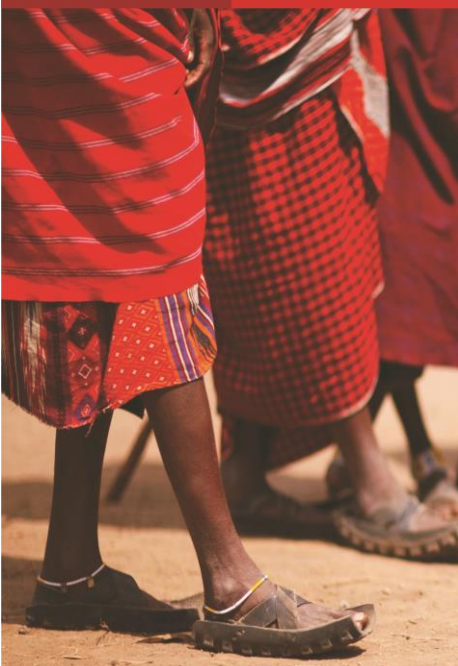


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Environmental Impact Assessment for the Sasol Syferfontein Colliery Block IV Expansion Project, Mpumalanga

Social Impact Assessment

Project Number:

SAS1744

Prepared for:

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EXECUTIVE SUMMARY

This document presents the results of the Social Impact Assessment (SIA) for the proposed Sasol Syferfontein Colliery Block IV Expansion project (proposed project) near the town of Kinross in Mpumalanga Province, South Africa. The terms of reference for this study are:

- Describe the baseline social environment in the project's area of impact;
- Identify, describe and rate the significance of social impacts that may result from the proposed project; and
- Develop feasible, practical and cost-effective mitigation and enhancement measures to ameliorate the significance of negative social impacts and enhance the benefits of positive social impacts.

Methodology

The study was designed to comply with the relevant national legislative requirements, such as those stipulated in National Environmental Management Act, 1998 (Act No. 107 of 1998) (NEMA) and Mineral and Petroleum Resources Development Act, 2002 (MPRDA) (Act No. 28 of 2002). The activities undertaken as part of the assessment comprised the following:

- Defining the primary and secondary study areas for the proposed project;
- Data collection, including a desktop review, investigative site visit, interviews with key informants, and a review of information from other specialist studies;
- The compilation of a baseline profile detailing the socio-economic characteristics of the respective study areas in which the proposed project is to be situated;
- Assessment of impacts (including cumulative impacts) on the basis of issues identified through specialist opinion and interviews with key informants. Identified impacts were categorised in terms of the project phase in which they are most likely to originate, namely the construction, operational or decommissioning phases;
- Rating of impacts in terms of their anticipated duration, extent, intensity and probability. Duration, extent and intensity ratings were combined into a measure of an impact's expected consequence. Consequence ratings, in turn, were combined with probability ratings to give a measure of an impact's overall significance;
- Identification of appropriate mitigation measures to avoid or ameliorate negative social impacts and to enhance positive ones. The rating procedure described above was then repeated to assess the expected consequence, probability and significance of each impact after mitigation. This post-mitigation rating gives an indication of the significance of residual impacts, while the difference between an impact's pre-and post-mitigation ratings therefore represents the degree to which the recommended mitigation measures are expected to be effective in reducing or ameliorating that impact;

-
- Formulating recommendations regarding the identified mitigation and enhancement measures, as well as other general recommendations that may aid the successful implementation of the proposed project.

Baseline Socio-Economic Profile

The table below provides a summary of the baseline profile of study area in which the proposed project is to be situated; it highlights features and trends within both the secondary and primary study areas that might have relevance for Sasol Mining in terms of possible opportunities/ benefits and constraints/ challenges. As indicated in the second column of the table, several attributes apply for both study areas, whereas certain aspects are unique to the primary study area.



Summary of the socio-economic baseline profile

Socio-economic attribute	Supporting data	Relevance to the project
Opportunities and benefits		
District and Local development plans are in place	Local and district Municipal IDPs, LED plans, and SDFs are readily available	Opportunity for Sasol Mining to align future socio-economic development programmes or SLPs (if any) with existing municipal development plans; this will increase sustainability and relevance of initiatives.
Most people only have a relatively basic skill level	Only 32% of the GMLM and 31% of the GSDM have some secondary education; those within the more rural outskirts of the secondary study area tend to have even lower levels of education	Opportunity for Sasol Mining to contribute to community development through skills development programmes during construction and operational phases
Mining is the dominant sector in the GSDM	Mining and quarrying sector employed the largest number of people in the GMLM (22%); Mining is the primary contributor to regional economy at 28%	Procurement could potentially be from suppliers located within the GMLM who are currently servicing mines in the area
Large potential labour force	The youth comprises the largest age cohort in the local municipality (39%); high unemployment, especially among rural households	Sasol Mining can likely meet any local recruitment targets for semi-unskilled positions
Shortage of services (water, electricity, housing, etc.)	Field investigations and GMLM IDP: <ul style="list-style-type: none"> • Holfontein, an informal settlement 4km north-west of the proposed project, has almost no municipal services • Rural households within the primary study area mostly rely on pit toilets for sanitation purposes • Clinics in the surrounding towns is often short staffed, and lack supplies • Several secondary roads are heavily deteriorated, partially due to heavy motor vehicle (HMV) traffic. 	Provides opportunities to make a significant contribution to local development as part of Local Economic Development (LED) (but may also hinder the productivity of the local workforce). In this regard Sasol could continue to collaborate with existing municipal SLP and LED forums



Socio-economic attribute	Supporting data	Relevance to the project
Gender disparity in employment rates – financial vulnerability among females	StatsSA (2011) - Unemployment amongst females is significantly higher than males at both municipal levels. Furthermore, when women do generate income, it is likely to be through the informal sector and of a survivalist nature	Sasol Mining could contribute to gender equity by implementing female employment targets – this requirement, if feasible, could be formalised by incorporating it into the construction contractor's conditions of contract.
Constraints or challenges		
Concerning HIV/AIDS prevalence rates	41% in GSDM; 36% in GMLM; Prostitution is a major problem	A considerable proportion of the potential workforce might be affected by this condition; project related influx may exacerbate the situation
Population influx	Field investigation - Establishment and growth of several informal settlements within/surrounding the primary study area, likely as a result of people from across the district and other parts of the country migrating to GMLM in search of job opportunities	Project-induced population influx will add to existing influx, placing increased pressure on available local resources, services and facilities Although this indicates a relatively large available labour force, it might complicate local recruitment, as migrants will be perceived as outsiders
The land area which will be mined host several residential and agricultural land uses, including Kinross town	Field investigations	Sasol Mining should consider the financial risk of subsidence, as significant subsidence will likely effect surface land uses, which could result in compensation and/or resettlement related costs
The most dominant land use within the proposed mining right area is agricultural activities.	GMLM and Field investigations	Agricultural activities may potentially be directly affected by the proposed project, if subsidence significantly decreases borehole yields this would likely result in some stakeholder issues which could impact on the progress of the MRA

Predicted Impacts and Recommended Mitigation Measures

The anticipated socio-economic impacts of the proposed project, their consequence, probability and significance ratings, as well as recommended mitigation measures are summarised in the table below.



