 2000: 1991-1996: Ninham Shand Consulting (Now Aurecon, Cape Town). Senior Environmental Scientist; 1996-August 2000: Steffen, Robertson and Kirsten (SRK Consulting) – Associate Director, Manager Environmental Section, SRK Cape Town.

LECTURING

- University of Cape Town: Resource Economics; SEA and EIA (1991-2004);
- University of Cape Town: Social Impact Assessment (2004-current);
- Cape Technikon: Resource Economics and Waste Management (1994-1998);
- Peninsula Technikon: Resource Economics and Waste Management (1996-1998).

RELEVANT EXPERIENCE AND EXPERTISE

Tony Barbour has undertaken in the region of 200 SIA's, including SIA's for infrastructure projects, dams, pipelines, and roads. All of the SIAs include interacting with and liaising with affected communities. In addition he is the author of the Guidelines for undertaking SIA's as part of the EIA process commissioned by the Western Cape Provincial Environmental Authorities in 2007. These guidelines have been used throughout South Africa.

Tony was also the project manager for a study commissioned in 2005 by the then South African Department of Water Affairs and Forestry for the development of a Social Assessment and Development Framework. The aim of the framework was to enable the Department of Water Affairs and Forestry to identify, assess and manage social impacts associated with large infrastructure projects, such as dams. The study also included the development of guidelines for Social Impact Assessment, Conflict Management, Relocation and Resettlement and Monitoring and Evaluation.

Countries with work experience include South Africa, Namibia, Angola, Botswana, Zambia, Lesotho, Swaziland, Ghana, Mozambique, Mauritius, Kenya, Ethiopia, Oman, South Sudan and Sudan.

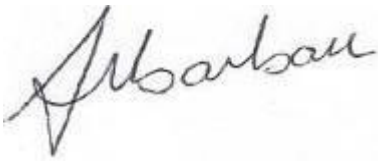
ANNEXURE B

The specialist declaration of independence in terms of the Regulations_

I, Tony Barbour , declare that --

General declaration:

I act as the independent specialist in this application;
I will perform the work relating to the application in an objective manner, even if this results in views and findings that are not favourable to the applicant;
I declare that there are no circumstances that may compromise my objectivity in performing such work;
I have expertise in conducting the specialist report relevant to this application, including knowledge of the Act, Regulations and any guidelines that have relevance to the proposed activity;
I will comply with the Act, Regulations and all other applicable legislation;
I have no, and will not engage in, conflicting interests in the undertaking of the activity;
I undertake to disclose to the applicant and the competent authority all material information in my possession that reasonably has or may have the potential of influencing - any decision to be taken with respect to the application by the competent authority; and - the objectivity of any report, plan or document to be prepared by myself for submission to the competent authority;
all the particulars furnished by me in this form are true and correct; and
I realise that a false declaration is an offence in terms of regulation 48 and is punishable in terms of section 24F of the Act.



Signature of the specialist:

Tony Barbour Environmental Consulting and Research

Name of company

13 March 2019

Date:

ANNEXURE C

1. MPUMALANGA ECONOMIC GROWTH AND DEVELOPMENT PLAN

The Mpumalanga Economic Growth and Development Path (MEGDP, 2011) IS underpinned by two key spatial strategic objectives:

- Actively promote and support economic growth and development in terms of the provincial economy, its linkages to the national and international economy and with an emphasis on provincial priorities such as targeted growth areas, priority sectors and corridors as well as developmental priorities such as employment and eradicating poverty;
- Facilitate and provide essential services in social and human development in areas such as health, education, social welfare, community safety and with an emphasis on human capital development including human resources development and skills development.

This MEGDP notes these key objectives are to be achieved by:

- Reducing the unemployment rate in the Province by creating additional jobs;
- Increasing the income level of more individuals above the poverty line;
- Increasing the Human Development Index (HDI), the literacy level and the life expectancy;
- Reducing inequality.

In terms of economic sectors, the MEGDP identifies a number of key economic sectors that can support economic growth and employment creation in Mpumalanga. Of relevance to the proposed development are:

- Mining and energy;
- Manufacturing and beneficiation.

These two sectors play a key role in economy of the ELM and will be supported by the proposed development.

2. EMALAHLENI LOCAL MUNICIPALITY INTEGRATED DEVELOPMENT PLAN (2017-2022)

The vision of the Emalahleni Local Municipality (ELM) is "To be a centre of excellence and innovation" Emalahleni "The energy heartbeat of Southern Africa and economic hub of Mpumalanga". Linked to the vision is the mission statement, which is "Empowerment of our communities and providing innovative and excellent service that is conducive for sustainable economic development and social transformation".

The IDP lists the top five goals of the ELM, of which socio-economic growth and a safe environment is the most relevant to the proposed development. The IDP also identifies 6 KPAs, of which the KPA 3, Local Economic Development, and KPA 6, Spatial and Cross Cutting Issues, are the most relevant for the proposed development**.**

Local economic development

In terms promoting economic development the ELM adopted a 5 year Local Economic Development (LED) strategic framework in 2011/12. The purpose of the LED strategy is to develop the economic capacity of the local area to improve its economic future for the benefit of all residents. Of relevance to the project the LED strategy seeks to:

- Assess the local economy in the context of sectoral growth and challenges;
- Identify LED opportunities and development initiatives to be implemented by key stakeholders and role players;
- Identify LED programmes and projects to uplift local communities;
- Promote SMMEs

The municipality has a comparative advantage in the following sectors:

- Mining
- Manufacturing
- Utilities

In terms of challenges, the IDP notes that shortage of energy due to Eskom electricity creates challenges for local businesses and economic development. The lack of manufacturing incubation hubs, training as well as coaching and mentoring programmes are also identified as a challenge. The proposed development can assist to address these two challenges.

The IDP also lists a number of other challenges facing economic development in the ELM. The following are relevant to the proposed development.

- Low skills levels;
- High unemployment and the influx of people from other parts of the district, province and countries;
- Inadequate support of SMMEs;
- Poor business relationship and lack of common vision amongst business and other institutions

A number of options are identified to address these challenges, including:

- Attracting external investment (nationally and internationally);
- Ensuring that the local investment climate is functional for local businesses,(mainly
- SMMEs);
- Investing in physical (hard) infrastructure;
- Supporting small and medium sized enterprises;
- Promoting economic transformation in order to enable meaningful participation of SMMEs;
- Promoting investment programmes that lead to broad based economic empowerment;
- Development of capacity and skills for SMMEs;
- Engagement of Private Sector and Government for the support of SMMEs

A SWOT analysis undertaken as part of the IDP process identified a number of strengths, opportunities and threats that are relevant to the project, namely:

Strengths
- Skilled workforce

Opportunities
- Raw material processing facilities;
- Economic hub – Mpumalanga;
- Potential for establishment of University of Mpumalanga engineering faculty to be located in Emalahleni;
- Strategic Geographical location of ELM in terms of Maputo corridor;
- Industrial and mining developments and associated potential for increased revenue base;
- Diversification of the economy;

- Skills training and development

Threats
- Civil unrest;
- Land invasion;
- Service backlog and run down infrastructure networks and roads;
- Depletion of mineral resources;
- High unemployment rate (closure of industries);
- Impact of climate change.

Spatial and cross cutting issues

The IDP notes that the ELM strategically located within the Mpumalanga provincial context as it serves the function of a gateway municipality and town into the province for eight of the nine provinces of South Africa. Its proximity to the Johannesburg, Ekurhuleni and the Tshwane Metropolitan Municipalities, which jointly constituted the largest economy in the country serve the municipality favourably.
In terms of spatial or cross cutting issues the Emalahleni Spatial Development Framework lists four strategic objectives, namely:

- **Strategic Objective 1:** To enhance the sustainability of the area by way of protection, management and enhancement of the natural environmental resources of the Municipality.
- **Strategic Objective 2:** To improve spatial efficiency, justice and sustainability by consolidating urbanisation around existing nodes and corridors and within an urban development boundary.
- **Strategic Objective 3:** To maintain/enhance connectivity between the identified activity nodes, and with surrounding regional towns and activity areas.
- **Strategic Objective 4**: To build a diverse, efficient and resilient local economy and to optimise the spatial distribution of conflicting economic sectors

Strategic objective 4 is the most relevant to the proposed development. In this regard the SDF notes that area to the south of the N12 freeway hosts a combination of mining activity, power stations and extensive agricultural use (mostly crop farming). The mining areas host South Africa's key coal reserves and important power stations, including Kendal, Matla, Duvha and Kriel. The mining belt also extends northward towards EMalahleni City. This area is thus characterised by conflicting demand between mining, electricity generation and agriculture. The SDF notes that the primary objective should be to prevent mining activity from encroaching onto high potential agricultural land and areas of high biodiversity; and to ensure that the areas of mining activity are properly rehabilitated and that the agricultural value of the land be restored once the mineral resources are depleted.

Strategic Objective 4 also notes that the industrial and manufacturing activities within the ELM should be strongly supported. Spatially, the SDF recommends that the bulk of new industrial development be consolidated along the N4 and N12 Development Corridors. Similar to the recommendations for mining activity in the ELM, industrial development should not be allowed to negatively affect high potential agricultural land or identified environmentally sensitive and/or tourism precincts.

3. EMALAHLENI LOCAL MUNICIPALITY SPATIAL DEVELOPMENT FRAMEWORK (2014)

The ELM SDF notes that the ELM is the most industrialised municipal area in Nkangala District Municipality (NDM) and has the largest concentration of power stations in South Africa. Its mining and industrial history is reflected in the area's heritage places.

There are two key elements that inform the spatial structure and settlement patterns in the ELM, namely the transport network and mining. The transport network, specifically the N4 and N12 freeways and the national railway line which traverse the area from east to west and which form part of the Maputo-Walvis Bay Corridor, play a key role in terms of the areas spatial land use pattern. Emalahleni City and its extensions have developed in a linear pattern along these freeways and railway lines, with the Central Business District (CBD) located north of the convergence point. The rich coal deposits and associated coal mines and power stations in the southern parts of the ELM are a key structuring element and have had and will continue to have a major influence on settlement development and expansion trends in this part of the ELM.

The ELM SDF is based on the following four strategic objectives, namely:

- Strategic Objective 1: To enhance the sustainability of the area by way of protection, management and enhancement of the natural environmental resources of the Municipality;
- Strategic Objective 2: To improve spatial efficiency, justice and sustainability by consolidating urbanisation around existing nodes and corridors and within an urban development boundary;
- Strategic Objective 3: To maintain/enhance connectivity between the identified activity nodes, and with surrounding regional towns and activity areas;
- Strategic Objective 4: To build a diverse, efficient and resilient local economy and to optimise the spatial distribution of conflicting economic sectors.

Strategic Objective 4 is the most relevant to the proposed development. Industrial development and manufacturing is listed under strategic objective 4 as a key area. Of relevance to the proposed development SDF notes that the existing industrial and manufacturing activities within the ELM should be strongly supported. This includes nine major industrial areas, of which six are situated within or around eMalahleni City, including the KwaMthunzi Vilakazi/ Highveld Steel industrial area to the west of town where the coal power station is located. The six major industrial areas in the ELM, including the Highveld Steel Plant area as illustrated in Figure 33.1 in the SDF. The SDF notes that the industrial areas within the ELM represent the cluster of industrial activity in the NDM. The area where the proposed 120 MW coal power station is located is shown in Figure 33.1 (Figure 2 below). The SDF also recommends that bulk of new industrial development be consolidated along the N4 and N12 Development Corridors (See Figure 3).

Manufacturing is identified as one of the key sectors with huge potential for beneficiation and longer value chains, with resultant impacts on job creation, economic growth and SMME development. The SDF also states that given the relationship between manufacturing and other sectors such as mining, agriculture and construction, the manufacturing sector potential within Emalahleni needs special exploration and exploitation.