Summary of impacts, impact ratings and recommended mitigation measures

Code	Impact	Pre-mitigation:						Recommended mitigation	Post-mitigation:					
		Duration	Extent	Intensity	Consequence	Probability	Significance		Duration	Extent	Intensity	Consequence	Probability	Significance
JobConstr	Job creation during construction	Short term	Local	Low - positive	Slightly beneficial	Probable	Negligible - positive	<ul style="list-style-type: none"> - Recruitment to be coordinated through the DoL - Provide local employees with reference letters certificates of completion for in-house (on-the-job) training - Promotion of female and youth employment - Effective implementation of training and skills development initiatives - Monitoring subcontractors in terms of local employment targets - Labour-intensive construction methods should be promoted - Consult neighbouring business enterprises to determine if they would be willing to make their skills registers/ databases 	Short term	Local	Moderately high - positive	Slightly beneficial	Highly probable	Minor - positive
MutiEcon	Multiplier effects on the local economy	Project Life	Regional	Moderate - positive	Moderately beneficial	Probable	Minor - positive	<ul style="list-style-type: none"> - As for maximising employment benefits. Also: - Give preference first to capable local subcontractors - Align skills development and ESD to build capacity of local SMMEs - Development of a register of local SMMEs - Linkages with skills development/ SMME development institutions and other mining operations - SMME skills development as part of mine SLP/LED commitments - Create synergies with other mining/electricity enterprises' LED/CSR projects - Include measures conducive to LED within SLP (e.g. upgrading infrastructure, poverty eradication and welfare projects, empowerment of local black businesses, portable skills development etc.) 	Project Life	Local	Very high - positive	Highly beneficial	Highly probable	Moderate - positive
IncComm disease	Increase in spread of communicable diseases and social	Beyond project life	Local	Very high - negative	Highly detrimental	Highly probable	Moderate - negative	<ul style="list-style-type: none"> - Compilation of Influx management Plan - Discourage influx of job-seekers by prioritising employment of unemployed members of local communities. - Enforcing local employment targets for contractors - Liaise with GMLM to ensure that expected population influx is taken into account in infrastructure development planning. - Create synergies with local government IDP and 	Beyond project life	Local	Moderate - negative	Moderately detrimental	Probable	Minor - negative



Code	Impact	Pre-mitigation:						Recommended mitigation	Post-mitigation:					
		Duration	Extent	Intensity	Consequence	Probability	Significance		Duration	Extent	Intensity	Consequence	Probability	Significance
	pathologies							other companies' SLP/CSR projects -Extensive HIV/ AIDS awareness and general health campaign - Identify if recorded criminal activities (e.g. rape, housebreaking and stock theft) involved members of the mine's workforce - Clear identification of workers; prevention of loitering - Liaison with police, community policing forum						
Press Local Serv	Increased pressure on local services / resources	Project Life	Regional	Moderate - negative	Moderately detrimental	Likely	Minor - negative	- Liaison with district and local municipalities well in advance to ensure needs are met - Ensure that municipalities take into account expected population influx - Promotion of mining methods to allow for surface development -Influx management	Medium term	Local	Low - negative	Slightly detrimental	Probable	Negligible - negative
Grwth Inf Settlements	Establishment and growth of informal settlements	Project Life	Regional	Very high - negative	Highly detrimental	Likely	Moderate - negative	-Mitigation measures recommended in Section 6.2.4 to discourage influx - Promote projects providing housing, especially low cost housing	Medium term	Local	Moderate - negative	Slightly detrimental	Probable	Minor - negative
Conflict	Conflict/ competition between newcomers and incumbent population	Medium term	Limited	High - negative	Moderately detrimental	Probable	Minor - negative	-Measures to mitigate population influx and local recruitment (See Sections 4.2.1 and 4.2.4)	Medium term	Limited	Low - negative	Slightly detrimental	Unlikely	Negligible - negative
Construct H&S	Construction-related health and	Short term	Limited	High - negative	Slightly detrimental	Probable	Minor - negative	-Traffic control - Road maintenance - Community education	Short term	Very limited	Moderate - negative	Slightly detrimental	Probable	Negligible - negative

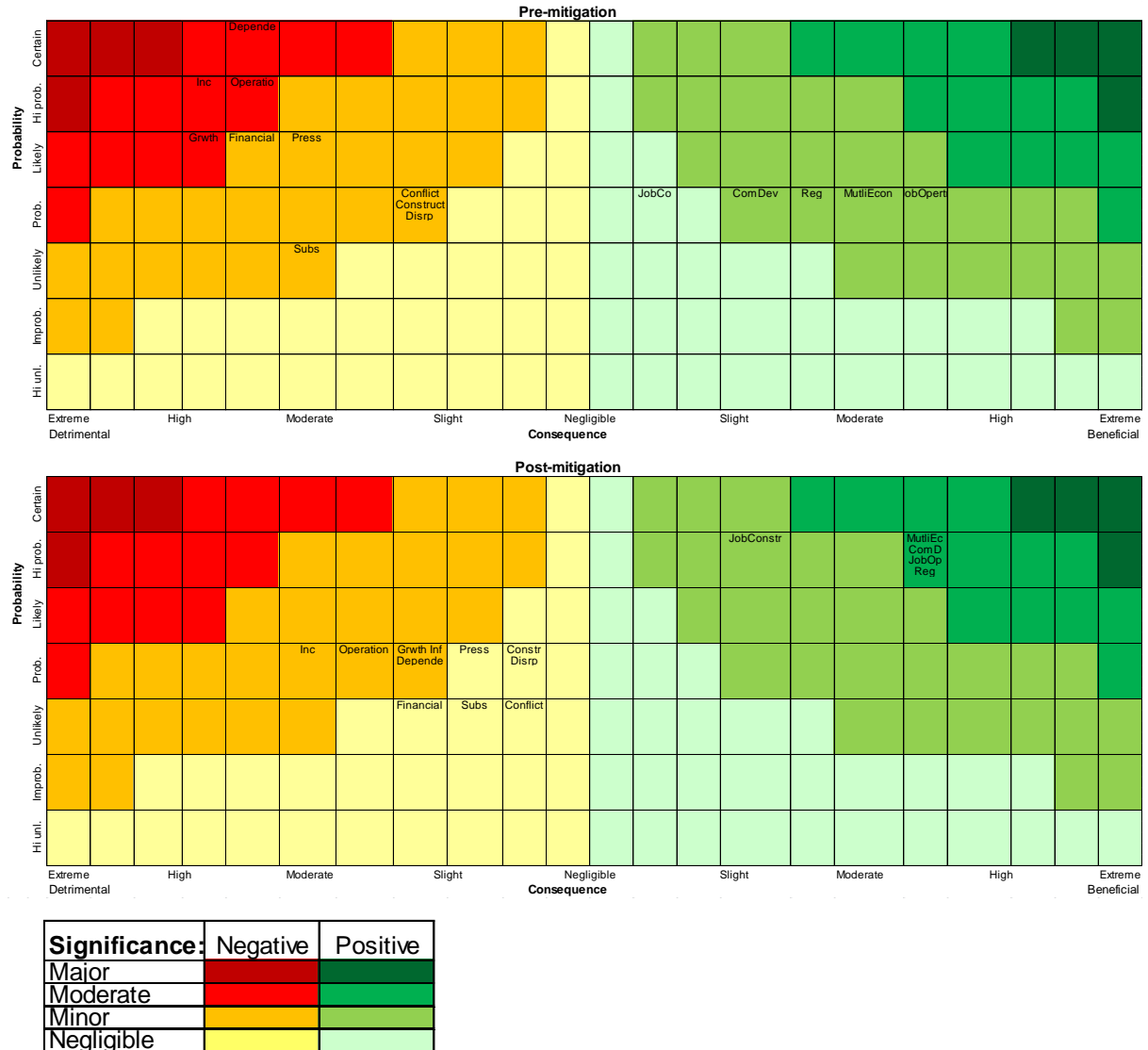


Code	Impact	Pre-mitigation:						Recommended mitigation	Post-mitigation:						
		Duration	Extent	Intensity	Consequence	Probability	Significance		Duration	Extent	Intensity	Consequence	Probability	Significance	
	safety impacts														
Disrp Move	Disruption of daily movement patterns	Medium term	Limited	Moderately high - negative	Slightly detrimental	Probable	Minor - negative	-Measures to alleviate traffic problems suggested Section 4.2.9	Short term	Limited	Low - negative	Slightly detrimental	Probable	Negligible - negative	
Financial imp	Potential financial implication for commercial crop farmers	Project Life	Limited	Very high - negative	Moderately detrimental	Likely	Minor - negative	-Water subsidising program - Monitor borehole yields and suitability of water for irrigation in the primary study area - Recommendations contained in the Project's EIA and EMP - Establish efficient channels of communication with surrounding farmers to promote the early identification of any water quality and quantity problems	Project Life	Limited	Low - negative	Slightly detrimental	Unlikely	Negligible - negative	
JobOper tn	Job creation during operation through continuance of current employment	Project Life	Local	High - positive	Moderately beneficial	Probable	Minor - positive	- As for construction phase - Section 5.2.1.2	Project Life	Local	Very high - positive	Highly beneficial	Highly probable	Moderate - positive	
Reg EconDev	Regional economic development	Project Life	Regional	Low - positive	Moderately beneficial	Probable	Minor - positive	-Measures recommended to maximise benefits from local employment, economic multiplier effects, as well as community, economic and skills development	Beyond project life	Regional	Moderately high - positive	Highly beneficial	Highly probable	Moderate - positive	
ComDev	Community development induced by LED	Long term	Local	Low - positive	Slightly beneficial	Probable	Minor - positive	-Assuring stakeholder buy-in and participation - Aligning LED and CSI initiatives with those of other development role-players	Beyond project life	Local	Moderately high - positive	Moderately beneficial	Highly probable	Moderate - positive	



Code	Impact	Pre-mitigation:						Recommended mitigation	Post-mitigation:						
		Duration	Extent	Intensity	Consequence	Probability	Significance		Duration	Extent	Intensity	Consequence	Probability	Significance	
	and Skills development														
Depend	Depend ency on mine for sustaini ng local econom y	Long term	Local	Very high - negative	Moderately detrimental	Certain	Moderate - negative	-Develop alternative and sustainable livelihoods - Collaborate with other mines, working through the the GSDM and GMLM and relevant government agencies, to support the diversification of the local economy - The Mine's SLP should provide strategies and measures that prevent job loss - Alternatives to save jobs/avoid downscaling should be investigated beforehand - Develop a Mine Closure Plan - Proactively assess and manage the social and economic impacts on individuals, regions and economies where retrenchment and/or closure of the mine are certain -Partner with the relevant government departments, to jointly manage Closure process	Long term	Local	Moderate - negative	Moderatel y detrimenta l	Probable	Minor - negative	
Operatio	Operati on- related health and safety impacts	Long term	Local	Very high - negative	Moderately detrimental	Highly probable	Moderate - negative	- Measures for construction phase health and safety impacts see Section 5.2.7.2 -Continuation of existing occupation health and safety policies	Long term	Local	Moderatel y high - negative	Moderatel y detrimenta l	Probable	Minor - negative	
Subs Impacts	Potentia l subsidi nce related impacts	Project Life	Limited	High - negative	Moderately detrimental	Unlikely	Minor - negative	-Undertake rock engineering and geotechnical studies; - Stakeholder communication and objective monitoring; and - Contingency measure for compensation for any livelihood or impacts	Long term	Limited	Low - negative	Slightly detrimenta l	Unlikely	Negligible - negative	

The pre- and post-mitigation significance ratings assigned to identify impacts are graphically represented in the figure below. In this figure, the entries in the various coloured cells correspond to the codes given for impacts in the first column of the foregoing table.



Graphical representation of consequence, probability and significance ratings

Assessment of Alternatives

It is a requirement in terms of current environmental legislation that practical project alternatives be considered during impact assessment. The most pertinent project alternative in the case of this project is the **no-go alternative**. The approach adopted in the assessment of impacts in this study entailed a comparison between anticipated future socio-economic conditions, with and without the project. Hence the no-go alternative would

essentially imply that none of the impacts described above would materialise, and that socio-economic conditions in the study area would continue to display the characteristics and trends described in the socio-economic baseline profile.

Conclusions and Recommendations

The results of the study indicate that the recommended mitigation measures are expected to reduce the significance of negative impacts to acceptable levels, while positive impacts will on average be significantly enhanced to maximise benefits to surrounding communities.

The main conclusion arising from the assessment of cumulative impacts is that the most significant cumulative impacts are expected to arise because of the combined effects of the proposed project and other, existing and planned mining operations in the area. These cumulative impacts relate to the large-scale rather than site-specific impacts associated with a concentration of mining and other industrial projects – namely their tendency to dominate the local economy, thereby causing the local economy to become increasingly dependent on mines that inevitably have a finite lifespan, and their tendency to trigger human influx into an area, which can have significant impact on services.

The study also indicates that the establishment of linkages between Sasol Mining Pty (Ltd) (Sasol Mining) and other institutions involved in local and regional economic development and social upliftment will serve to maximise the benefits of the project's contribution to the welfare of local communities. Examples of initiatives that offer opportunities for linkages and synergy include municipal Local Economic Development projects, initiatives by other mining houses in the area, and activities by civil society and non-governmental organisations. It is suggested that Sasol Mining's Corporate Social Investment (CSI) or community development arm should where possible liaise with CSI and socio-economic development departments of these institutions to gauge whether they can align or synergize with any of their efforts to collaborate in some of the development initiatives planned for the area.

Throughout the SIA process, the specialist identified a number of risks that warrant particular attention and close monitoring and management by the proponent when implementing the proposed project. These risks include:

- Community expectations regarding employment; and
- Failure to acquire a social licence to operate.

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LIST OF APPENDICES

Appendix A: Curriculum Vitae of specialist

ABBREVIATIONS AND ACRONYMS

AsgiSA	Accelerated and Shared Growth Initiative for South Africa
BBBEE	Broad-based Black economic empowerment
BEE	Black Economic Empowerment
CBD	Central Business District
CRDP	Comprehensive Sustainable Rural Development Programme
CSI	Corporate Social Investment
DMR	Department of Mineral Resources
DoL	Department of Labour
EGDP	Economic, Growth and Development Plan
EIA	Environmental Impact Assessment
EMP	Environmental Management Programme
ESD	Enterprise and Supplier Development Department
FET	Further Education and Training
GPS	Global Positioning System
GDP	Gross Domestic Product
GMLM	Govan Mbeki Local Municipality
GSDM	Gert Sibande District Municipality
Ha	Hectare
HAART	Highly Active Antiretroviral Therapy
HDI	Human Development Index
HDSA	Historically Disadvantaged South Africans
HIV/AIDS	Human Immunodeficiency Virus/ Acquired Immune Deficiency Syndrome
HMV	Heavy Motor Vehicles
HRD	Human Resources Development
IDP	Integrated Development Plan
IFC	International Finance Corporation
KAP	Knowledge, Attitude and Practice
Km	Kilometre
LED	Local Economic Development
LM	Local Municipality
LoM	Life of Mine
MI	Mega litre
MPRDA	Mineral and Petroleum Resources Development Act
MRA	Mining Right Application
Mt/a	Million tonnes per annum
MWP	Mining Work Programme
NCD	Non-communicable diseases
NDP	National Development Plan



NEMA	National Environmental Management Act
NGOs	Non-governmental Organisation
NPC	National Planning Commission
NSDP	National Spatial Development Plan
PGDS	Provincial Growth and Development Strategy
PPP	Public participation process
PSDF	Provincial Spatial Development Framework
RO	Reverse Osmosis
RoM	Run of Mine
SA	South Africa
SDF	Spatial Development Framework
SERO	Socio-economic Review and Outlook
SHARP	Sasol HIV/Aids Response Programme
SIA	Social Impact Assessment
SIP	Safety improvement plan
SIPs	strategic integrated projects
SLP	Social and Labour Plan
SMMEs	Small, Medium and Micro-sized Enterprises
SSC	Sasol Syferfontein Colliery
StatsSA	Statistics South Africa
STD	Sexually Transmitted Diseases
TB	Tuberculosis
ToR	Terms of Reference
VCT	Voluntary Counselling and Testing
WHO	World Health Organisation

1 Introduction

Sasol Mining (Pty) Ltd (Sasol Mining) is the holder of various mining rights in respect of collieries supplying coal to its Secunda Operations. To ensure that the Secunda Synfuel Complex remains operational for the next forty years and beyond, Sasol Mining has devised a strategy to expand or replace its current collieries. As part of this strategy, Sasol Mining plans to expand its existing Sasol Syferfontein Colliery by applying for a Mining Right in terms of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002) (MPRDA) to mine the Number 4 lower coal seam in the Syferfontein Block IV coal reserves (the proposed project). An Environmental Impact Assessment (EIA) will be submitted together with this application.