Figure 2: KwaMthunzi Vilakazi/ Highveld Steel Industrial Area showing site area

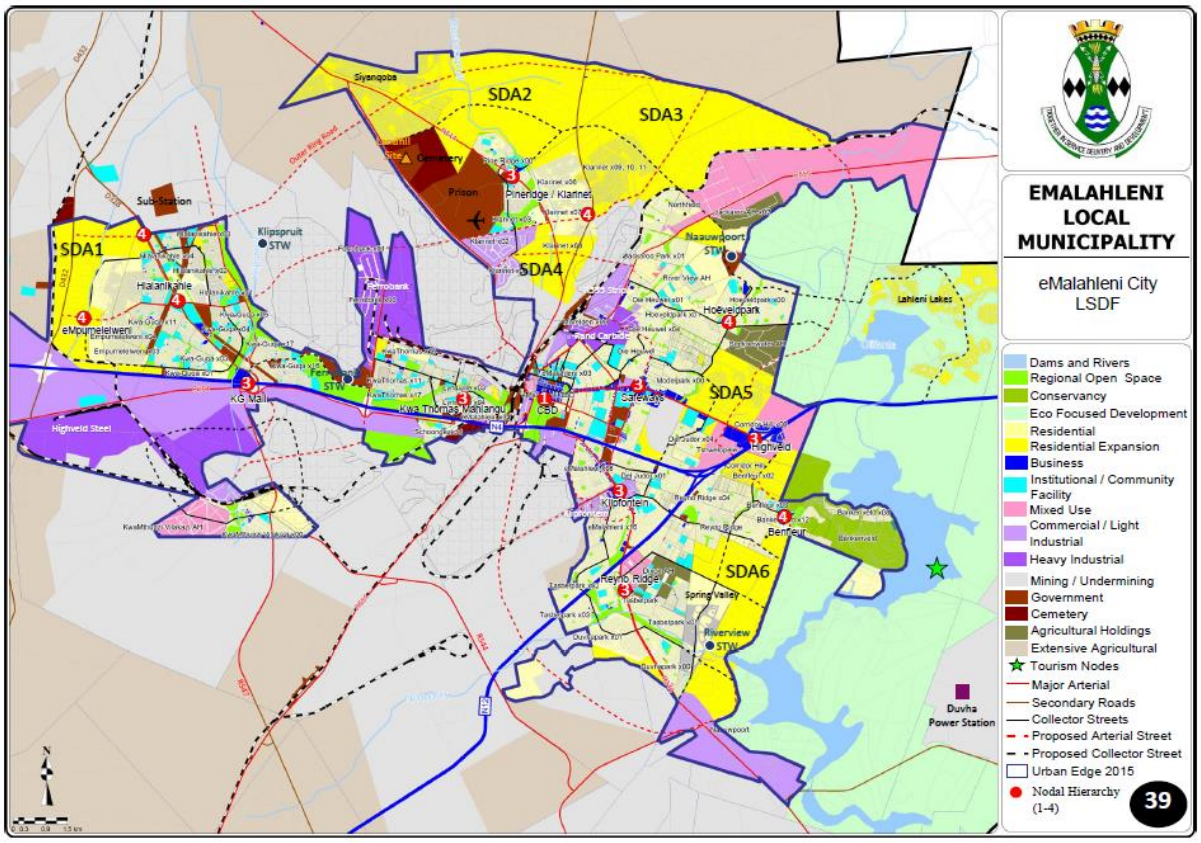


Figure 3: SDF Land Use Map for ELM

Based on the situational analysis, the SDF identifies a number of opportunities and constraints related to the spatial structure, population, and economy of the ELM. The following are of relevance to the proposed development.

Opportunities

- Favourable location in terms of the regional road and rail network. The combination of the N4 freeway, service road and railway line between eMalahleni and Middelburg pose the opportunity for corridor development along the N4 freeway – Maputo Development Corridor;
- Rich coal reserves, creating major economic development opportunities in the mining and electricity sectors;
- Close proximity to Gauteng and the major markets in Gauteng.

Constraints

- Although the level of employment in the study area has increased, the population profile still shows high levels of unemployment coupled with low income levels which result in poverty;
- The long term sustainability of resource-specific settlements, especially related to mining activity and power stations, is questionable, seeing that the mines and power stations have finite lifespans;
- Limited availability of industrial land.

4. BASELINE SOCIO-ECONOMIC DATA-UPDATE

PROVINCIAL CONTEXT

The proposed project is located in the Mpumalanga Province which covers an area of 76 495 km^2, which is the represents 6.5% of the total area of South Africa. The western part of the Mpumalanga is characterised by high altitude grasslands referred to as the Highveld, while the eastern portion is characterised by low altitude subtropical savannah interspersed with rocky outcrops, referred to as the Lowveld. The province is divided by the Drakensberg Escarpment making the central regions mountainous reaching altitudes in excess of 2000m. The climatic conditions range from moist and warm in the east to dry and cooler in the west. The province falls with the summer rainfall region of South Africa. The Mpumalanga Province consists of 3 District Municipalities, namely Gert Sibande, Nkangala, and Ehlanzeni District Municipalities and 18 Local Municipalities (Figure 4).

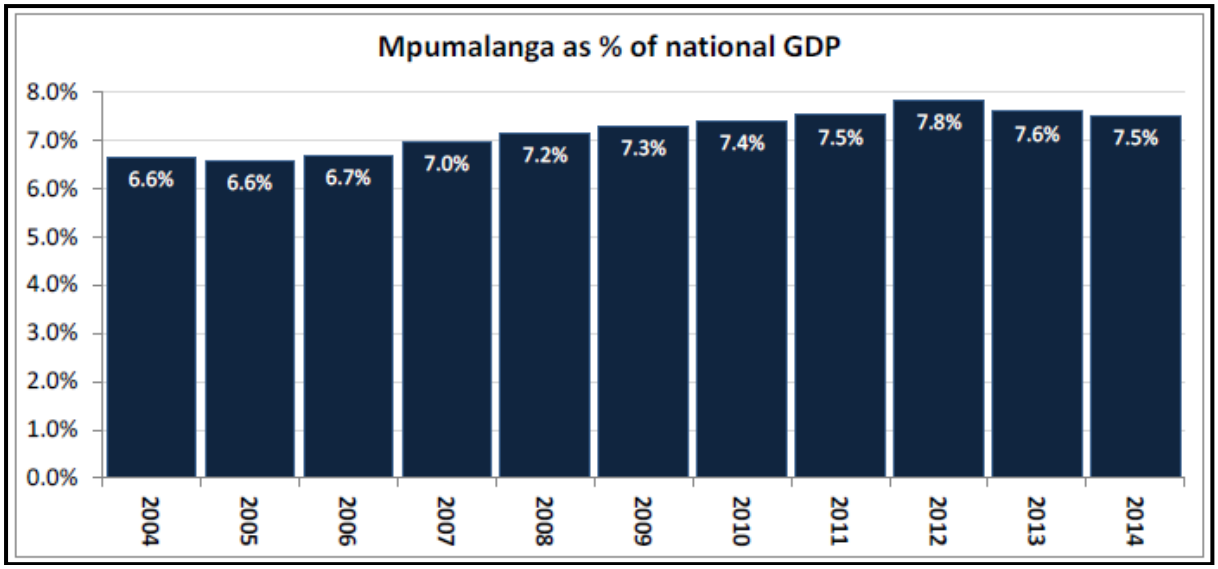
Population

The population of Mpumalanga was 4 039 939 in 2011 (Census 2011) and increased to 4 335 964 by 2016 (Community Household Survey 2016). This represents a growth rate of 1.61 % per annum.