Digby Wells Environmental (Digby Wells) was commissioned by Sasol Mining to undertake the EIA for the proposed project. This report is the outcome of the Social Impact Assessment (SIA), which is one of nine specialist assessments that were undertaken as part of the EIA. The other specialist studies are as follows:

- Noise assessment;
- Soil assessment;
- Surface water assessment;
- Geo-hydrological assessment;
- Fauna and Flora assessment;
- Aquatic assessment;
- Wetlands assessment; and
- Heritage assessment

1.1 Terms of reference for the study

The terms of reference (ToR) for this study are to:

- Describe the baseline social environment in the project's area of impact;
- Identify, describe and rate the significance of social impacts that may result from the proposed project; and
- Develop feasible, practical and cost-effective mitigation and enhancement measures to ameliorate the significance of negative social impacts and enhance the benefits of positive social impacts.

1.2 Policy and legal framework

This section is dedicated to the legislative framework relevant to the project. It commences with a discussion of the South African legislation that have a bearing on the project. This is followed by a summary of policies, plans and strategies pertaining to national, provincial,

district and local development. The section includes an overview of relevant International Finance Cooperation's (IFCs) performance standards and human rights guidelines, as well as an overview of the Sasol Mining's corporate policies and plans.

1.2.1 National policies and legislation

The following sections provide a brief overview of South African legislation that either directly or indirectly refers to the 'social' responsibility of project proponents.

1.2.1.1 The South African Constitution

The proposed project has to comply with South African constitutional and common law by conducting their construction, operational and closure activities with due diligence and care for the rights of others. Section 24 (a) of the South African Constitution states that everyone has the right to an environment that is not harmful to his or her health and well-being. This supersedes all other legislation.

1.2.1.2 National Environmental Management Act, 1998 (NEMA)

This Act provides that sustainable development requires the integration of social, economic and environmental factors in the planning, implementation and evaluation of decisions so as to ensure that development serves present and future generations. The Act further sets out the process for public participation.

1.2.1.3 Mineral and Petroleum Resources Development Act, 2002 (MPRDA)

Upon the acceptance of an application for a mining right, the applicant is required to prepare an Environmental Management Programme (EMP) in accordance with requirements of the MPRDA, to mitigate both bio-physical and social impacts of the proposed development.

The MPRDA requires that mining companies assess the social impacts of their activities from start to closure and beyond. Companies must develop and implement a comprehensive Social and Labour Plan (SLP) in order to promote socio-economic development in their host communities and to prevent or lessen negative social impacts.

It is a requirement of the MPRDA that the mine SLP shall ensure, amongst others, training and career progression of its employees, and in particular, Historically Disadvantaged South Africans (HDSAs), as well as the participation of women in mining.

The MPRDA furthermore requires that the SLP provide strategies and measures that could prevent job loss in the event of circumstances threatening guaranteed employment. These include the establishment of "Future Forums" to manage downscaling and retrenchments. Certain processes must be followed when economic conditions cause the profit-to-revenue ratio of a mine to drop below 6% on average for a continuous period of 12 months, or where the above scenarios occur.

1.2.1.4 South African Mining Charter

The Mining Charter focuses on sustainable transformation of the mining industry. Social management and mitigation measures to be developed as part of the SIA will be aligned to the Mining Charter. The Mining Charter seeks to achieve the following objectives:

- Promote equitable access to the nation's mineral resources to all the people of South Africa;
- Substantially and meaningfully expand opportunities for HDSAs to enter the mining and minerals industry and to benefit from the exploitation of the nation's mineral resources;
- Utilise and expand the existing skills base for the empowerment of HDSA and to serve the community;
- Promote employment and advance the social and economic welfare of communities and major labour sending areas;
- Encourage beneficiation of South Africa's mineral commodities; and
- Promote sustainable development and growth of the mining industry.

1.2.1.5 The Department of Mineral Resources Consultation Guidelines

The above Guidelines were compiled for use by applicants for prospecting and mining rights. It provides that Interested and Affected Parties include, amongst others, host (or receiving) communities, land owners, traditional authorities, land claimants, lawful occupiers, any other person whose socio-economic conditions may be directly affected by proposed prospecting or mining activities.

1.2.1.6 Mine Health and Safety Act (Act 29 No. of 1996)

This Act is administered by the Mine Health and Safety Inspectorate of the Department of Mineral Resources (DMR). The sections of the Act applicable to socio-economic aspects are sections 2 and 5, which provide that employers must ensure and maintain a safe and healthy environment at the mine during construction, operation, decommissioning and closure.

1.2.1.7 White Paper on Local Government (1998)

This White Paper sets the framework for a developmental local government system that is committed to working with citizens, groups and communities to create sustainable human settlements which provide for a decent quality of life and meet social, economic and material needs of communities in a holistic fashion.

1.2.1.8 Municipal Systems Act (Act No. 32 of 2000)

The Municipal Systems Act provides for the principles, mechanisms and processes that are necessary to enable municipalities to move progressively towards the social and economic

upliftment of local communities, and to ensure universal access to essential services that are affordable to all. In accordance with this Act, all municipalities are required to develop and implement 5-year Integrated Development Plans (IDPs) and Spatial Development Frameworks (SDFs) for their areas of jurisdiction.

Section 35 of the Act confirms the statutory status of the Municipal IDP and SDF. The Act also states that apart from serving as principal strategic planning instruments to guide and inform Municipal decisions on land use, the SDF and IDP binds a Municipality in the exercise of its executive Authority. However, where there is an inconsistency between a municipality's policy and national or provincial legislation, National legislation (e.g. MPRDA) should prevail.

1.2.1.9 Municipal Structures Act (Act 117 of 1998)

This Act states that district and local municipalities must support and co-operate with one another. The division of functions between local and district may also be adjusted according to the Act. This allows local municipalities to take on more roles and responsibilities from district municipalities, such as service provision. District Municipalities (DMs) are generally responsible for coordinating development and service delivery within the district (Section 83 of the Act), while Local Municipalities (LMs) are tasked with the delivery of basic municipal services and facilities. In this they receive assistance from, amongst others, provincial and national departments.

1.2.1.10 The Development Facilitation Act (DFA) (Act No. 67 of 1995)

This Act sets out the principle that policy, administrative practice and laws should support effective integrated planning, optimal use of existing resources, the promotion of sustainable development, and the requirement that land use should be judged on its merits. In terms of land development, the Act provides that practices should discourage the phenomenon of sprawl in urban areas and contribute to the development of more compact towns and cities.

1.2.1.11 Extension of Security of Tenure Act (ESTA) (Act No. 62 of 1997)

This Act confers certain rights to non-landowning residents of a property, where such rights are linked to the period of time in which persons have been resident on the land. The Act applies to all rural areas in South Africa, regardless of whether the land is used for farming or mining purposes. No occupier¹ can be evicted unless the provisions of ESTA have been strictly followed and a Court Order has been obtained.

¹ 'Occupier' refers to a person residing on land which belongs to another person and who has or had, on 4 February 1997 or thereafter, consent to do so.

1.2.1.12 Occupational Health and Safety Act (Act No. 85 of 1993)

The primary objective of this Act is to provide for the health and safety of persons at work. In addition, the Act requires that, as far as reasonably practicable, the employers must ensure that their activities do not expose non-employees to health hazards.