Figure 4: Location of district municipalities within Mpumalanga (Source MPGDS, 2008)

REGIONAL ECONOMY

The regional economy of Mpumalanga is dominated by mining, mostly coal for the Eskom power plants located in the province. The province also has an established and extensive heavy industrial sector, which is closely linked to the mining sector, and a strong commercial agricultural sector. These industries have driven its growth since 2011. In terms of the national economy, Mpumalanga contributed 7% towards the national GDP in 2014/15. The real economy (represented by agriculture, mining, manufacturing and construction) made up 40% of Mpumalanga's output. The real-economy sector was dominated by mining, at 22% of the provincial economy, followed by manufacturing at 12%, construction at 3%, and agriculture at 3%. Mpumalanga contributed 22% of national mining, 8% of national manufacturing, 9% of agriculture and 6% of construction. Mpumalanga's economy therefore remains heavily reliant upon the primary sector, specifically mining. As indicated in Figure 5, the contribution to the national GDP has remained reasonably constant over the since 2008.

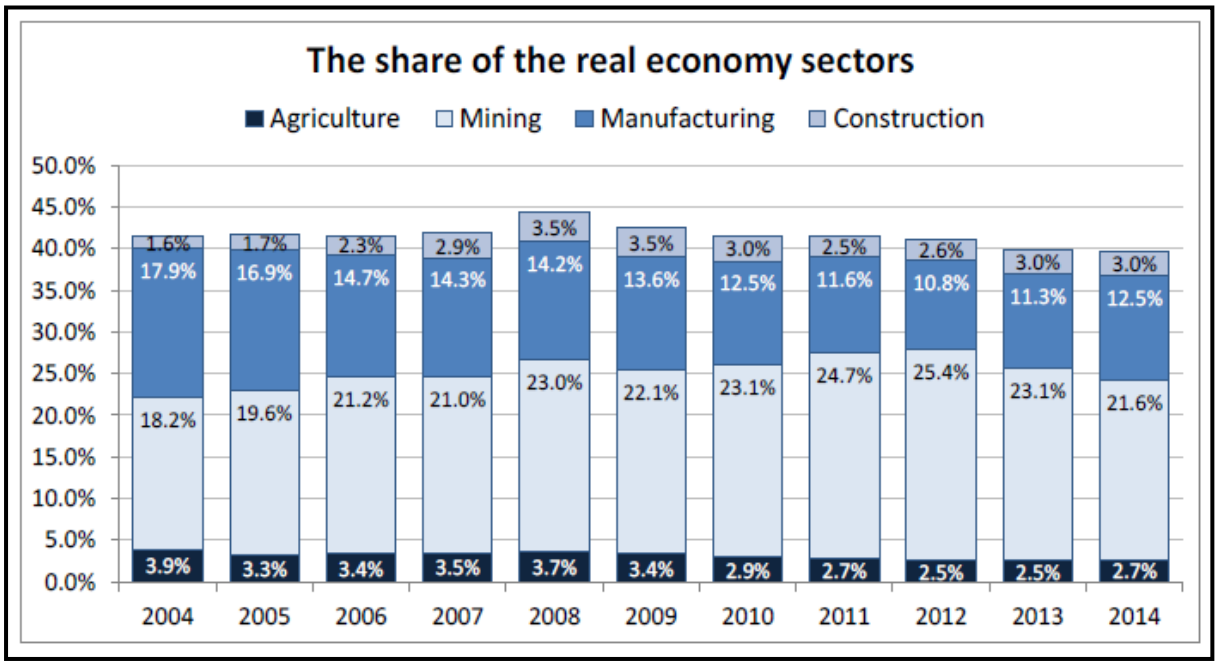


Source: Real Economy Bulletin, 2016

Figure 5: Contribution to national GDP.

Economic Sectors

As indicated in Figure 6, the key economic sectors in 2014 terms of contribution to GDP-R are Mining (21.6%) and Manufacturing (12.5%), followed by the Construction (3%) and Agriculture (2.7%) sectors. The increase in the contribution of the mining sector up until 2011 is linked to the commodity boom.



Source: Real Economy Bulletin, 2016

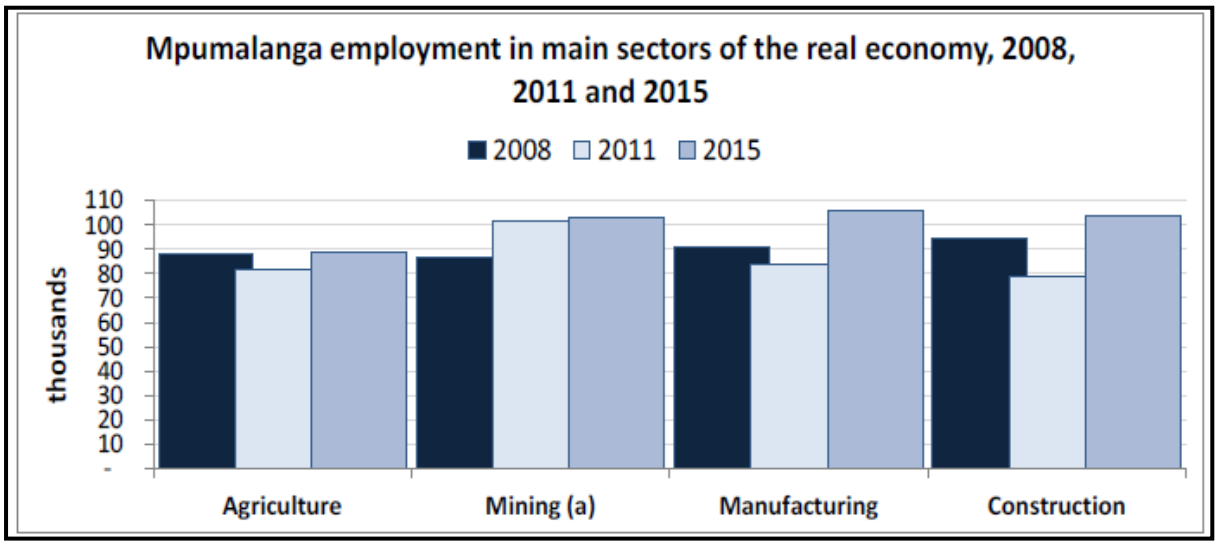
Figure 6: Share of key economic sectors

Employment

In terms of employment, the most important sector was Manufacturing (106 000 workers), followed by Construction (104 000), Mining (103 000) and Agriculture

(89 000). Therefore while Construction and Agriculture only contribute 5.7% towards the real economy, they accounted for 48% of the jobs in the four main sectors in 2015.

As indicated in Figure 7, employment in the all fours sectors increased between 2011 and 2015, with the largest increases in the Manufacturing and Construction sectors. At a national level, Mpumalanga accounted for 6% of South African manufacturing employment. The top five manufacturing industries in the province in terms of employment, were basic iron and steel plus metal products; chemicals and plastic; food and beverages; glass and non-metallic minerals; and clothing, textiles and footwear. In terms of the mining sector, coal mining was the biggest single employer.



Source: Real Economy Bulletin, 2016

Figure 7: Contribution of key sectors to employment

Employment and unemployment

The Census data indicates that 43% of the working-age population in Mpumalanga were employed in 2015, compared to the national figure of around 40%. The international norm is around 60%. The average wages in Mpumalanga was also slightly higher than most other provinces, with the exception of Gauteng and the Western Cape. In 2014, the median formal wage in the province was R4 200 and the median wage for domestic, informal and agricultural workers was R1 800 (Real Economy Bulletin, 2016). This is compared to the national average of R4 000 for formal workers, and R1 500 for other employees. In terms of formal employment, ~ 67% of total employment in the province was in the formal sector, compared to the national average of 69%. The relatively high employment and wage levels in the province have contributed towards in-migration into Mpumalanga. In this regard the population grew 37% from 1996 to 2015, compared to a national average of 35% (Real Economy Bulletin, 2016).

SOCIO-ECONOMIC OVERVIEW OF THE PROJECT AREA

The section below provides a summary of the socio-economic conditions in the Nkangala District Municipality (NDM) and Emalahleni Local Municipality (ELM) based on information contained in the 2011 Census Municipal Fact Sheet.

Demographic information

As indicated in Table 1, the population of the NDM increased from 1 308 129 in 2011 to 1 445 642 in 2016, which represents an increase of ~ 11 % over the 5 year period. The population of the ELM increased from 395 466 in 2011 to 455 228 in 2016, which represents an increase of 15% over the same period. In terms of racial groups, Black

African's made up 90.9 % of the population of the NDM in 2016, followed by Whites (7.7%), Coloureds (0.9%) and Asians (0.7%) in 2016. The figures for the ELM were 86.1% Black African, 11.9 % Whites, 1.2% Coloured and 0.8% Asian. The main languages were Siswati (29.1), followed by IziZulu (28.8%) and IsiNdebele (10.1%)(Community Survey 2016).

The increase in the population in both the NDM and ELM was linked to an increase in the 15-65 and older age groups. The increase in the economically active age group of 15-65 years in the ELM is likely linked to the influx of job seekers to the area from the surrounding rural areas in the province. This is also reflected in the decrease in the dependency ratios in both the NDM and ELM (see below). This highlights the economic importance of the area and towns such as Witbank and Middleburg. As expected, the number of households in both the NDM and ELM increased between 2011 and 2016, increasing from 356 911 to 421 624 in the NDM and 119 874 to 150 420 in the ELM. The size of the household sizes in both areas decreased marginally to 3.4-3.0 in 2016 respectively.

The dependency ratio in both the NDM and ELM decreased from 50.4 to 46 and from 40.4 to 38% respectively. The age dependency ratio is the ratio of dependents, people younger than 15 or older than 64, to the working, age population, those ages 15-64. The decrease represents a positive socio-economic improvement, and reflects a decreasing number of people dependent the economically active 15-64 age group. As indicated above, there has been an increase in the percentage of economically active people in both the NDM and ELM. The dependency ratios for both the NDM and ELM are lower than the provincial and national ratios, which were 56.0 and 52.7 in 2011 respectively.

In terms of percentage of formal dwellings, the number of formal dwellings in the NDM increased decreased from 82.8 % in 2011 to 81.6 in 2016. In the ELM the number of formal dwellings also decreased from 77.2 % to 74.4% for the same period. This is likely to be due the influx of job seekers to the area and the increase in informal dwellings as a percentage of total households.

The 2016 Community Survey does not provide details on unemployment levels. However, as a trend, official unemployment rate in both the NDM and ELM decreased for the ten year period between 2001 and 2011. In the NDM the rate fell significantly from 43.8 to 30.0 %, a decrease of 13.8 %. In the ELM the unemployment rate decreased from 38.4 % to 27.3 %, a decrease of 11.1 %. Youth unemployment in both the NDM and ELM also dropped over the same period. However, the youth unemployment rate in both the NDM and ELM remains high at 39.6 % and 36.0% respectively. The unemployment rate for females in the ELM was 37.1% compared to 20.8% for males. This reflects the dominant role played by the mining sector in the ELM economy (see below).

The education levels in both the NDM and ELM also improved, with the percentage of the population over 20 years of age with no schooling dropping in the NDM decreasing from 11.5 % to 9.3%. For the ELM the decrease was from 5.8 % to 4.9. The percentage of the population over the age of 20 with matric also increased in both the NDM and ELM, from 29.4 % to 36% in the NDM and 38.7 % in the ELM.