1.2.1.13 The National Heritage Resources Act (Act No. 25 of 1999)

Heritage resources management is a requirement in terms of this Act. Section 38(8) of the Act is triggered taking into account the requirements of Section 24 of the NEMA and Section 39 of the MPRDA.

1.2.1.14 Traditional Leadership and Governance Framework Amendment Act of 2003 and Council of Traditional Leaders Act 1997

These two acts provide for the recognition and establishment of traditional communities and councils, and provide a framework for traditional leadership and the roles and responsibilities of this leadership.

1.2.1.15 Labour legislation

The following acts are applicable with regard to employment at the mine complex:

- Employment Equity Act, 1998 (Act 55 of 1998);
- Basic Conditions of Employment Act, 1997 (Act No 75 of 1997);
- Labour Relations Act, 1995 (Act 66 of 1995);
- Skills Development Act (Act 97 of 1998 as amended); and
- Mine Health and Safety Act, 1996 (Act 29 of 1996).

1.2.2 Development policies

This section provides an overview of key initiatives and plans guiding national, provincial and district development, including plans pertaining to spatial and economic development.

1.2.2.1 National Development Plan (NDP)

Development in South Africa is guided by the NDP, which presents a shared long-term strategic framework within which more detailed planning can take place in order to advance the long-term goals adopted in the NDP (National Planning Commission/NPC, 2011). The Plan aims to ensure that all South Africans attain a decent standard of living through the elimination of poverty and the reduction of inequality. The Plan identifies the following core elements of a decent standard of living:

- Access to housing, safe water, electricity and decent sanitation;
- Safe and reliable public transport;

-
- Quality education and skills development;
 - Safety and security;
 - Quality health care;
 - Social protection;
 - Employment;
 - Recreation and leisure;
 - Clean environment; and
 - Adequate nutrition.

1.2.2.2 Accelerated and Shared Growth Initiative for South Africa (AsgiSA)

This Initiative was launched in 2003 with the vision to halve poverty and unemployment among the country's population by 2015. The Initiative is considered one of the key vehicles driving South Africa's economic policy and subsequent development. The primary aims of AsgiSA are to:

- Obtain balanced growth in the country's economy and its employment profile;
- Invest in infrastructure as a way to stimulate economic growth and job creation, and lay the foundation for fast-tracking expansion of the national economy;
- Target specific sector strategies and initiatives to further stimulate economic growth and job creation;
- Invest in education and skills development;
- Eliminating the second economy (informal sector) by expanding women's access to economic opportunities, promote Small, Medium and Micro-sized Enterprises (SMMEs), improve the small business regulatory environment and promote youth development; and
- Stimulate the macro-environment to promote expanded economic growth.

1.2.2.3 The New Economic Growth Path Framework (New Growth Path)

The New Growth Path for South Africa was launched by Government in 2010. In short, the policy is aimed at enhancing and facilitating growth, employment creation and equity. The policy's principal target is to create five million jobs over the next decade.

Central to the New Growth Path is a massive investment in infrastructure as a critical driver of jobs across the economy. The framework identifies investments in five key areas namely: energy, transport, communications, water and housing. Sustaining high levels of investment in these areas will create jobs in construction, operation and maintenance of infrastructure. The New Growth Path sees infrastructure programmes as a trigger to build a local supplier industry for the manufacture of the components for the build-programme.

The Framework identifies five other priority areas as part of the programme to create jobs, through a series of partnerships between the State and the private sector, as follows:

- Green economy: Expansions in construction and the production of technologies for solar, wind and biofuels are supported by the draft Energy on Integrated Resource Plan;
- Agriculture: Jobs would be created by addressing the high input costs and up scaling processing and export marketing. Support for small holders will include access to key inputs. Government will explore ways to improve working and living conditions;
- Mining: Calls for increased mineral extraction and improving infrastructure and skills development. It focuses support for beneficiation on the final manufacturing of consumer and capital goods, which can create large-scale employment. It foresees the establishment of a state mining company concentrating on beneficiation and enhanced resource exploitation in competition with a strong private mining sector;
- Manufacturing: Calls for re-industrialisation in the South African economy based on improving performance through innovation, skills development and reduced input costs in the economy; and
- Tourism and other high-level services: Hold employment potential and calls for South Africa to position itself as the higher educational hub of the African continent.

1.2.2.4 National Spatial Development Plan (NSDP)

In South Africa spatial development is guided by the NSDP. The SDFs for District and Local municipal areas are nested within the principles of the NSDP. In short, these principles state that spatial development should, if appropriate, accommodate and promote private economic ventures, which could support sustainable economic growth, relieve poverty, increase social investment, and improve service delivery.

1.2.2.5 National Infrastructure Plan

The South African Government adopted a National Infrastructure Plan in 2012. The primary objective of the Plan is to transform the country's economic landscape, while simultaneously creating significant numbers of new jobs, strengthen the delivery of basic services, and promoting integration with other African economies. In achieving this objective, 18 strategic integrated projects (SIPs) have been developed (Presidential Infrastructure Coordinating Commission, 2013). These SIPs include social and economic infrastructure development across all provinces, and comprises catalytic projects that should fast-track development and growth.

1.2.2.6 Provincial Growth and Development Strategy (PGDS)

The PGDSs (of which there is one for each province of South Africa), are aligned with the NDP, NSDP and all provincial policies that have bearing on development. The 2004-2014

PGDS of the Mpumalanga Province aims to establish a prosperous, sustainable growing provincial economy to reduce poverty and improve social development (Mpumalanga Province, 2003). The Province has identified six priority areas of intervention. These priority areas have been identified primarily based on the social, economic and developmental needs of the Province, namely;

- Economic Development;
- Social Development Infrastructure;
- Social Development;
- Sustainable Environmental Development;
- Good Governance; and
- Human Resource Development.

1.2.2.7 Provincial Spatial Development Framework (PSDF)

The Mpumalanga PSDF is used as a tool for forward planning to direct decisions within the domain of land development. The approval of the PSDF in terms of the Local Government Municipal Systems Act (Act 32 of 2000) and the Mpumalanga Planning and Development Act (Act 7 of 1998) means that the PSDF has statutory status as the common spatial vision and direction around which to align the PGDS, IDPs and SDFs of municipalities. In broad terms, the PSDF:

- Indicates the spatial implications of the core development objectives of the PGDS;
- Serves as a spatial plan that facilitates local economic development;
- Lays down strategies, proposals and guidelines as these relate to overall sustainable development;
- Facilitates cross-boundary co-operation between district and local municipalities, as well adjoining provinces and bordering countries; and
- Serves as a manual for integration and standardisation of the planning frameworks of all spheres of government in the Province.

More specifically the goals of the PSDF are to:

- Promote sustainable economic development by building on the comparative economic advantages of the Province;
- Protect and utilise the natural resource base in a sustainable manner for the benefit of all parties concerned;
- Merge social, ecological and economic considerations in decision-making as required by NEMA and other legislative instruments;

- Make a meaningful and lasting contribution to the eradication of poverty and inequality through the wise use of the inherent capital of the Province; and
- Create an environment that will ensure an acceptable return on capital invested by the private sector investors in the area.

1.2.2.8 Spatial Development Frameworks and/or Land Use Schemes

SDFs and Land Use Schemes have sometimes been interpreted as one and the same document. As such, all the legal requirements pertaining to Land Use Schemes need to be observed in the preparation and review of a SDF. Spatial planning within Govan Mbeki Local Municipality (GMLM) is guided by the Local Municipal SDF for the 2014-2034 period (GMLM, 2014) this framework also underlines the Land Use Scheme for the locality. The provisions of Municipal Land Use Schemes, as encapsulated in the Mpumalanga Planning Bill (2013), are to promote:

- Economic growth;
- Social inclusion;
- Harmonious and compatible land use patterns;
- Efficient land development;
- Minimal impact on public health, the environment and natural resources;
- Aesthetic considerations;
- Sustainable development and densification; and
- Accommodation of cultural customs and practices of traditional communities in land use management.