Table 1: Overview of key demographic indicators for the NDM and ELM

	NDM		ELM	
ASPECT	**2011**	**2016**	**2011**	**2016**
Population	1 308 129	1 445 642	395 466	455 228
% Population <15 years	28.5	27.3	25.2	24.5
% Population 15-64	66.5	68.6	71.2	72.5
% Population 65+	5.0	4.1	3.6	3.0
Households	356 911	421 624	119 874	150 420
Household size (average)	3.5	3.4	3.2	3.0
Formal Dwellings %	82.8	81.6	77.2	74.4
Dependency ratio per 100 (15-64)	50.4	50.4	40.4	40.4
Unemployment rate (official) - % of economically active population	30	Not available	27.3	Not available
Youth unemployment rate (official) - % of economically active population 15-34	39.6	Not available	36.0	Not available
No schooling - % of population 20+	11.5	9.3	5.8	5.8
Matric - % of population 20+	29.4	36.0	31.4	38.7

Source: Community Survey 2016 and StatsSA Census 2011 Municipal Fact Sheet

Municipal services

As indicated in Table 2, with the exception in of the percentage of households with access to flush toilets, the provision of the other key services measured in terms of weekly refuse removal, piped water and electricity, has decreased in the NDM between 2011 and 2016. The data for the ELM indicates that access to flush toilets and piped water has improved, while refuse removal and electricity for lighting has decreased. This is likely as a result of the influx of job seekers to the area and also poor management that has characterised many local authorities in South Africa in recent years. It is also ironic that the percentage of households in the ELM that use electricity for lighting has decreased given that the ELM is the home of some of the largest coal powers stations in South Africa. The services levels in the ELM are also lower than the national levels for households that use electricity. This is ironic given that the ELM is a key producer of electricity in South Africa.

Table 2: Overview of access to basic services in the NDM and ELM

	NDM		ELM	
	2011	**2016**	**2011**	**2016**
% households with access to flush toilet	48.7	51.0	68.8	70.0
% households with weekly municipal refuse removal	48.3	48.0	67.2	65.0
% households with piped water inside dwelling	40.6	39.0	54.9	56.0
% households which uses electricity for lighting	85.7	85.7	73.4	72.3

Source: Community Survey 2016 and StatsSA Census 2011 Municipal Fact Sheet

Economic overview

The 2006 National Spatial Development Perspective (NSDP) identified Witbank (Emalahleni) as an example of a mass-produced and specialised economic concentration. The NSDP proposed that these areas of national economic significance should be specifically targeted for public policy interventions. The presence of abundant coal has attracted coal mining in the region since the mid nineteenth century and it later became a prime location for the electricity generating industry. The presence of water, transport routes, power and coal then attracted the steel industry and the development of large plants such as those of Highveld Steel and Vanadium Corporation and Ferrometals (see below)(SACN, 2014).

The National Development Plan also identifies Emalahleni for intervention because of its potential for rapid growth and location on a trans-national corridor (the Maputo Development Corridor (SACN 2014). The economic importance of the region has also led the Mpumalanga Provincial Government to investigate the potential development of a steel and metal fabrication hub in the area.

The ELM has over 22 collieries that have created a significant number of jobs. The mining city has expanded rapidly and international companies such as Anglo American, BHP Billiton, Evraz, Eskom, Exxaro Resources, Joy Mining Machinery, Komatsu, the Renova Group, SAB-Miller, SAMANCOR, Shanduka Beverages, Xstrata and Zenith Inc. are among the strategic players.129 There are also a number of power stations, such as the Duvha Power Station and steel mills namely Evraz Highveld Steel and Vanadium Limited which require coal. According to data from Global Insight formal employment in the ELM has risen by about 29% from 73 437 jobs in 1996 to just over 105 000 jobs in 2011, while informal employment has trebled from 7190 jobs in 1996 to nearly 23 000 jobs in 2011 (SACN 2014).

Among the main economic sectors in terms of employment are coal mining, steel manufacturing, energy generation and the retail, wholesale and hospitality sectors.

Coal

Coal mining is the largest industry in Emalahleni, and one of the oldest. The Emalahleni and Highveld coalfields produce in the region of 80% of the country's coal. The mines are owned and operated by a number of large international companies, including Anglo American, Exxaro, Sasol, BHP Billiton and Xstrata. A number of BEE enterprises have also become involved in the sector in recent years. Approximately 75% of local production is used domestically, with the bulk used by Eskom to generate electricity, while exports make up the remaining 25%. The majority of the coal exported is exported to the EU, China and India through the dedicated coal terminal at Richards Bay port.

Steel and iron

Evraz Highveld Steel and Vanadium formed the basis of the steel industry in the area and has been producing steel since 1957. The company's facilities in Emalahleni are designed to combine iron ore with high vanadium content and produce both vanadium and steel. The Ferrometals steel plant owned by SAMANCOR is also located in the ELM. When it was established in 1959 it was one of the largest chrome producing sites in the world.

The iron and steel operations have declined in recent years resulting in job losses. In order to address the issue the Mpumalanga Provincial Government together with the South African Iron and Steel Institute is investigating the establishment of a steel and metal fabrication hub between Emalahleni and Middelburg.

Energy

Most of South Africa's power (over 70%) is derived from coal-burning power stations operated by Eskom which supplies over 84% of the electricity in the country. A number of large coal power stations are located in the ELM. However, many of these power stations are old and emissions pose a threat to the environment and human health.

ANNEXURE D

EXECUTIVE SUMMARY (EXTRACTED FROM 2014 REPORT)

INTRODUCTION AND LOCATION

Savannah Environmental (Pty) Ltd was appointed by Transalloys as the lead consultant to manage the Environmental Impact Assessment (EIA) process for the establishment of the 150 MW Coal Fired Power Plant adjacent to its smelter complex near the town of Emalahleni (Witbank), Mpumalanga Province (Figure 1.1). The smelter is used to produce export grade Siliconmanganese. The proposed power plant is required to meet Transalloys current electricity demands and future expansion requirements.

Tony Barbour Environmental Consulting was appointed by Savannah to undertake a specialist Social Impact Assessment (SIA) as part of an Environmental Impact Assessment (EIA) process. This report contains the findings of the SIA undertaken as part of the EIA process.

PROJECT DESCRIPTION

The proposed power plant will make use of Circulating Fluidised Bed (CFB) boiler technology which allows for the use of low-grade coal and coal discards, to be sourced from various coal mines in the area. A detailed description of the technology is provided in the main report.

Based on the information provided by Transalloys the construction phase is expected to extend over a period of 34 months and create approximately 1 500 employment opportunities. The operational phase will employ approximately 90 people full time for a period of up to 25 years or more. The capital expenditure associated with the construction of the proposed 150 coal power station is estimated in the US$ 345 million (~R 3.8 billion, exchange rate of 1US$: R 11.00).

APPROACH TO THE STUDY

The approach to the SIA study is based on the Western Cape Department of Environmental Affairs and Development Planning Guidelines for Social Impact Assessment (February 2007). These guidelines are based on international best practice. The key activities in the SIA process embodied in the guidelines included:

- Review of demographic data from the 2011 Census Survey;
- Review of relevant planning and policy frameworks for the area;
- Site specific information collected during the site visit to the area and interviews with key stakeholders;
- Review of information from similar projects; and
- Identification of social issues associated with the proposed project.

SUMMARY OF KEY FINDINGS

The key findings of the study are summarised under the following sections:

- Fit with policy and planning;
- Construction phase impacts;
- Operational phase impacts;
- Cumulative Impacts;
- Decommissioning phase impacts;

- No-development option.

FIT WITH PLANNING[1]

The key documents reviewed included:

- Beneficiation strategy for the minerals industry of South Africa (2011);
- The National Development Plan (2011);
- Mpumalanga Provincial Growth and Development Strategy (2004-2014);
- Emalahleni Municipality Integrated Development Plan (2013/2014)

The findings of the review indicates that the proposed 150 MW coal fired power station is required to meet the current and future energy needs of the beneficiation operations associated with Transalloys smelter which produces export grade Siliconmanganese. The proposed project also support a number of objectives set out in the NDP, specifically the involvement of the private sector in the supply of energy. At a provincial and municipal level the proposed project supports economic growth and development, both of which are key objectives identified in the MPGDS and ELM IDP. The proposed development therefore supports and is supported by the key relevant policy and planning documents.

CONSTRUCTION PHASE
The key social issues associated with the construction phase include:

Potential positive impacts
- Creation of employment and business opportunities, and opportunity for skills development and on-site training;

The construction phase will extend over a period of 34 months and create ~ 1 500 employment opportunities. Of this total ~50 % (750) of the employment opportunities will be for high skilled workers, 30% (450) for semi-skilled and 20% (300) for low skilled workers. The total wage bill for the project will be in the region of US$ 121 million (~ R 1.3 billion, exchange rate of 1US$: R 11.00). Given the well-developed energy and mining sector in the area members from the local community in the area are likely to be in a position to qualify for the majority of the skilled, semi-skilled and low skilled and semi-skilled employment opportunities associated with the project. The majority of the semi-skilled and low skilled employment opportunities are likely to accrue to Historically Disadvantaged (HD) members from the local ELM community. This would represent a significant positive social benefit in an area with high unemployment levels. In order to maximise the potential benefits Transalloys should, where possible, commit to employing local community members to fill the low and medium skilled jobs.

The capital expenditure associated with the construction of the proposed 150 MW coal power station is estimated in the US$ 345 million (~R 3.8 billion, exchange rate of 1US$: R 11.00). Material procurement is estimated to account for approximately 40% of the total EPC cost. Of this approximately 40% (US$ 138 million) will be local or "in country" purchases and 60% (US$ 207 million) will be imported. The US$ 138 million (~R 1.5 billion) associated with local spend project will therefore create significant opportunities for local businesses and suppliers. Given the dominant role played by the energy and mining sector there are likely to be a number of suitably qualified and experienced local engineering companies and contractors in the ELM.

[1] Additional documents have been reviewed in preparing the Addendum Report, including the ELM SDF (2014).

The local service sector will also benefit from the project. The potential opportunities for the local service sector would be linked to accommodation, catering, cleaning, transport and security, etc. associated with the construction workers. The benefits to the local economy will be confined to the construction period (34 months).

Potential negative impacts

- Impacts associated with the presence of construction workers on local communities;
- Impacts related to the potential influx of job-seekers;
- Impacts, such as noise, dust and safety, associated with the movement of construction related traffic;
- Impacts, such as noise, dust and safety, associated with construction related activities;

The findings of the SIA indicate that the significance of the potential negative impacts with mitigation was assessed to be of Low Negative significance. The majority of the potential negative impacts can therefore be effectively mitigated if the recommended mitigation measures are implemented. In addition, given that the majority of the low and semi-skilled construction workers can be sourced from the local area the potential risk posed by construction workers to local family structures and social networks is regarded as low. However, the impact on individuals who are directly impacted on by construction workers (i.e. contract HIV/ AIDS) was assessed to be of Medium-High negative significance.

Table 1 summarises the significance of the impacts associated with the construction phase.

Table 1: Summary of social impacts during construction phase Impact	**Significance No Mitigation**	**Significance With Mitigation**
Creation of employment and business opportunities	Medium (+)	High (+)
Presence of construction workers and potential impacts on family structures and social networks	Low (-) for community as a whole) Medium-High (-) for individuals)	Low (-) for community as a whole) Medium-High (-) for individuals)
Influx of job seekers	Low (-)	Low (-)
Impacts associated with construction related traffic	Medium (-)	Low (-)
Impacts associated with construction related activities (dust and noise)	Medium (-)	Low (-)

OPERATIONAL PHASE

The key social issues affecting the operational phase include:

Potential positive impacts

- Creation of employment and business opportunities. The operational phase will also create opportunities for skills development and training;
- Market for lower grade coal;
- The establishment of additional energy supply infrastructure.

The total number of permanent employment opportunities is estimated to be in the region of90. Of these 32 will be in Operations, 44 in Technical Services and 10 in Administration. The majority of skills will be high and semi-skilled. It will be possible to maximise the number of local employment opportunities through the implementation of a skills development and training programme linked to the operational phase. Such a programme would support the strategic goals of promoting employment and skills development contained in the ELMIDP.

The 150 MW coal power station will consume between 700 000 to 800 000 tons of coal per year. The implementation of Circulating Fluidised Bed (CFB) boiler technology will also enable the power station to use lower grade coal. The proposed project will therefore create a valuable opportunity to use lower grade coal which is currently stockpiled at existing coal mines in the area.

The energy challenges faced by South Africa since 2010 have impacted negatively on the country's economic performance and its ability to attract investment. By establishing their own energy generation capacity Transalloys are not only addressing their own needs, but are also reducing the future energy demand on Eskom, which, in turn creates benefits for other energy users in South Africa. The involvement of the private sector in the supply of energy is also supported by the NDP.