1.2.2.9 Integrated Development Plans

An IDP is a municipal-level planning document that aims to provide a developmental framework for district and local government, in which municipalities must provide leadership, management, budgeting, and direction in the provision of services and infrastructure. They serve to guide developmental planning and community development. The IDPs for District and Local municipalities highlight local needs and priorities that should be considered by the project. These IDPs are linked to the PGDS, and take its key focus areas into account. The above documents are therefore complementary and cannot be viewed in isolation from each other. Integrated development within the municipality guided by the 2012-2015 GMLM IDP (GMLM, 2014).

1.2.2.10 Govan Mbeki Local Economic Development Strategy

The vision of the GMLM LED strategy is to develop a robust and all inclusive economic hub of the district which will empower communities and address the socio-economic challenges of unemployment and poverty through sustainable growth and development. The

Municipality identified and commissioned the following key vision elements for LED within the locality:

- Creation of job opportunities;
- Reduced dependency on government grants and reducing the poverty gap;
- Economic growth based on key and diversified sectors;
- SMME contribution to economic growth and development; and
- Creation of a district economic hub.

The objectives of the LED strategy are to:

- Identify, develop and promote targeted economic sector growth in line with key provincial and national growth targets;
- Identify, promote and support SMMEs and communities in order to address socio-economic challenges of unemployment and poverty, in line with the Millennium Development Goals;
- Enhance LED good governance through the development of appropriate institutional structures and arrangements that can deliver;
- Ensure the development of appropriate infrastructure in line with the IDP processes and development initiatives emanating from the strategy implementation processes; and
- Identify, brand and market (promote) investment opportunities in line with municipality, district and provincial potential.

1.2.2.11 Comprehensive Sustainable Rural Development Programme (CRDP)

The CRDP (2009) aims to reduce/eliminate rural poverty and food insecurity by maximising the use and management of natural resources to create vibrant, equitable and sustainable rural communities. The objectives of the Programme are to:

- Establish an institutional mechanism for managing rural development within national, provincial and local government;
- Establish a rural development role/function and funding for rural development within national, provincial and local government;
- Provide for establishment of partnerships and collaborations in implementing rural development and funding;
- Establish a special support programme for development of emerging farmers;
- Renegotiate and redesign a funding model for rural development with institutions such as the Land Bank, etc.;
- Mainstream rural development into the national, provincial and local government; and

- Align with government policy and programmes at all levels.

1.2.2.12 Expanded Public Works Programme (EPWP)

The Programme is an all-embracing inter-governmental exercise, which aims to improve service delivery by integrating the efforts of all spheres of government, non-governmental organisations, community organisations, governmental departments and other development role players (NPC, 2011). These stakeholders need to develop and embrace unemployed residents into productive employment through training and empowerment activities. According to the National Planning Commission of 2011, the current phase of EPWP incorporates innovations to enable a scaling up of the Programme. These innovations include, among other things, simplification of programme targets and a decentralisation of decision making.

Three new programmes were recently included in the Plan; these are employment incentives for municipalities that achieve employment targets, employment incentives for non-profit organisations, and Community Works Programmes. These elements enable communities and organisations to determine how they will go about their job creation initiatives.

1.2.3 Policy documents

1.2.3.1 International Human Rights Guiding Principles

There are a number of guidelines which aim to assist companies in formulating their human rights objectives, and integrating these into their business processes and practises. Some of the more prominent guidelines are the following:

- The United Nation's 'Protect, Respect and Remedy Framework' and the associated 'Guiding Principles for Business and Human Rights,' which emphasises the corporate responsibility to protect human rights, prevent adverse human rights impacts, and establish appropriate remedial mechanisms to address human rights violations. The Guiding Principles of the Global Compact Initiative involves 10 fundamental human rights principles which form part of a global corporate social responsibility initiative with regard to human rights.
- The IFC's 'Guide to Human Rights Impact Assessment and Management' (2010) has been developed to assist business enterprises in assessing and managing human rights risks and impacts of their business activities.
- The International Council on Mining and Metals (ICMM) has produced a guidance note on 'Human Rights in the Mining and Metals Industry' (2009) which outlines the human rights aspects of its 'Sustainable Development Framework.'
- The 'Voluntary Principles on Security and Human Rights' was established in 2000 and provides guidance to the extractives industries on maintaining the safety and security of their operations whilst ensuring respect for human rights.

1.2.3.2 International Finance Corporation Performance Standards

The IFC, a member of the World Bank Group, has adopted a suite of performance standards (PSs) on social and environmental sustainability. The IFC applies the PSs to manage project related social and environmental risks and impacts, and enhance development opportunities in its private sector financing. The IFC PSs are widely regarded as international best practice with regard to the management of impacts associated with large project developments.

Although several national policies and legislation in South Africa address land use and tenures rights (e.g. the Security of Tenure Act), these do not explicitly address involuntary displacement, where land owner/users are directly or indirectly forced to forfeit the tenure and usage rights. This policy vacuum is inadequately filled by complicated land tenure, environmental and planning legislation.

Consequently, the existing legal frameworks for addressing involuntary resettlement are inadequate and do not aid communities, implementing agents or mining companies. Instead they often obscure rights and responsibilities, cause unnecessary delays to resettlement projects and increase the total costs involved (Sonnenberg & Münster, 2001). In view of this gap in national legislation, resettlement processes in South Africa often use the guiding principles set out in IFC *Performance Standard 5: Land Acquisition and Involuntary Resettlement*, which sets out the following objectives (IFC, 2012):

- Avoid, and when avoidance is not possible, minimise displacement by exploring alternative project designs;
- Avoid forced eviction;
- Anticipate and avoid, or where avoidance is not possible, minimise adverse social and economic impacts from land acquisition and/or restrictions on land use by (i) providing compensation for loss of assets at replacement cost and (ii) ensuring that all resettlement activities are implemented with appropriate disclosure of information, consultation, and the informed participation of those affected;
- Improve, or restore, the livelihoods and standards of living of displaced persons; and
- Improve living conditions among physically displaced persons through the provision of adequate housing with security of tenure at resettlement sites.

Another IFC Performance Standard – *Performance Standard 1: Social and Environmental Assessment and Management Systems* – sets out international best-practice standards for conducting a SIA. Amongst other things, these standards require that a SIA identify individuals and groups that may be differentially or disproportionately affected by the project because of their disadvantaged or vulnerable status (where such status may be related to an individual's or group's ethnic affiliation, gender, socio-economic status, health or dependence on unique natural resources). Where groups are identified as disadvantaged or vulnerable, differentiated measures must be identified and implemented to ensure that

adverse impacts do not fall disproportionately on them and that they are not disadvantaged in sharing development benefits and opportunities.

1.2.3.3 The King Report on Corporate Governance for South Africa, 2009

The King Report on “Governance for South Africa” and the associated “Code of Governance Principles for South Africa” (King III, 2009) address aspects relating to corporate governance rules to improve the quality of leadership which boards are giving to their businesses. The King Report follows a voluntary basis for governance compliance and addresses issues such as ethical leadership, corporate citizenship and sustainability.

The King Report states that responsible corporate citizenship includes an ethical relationship of responsibility between the company and the society in which it operates. Companies have obligations - such as legal and moral obligations - regarding the economic, social and natural environments within which they operate; as well as investment and sustainability obligations to protect and enhance the well-being of these environments. Companies must consider the environmental, social and governance impacts they have on the community in which they conduct their business.

1.2.3.4 Sasol Mining’s Corporate Policies

1.2.3.4.1 Human rights

Sasol Mining is committed to respect human rights in accordance with the United Nations Guiding Principles on Business and Human Rights. Sasol’s approach to human rights is incorporated into the Company’s Code of Ethics, which was adopted in 2004. The Company is also in the process of developing their Business Human Rights policy, which will include a code of conduct for suppliers and service providers.

1.2.3.4.2 Sustainable development

Sasol Mining adopted sustainable development as a group-wide strategic business objective in 2000. As part of this development drive Sasol Mining has taken several steps towards embedding sustainable development principles across all operations. These principles are encapsulated in the Company’s sustainable development management framework, and aims to provide all operations with policies, governance structures, targets and reporting systems needed to manage the risks and opportunities presented by a rapidly changing global environment.

1.2.3.4.3 Enterprise and supplier development

Sasol Mining is committed to driving economic and social change through enterprise and supplier development. Sasol Mining’s Enterprise and Supplier Development Department (ESD) is responsible for this function.

The ESD manages the development and support of existing and new Black Economic Empowerment (BEE) suppliers with the intention of growing the competitiveness of Sasol’s

supply chain and ensuring the diversity of their supplier pool. In particular Sasol Mining supports suppliers through: business development initiatives, technology improvements and funding business growth and improvement strategies through the Sasol Siyakha Trust.

Embracing the ideas of private-public partnership, sustainable development and triple bottom line performance, the ESD has aligned itself with key national priorities such as the Industrial Policy Action Plan; the NDP; Broad-based Black economic empowerment (BBBEE); and Millennium Development Goals to ensure maximum and aligned impact on communities.

1.2.3.4.4 Local procurement

Sasol Mining supports the transformation and alignment of procurement requirements as set out in the Mining Charter and the MPRDA. The purpose of the Procurement Progression Plan is to ensure the efficient management of suppliers conforming to HDSA status, and to drive greater levels of spend to HDSA suppliers.

In order to achieve these objectives, as well as to comply with the mandatory Broad Based Socio-Economic Empowerment Charter for the South African Mining Industry, Scorecard for the mining industry, and the BBBEE Act of 2003 (as amended), the Company has developed and is applying a Preferential Procurement Policy.

Sasol Mining is committed to finding ways in which it can ensure fruitful partnership with HDSA suppliers through encouraging international suppliers, where possible, to enter into joint ventures with HDSA suppliers to ensure meaningful economic participation and transfer of specialised skills.

1.2.3.4.5 Skills development

Sasol Mining considers not only their employees, but also their suppliers, contractor, clients and communities in which they operate as key stakeholders who are integral to their success. Consequently Sasol Mining aims to a.) deliver long-term value to its shareholders and employees, and b.) foster a positive association across all stakeholders. In achieving these aims Sasol Mining is committed to developing skills at all levels – from basic literacy through to advanced scientific and technical skills – within the organisation, as well as externally.

1.2.3.4.6 Community development

Sasol Mining's Community Affairs Programme was established to promote people-centred, needs-driven sustainable development of communities. The Programme's development priorities are determined by regulatory, business and community needs. The programme's key focus areas include:

- Education, with the emphasis on improving school-based education in science, technology and literacy; facilitating access to higher education; enabling quality higher education; and developing critical and scarce work skills;

-
- Job creation, focusing on the sustainable creation of employment particularly for unskilled or marginalised groups such as women and youth;
 - Health and welfare, with a priority emphasis on addressing key social challenges such as Human Immunodeficiency Virus/ Acquired Immune Deficiency Syndrome (HIV/AIDS), tuberculosis and malaria.
 - Arts, culture and sport development with a focus on local talent development.
 - Environment, by pro-actively engaging communities to reduce their impact on the natural environment.

Sasol Mining's Community Engagement Programme is based on the following principles:

- Community involvement and ownership;
- Strengthening community leadership;
- Targeting impacts-driven interventions;
- Addressing key community priorities;
- Monitoring and evaluation; and
- Building capacity through partnership.

1.2.3.4.7 Community investment policy

Sasol's Global Foundation leads the Company's approach to corporate social investment (CSI). The Foundation has the following objectives:

- Consolidating and prioritising investments across the group, and focusing on priority issues to promote a long-term approach to addressing societal challenges;
- Moving from responding to ad hoc requests towards proposals that are better linked and suited to Company competencies, business needs, community and regulatory priorities, and supportive of the Company's strategy;
- Ensuring increased effectiveness of group-wide co-ordination of initiatives, supported by clear monitoring and evaluation of the results and impacts of investments; and
- Encouraging appropriate levels of employee engagement

The Foundation's strategy identifies the following key focus areas:

- Developing technical skills and capacity;
- Protecting the environment, with a particular focus on Sasol Water Sense projects;
- Investing in the communities in which Sasol operates; and
- Supporting employees through regional programmes.

1.2.3.4.8 Actions in terms of HIV/AIDS

Reducing new HIV/AIDS infections remains an important focus of Sasol Mining's employee wellness programme. In 2002 the Company launched the Sasol HIV/AIDS Response Programme (SHARP) to ensure that those affected with HIV/AIDS are provided with sufficient support and resources to deal with the impact of the disease. The Programme focusses on:

- Instilling a culture of zero tolerance to discrimination;
- Driving fundamental behaviour change through workplace programmes;
- Ensuring accessible, safe, effective and sustainable provision of treatment; and
- Reducing and managing the cost of the HIV/AIDS response, as well as reducing its impact on the business.

The Company's also conducts an annual HIV/AIDS Knowledge, Attitude and Practice (KAP) survey. The 2013 KAP survey indicated an HIV prevalence of 9% among local employees. The Company also runs a comprehensive disease management programme, which educates employees, provides screening for diseases and ensures that appropriate care is supplied to affected employees, including drug provision for those living with HIV/AIDS

Communication on prevention, support and care is also provided in tandem with HIV/AIDS testing and treatment initiatives. Training of peer educators and HIV/AIDS co-ordinators on the implementation of our HIV/AIDS programme has been conducted across all operations. HIV/AIDS awareness sessions are incorporated into induction training, safety briefing sessions and wellness days.

1.2.3.4.9 Safety policies

Sasol Mining's safety policy is geared towards eliminating incidents, minimising risk and promoting excellence during operations. One of the mine's primary vehicles promoting employee and community safety is its Safety Improvement Plan (SIP), which is focussed on analysing the frequency and severity of incidents across current and future operations. The plan includes various actions and mechanisms, these are listed below:

- Implementing a mining-specific SIP to prevent and/reduce mining related hazards and incidents;
- Embedding safety as a culture among employees;
- Implementing a process safety management system through which process hazards are continuously analysed and safety incidents are reported and investigated;
- In terms of transport safety Sasol Mining aims is to prioritise the movement of products firstly via pipeline, then rail, and finally by road, thereby minimizing mine-related traffic risks;
- Thorough incident investigations and feedback sessions;

- Addressing behavioural and psychological components that have a direct impact on employees' motivation and willingness to work safely; and
- Implementing measures to standardise safety management practices across external service providers.

1.3 Limitations and assumptions of this study

At the time of writing this report, certain aspects of the mine planning (e.g. detailed planning of final infrastructure layouts) had not yet been completed. This is the result of an unavoidable trade-off in environmental and social assessment. It is advisable to conduct project environmental and social assessment early in the project planning cycle so that significant negative impacts and potential fatal flaws can be identified and plans modified to avoid or reduce them.