Potential negative impacts

- Impact on air quality;
- Traffic related impacts;
- The visual impacts and associated impact on sense of place;

The Air Quality Impact Assessment (Airshed, November 2014) found that the proposed Transalloys coal-fired power project is located within the Highveld Priority Area (HPA), which is an area that has been identified as characterized with poor air quality. The main pollutant of concern in the region is particulate matter, specifically PM10 (Thoracic Particulate Matter) and PM2.5 (Inhalable Particulate Matter) and sulphur dioxide (SO2). In terms of impacts during the operational phase the main area of concern identified was the boiler stacks, various materials handling operations (loading, tipping and off-loading of coal and ash), conveyor transfer points, vehicle entrainment on internal roads and wind erosion from exposed storage piles and the ash storage facility.

The findings of the Air Quality Assessment indicate that although basic mitigation measures are possible to address fugitive dust emissions (such as dust suppression with water) the significance of potential inhalation health impacts associated with of PM2.5, PM10 and NO2 with mitigation was assessed to be ***Medium Negative***. The significance of dustfall, with basic mitigation measures is ***Low Negative.*** Simulated CO, SO2 and VOC (Volatile Organic Compounds) concentrations are very minimal with impact significance ratings expected to be ***Low Negative***. Based on the findings of the study the proposed project is supported on condition that the recommended management plan and associated mitigation measures are implemented.

The findings of the Traffic Impact Assessment indicate that during the operational phase the project is expected to generate 92 truck trips per day, of which 79 will be coal trucks and 13 limestone trucks. The study also found that all of the intersections associated with the relevant access road in the study area currently require upgrades irrespective of the traffic generated by the proposed development (construction and operational). Once the current recommended improvements are in place the intersections would be able to accommodate current and medium term future traffic projections (without the proposed development). The findings of the TIA also indicate that the up-graded intersections would also be able to accommodate the medium term future operational trips generated by the proposed development.

The development of a 150 MW coal-fired power station, including the emission stack and ash dumps, will have a visual impact on the area. The landscape in the area has however been disturbed by the existing Transalloys facility, the Evraz Steel and Vanadium smelter located ~5 km to the north west of the site and a number of large coal power stations and the associated transmission lines. The impact of the proposed Transalloys coal power station on the areas sense of place is therefore likely to be low.

The significance of the impacts associated with the operational phase are summarised in Table 2.

Table 2: Summary of social impacts during operational phase Impact	**Significance No Mitigation**	**Significance With Mitigation**
Creation of employment and business opportunities	Medium (+)	Medium (+)
Market for low grade coal	Medium (-)	High (+)
Establishment of additional power generation infrastructure	Medium (-)	Medium (+)
Impact on air quality	Medium (-)	Low-Medium (-)
Impact associated with traffic	Medium (-)	Low (-)
Visual impact on sense of place	Low (-)	Low (-)

CUMULATIVE IMPACTS

The potential cumulative impacts associated with the proposed Transalloys coal power station include impact on ambient air quality, impact on traffic and impact on sense of place. The impact on ambient air quality is likely to be the most significant issue, specifically given that the site is located within the HPA. As indicated above the impact of the operational phase on traffic with mitigation will be limited. The cumulative impact on the areas sense of place will also be mitigated by the fact that the site is located in an established mining and power generation area.

The findings of the air quality assessment indicate that the significance of potential inhalation health impacts associated with of PM2.5, PM10 and NO2 with mitigation was assessed to be ***Medium Negative***. The significance of dustfall with basic mitigation is ***Low Negative***. Simulated CO, SO2 and VOC concentrations are very minimal with impact significance ratings expected to be ***Low Negative.*** Based on the findings of the air quality assessment the cumulative impact of the proposed Transalloys 150 MW coal power station on ambient air quality is likely to be Low to Moderate Negative.

NO-DEVELOPMENT OPTION

The No-Development option would represent a lost opportunity to develop an additional energy source to meet the growing demand for energy in South Africa. The No-Development option would also result in a lost opportunity to implement Circulating Fluidised Bed (CFB) boiler technology, which, in turn, would create an opportunity to Transalloys Coal Fired Power Station utilise the low grade coal stockpiles and deposits in the area. In addition the 1 500 construction jobs and 90 operational jobs would be forgone. Likewise the socio-economic benefits associated with locally based capital expenditure and wage spend would be lost. The No-Development option is therefore not supported from a socio-economic perspective.

DECOMMISSIONING PHASE

The No-Development option would represent a lost opportunity to develop an additional energy source to meet the growing demand for energy in South Africa. The No-Development option would also result in a lost opportunity to implement Circulating Fluidised Bed (CFB) boiler technology, which, in turn, would create an opportunity to

utilise the low grade coal stockpiles and deposits in the area. In addition the 1 500 construction jobs and 90 operational jobs would be forgone. Likewise the socio-economic benefits associated with locally based capital expenditure and wage spend would be lost. The No-Development option is therefore not supported from a socio-economic perspective.

CONCLUSIONS AND RECOMMENDATIONS

The findings of the SIA indicate that the development of the proposed Transalloys 150 MW coal fired power station will create employment and business opportunities for locals during both the construction and operational phase of the project. The significance of this impact is rated as High Positive. The implementation of Circulating Fluidised Bed (CFB) boiler technology will also enable the power station to use lower grade coal. The proposed project will therefore create a valuable opportunity to use lower grade coal which is currently stockpiled at existing coal mines in the area. By establishing their own energy generation capacity Transalloys are not only addressing their own needs, but are also reducing the future energy demand on Eskom, which, in turn creates benefits for other energy users in South Africa.

However, the impact on the ambient air quality in the Highveld Priority Area is an issue that will need to be addressed. In this regard the recommendations contained in the Air Quality Assessment should be implemented. In addition, the intersection up-grades identified in the Traffic Impact Assessment will need to be undertaken prior the commencement of the construction phase.

IMPACT STATEMENT

The findings of the SIA undertaken for the proposed Transalloys 150 MW coal fired power station indicate that the development will create employment and business opportunities for locals during both the construction and operational phase of the project. It is therefore recommended that the facility as proposed be supported, subject to the implementation of the recommended mitigation measures and management actions contained in the SIA and other specialist reports.