However, the very fluidity of designs at this early stage of planning - which makes it possible to modify them in the light of stakeholder inputs and the outcomes of impact assessment - often imposes limitations on the degree of certainty that can be attached to the predictions of impacts. Such uncertainty is, however, considered to be preferable to a situation in which impacts or sensitivities in the social and/or biophysical environment are only identified after the mine plans are in an advanced stage of development and can only be changed with considerable difficulty

All reasonable efforts were made to provide an updated and representative picture of socio-economic impacts relevant to the study areas. However, this report is still subject to some assumptions and limitations:

- This report is based on available information obtained from the client, secondary sources, other specialist's assessments and stakeholders consulted during site-visits. The study was conducted within available timeframes and budget. The sources consulted are in no way exhaustive, although deemed sufficient to meet the ToR for the current study. No information has been deliberately excluded from this report, and it is assumed that no party withheld relevant information from the specialists.
- Socio-economic impacts associated with the eventual decommissioning of the mine at the end of its life are briefly discussed but are not subject to detailed assessment. This omission is motivated by the fact that predictions concerning the characteristics of the receiving socio-economic environment at the time of decommissioning (e.g. 28 years in the future) are subject to a large margin of error, thus significantly reducing the accuracy of impact assessment.
- The following assumptions were made:
 - Mining will be undertaken by the bord-and-pillar mining method. Provided full pillar strengthening is applied, it can be assumed that the aforementioned method will have no significant surface-related environmental impact (at the time of writing this report the Rock engineering report was not provided to determine the

likelihood of surface subsidence). Based on this, no surface-related *displacement* impacts have been rated. It should be noted, however, that *appropriate geotechnical design* will be required to ensure there is no surface impact;

- Mining activities will not affect any existing surface land use (e.g. Built-up areas such as Kinross town, and other residential areas) and will therefore not result in any economic or physical displacement of those residing on the undermined area;
- The MRA overlaps entirely with the southern suburb of Kinross town; at the time of writing this report it was unknown whether the town will be undermined. It was assumed that Kinross town would not be undermined. However, if this is the intention the report could be revised accordingly.
- Due to the fact that no specific information is available on workforce requirements during the construction phase, it is assumed that at least some new local job opportunities will be created for local residents during this phase; and
- This report is based on available information, however certain pieces of information were not available², these include:
 - Alignment of any access road/pipeline/conveyer belt alignments
 - The size, location and need for a construction camp; and
 - SLP compiled for the mine.

1.4 Structure of the report

The remainder of this report is structured as follows:

- **Section 2** details the methodology applied during this SIA;
- Details of the proposed project are presented in **Section 3**;
- **Section 4** provides a socio-economic overview of the project's sphere of influence, as well as potential opportunities and constraints that are relevant to the proposed project;
- **Section 5** is dedicated to the identification, assessment and rating of potential social impacts that may arise as a result of the proposed project, and includes recommended mitigation measures for negative impacts and enhancement measures for positive impacts;
- The impact project alternatives will have on the identified social impacts is considered in **Section 6**;
- **Section 7** lists and discusses several risks that might negatively influence the progress and feasibility of the proposed project; and

² The SIA report could be updated when this information becomes available.

-
- **Section 8** presents the main conclusions of the SIA and contains recommendations relevant to the implementation of the proposed project.

2 Methodology

The study was designed to comply with the relevant national legislative requirements, such as those stipulated in NEMA and the MPRDA. The activities undertaken as part of the study are unpacked below.

2.1 Definition of the study areas

The study area for an impact assessment can be defined as the area that is likely to experience impacts arising from or exert influence on, the project or activity being assessed (IFC, 2012). In the case of a SIA, this task is complicated by the fact that different types of socio-economic impacts make themselves felt over different geographical areas. Generally such impacts of a project can be divided into three broad categories:

- Impacts related to the **physical intrusion** of project infrastructure and **project-related activities** on the surrounding environment (which may include socio-economic impacts arising from land acquisition, subsidence, noise, dust, vibration and changes in the visual characteristics of the landscape);
- Impacts related to the **“economic pull”** exerted by the project (including job creation, an influx of workers and job-seekers into the project area, as well as the concomitant risk of increased social pathologies and community conflict); and
- **Indirect or induced impacts** that are by-products or ripple-effects of the impacts in the foregoing two categories. These could include increased pressure on local services and resources (as a result of the population influx), multiplier effects in the local and regional economy (as a result of the creation of new jobs and project-related expenditure), macro-economic benefits of the project and benefits derived from corporate social investment by the project proponent.

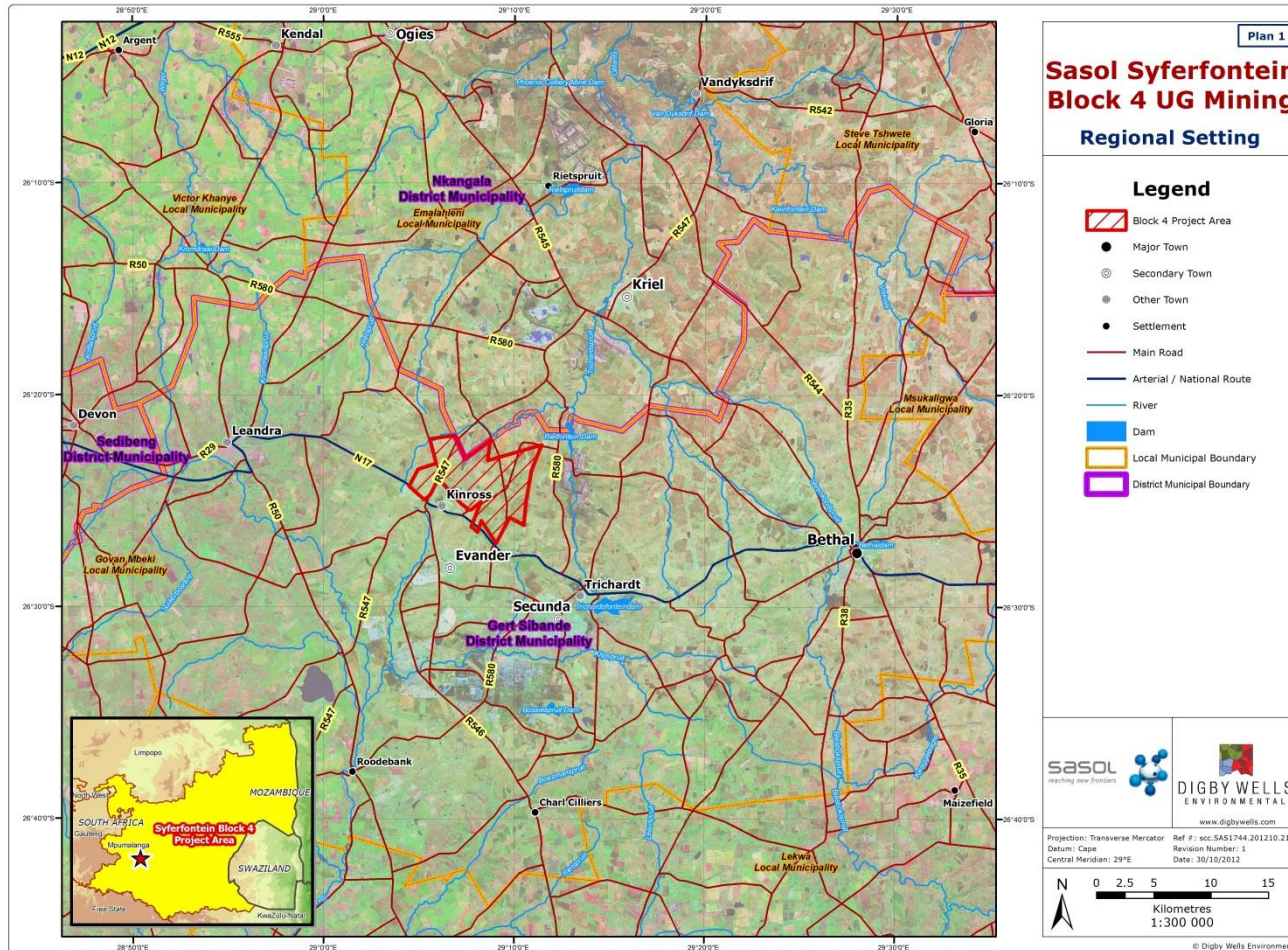
Two concentric and interdependent study areas were identified for the purposes of this study, incorporating the three categories of impacts listed above. These study areas are defined below; the secondary study area encompasses the primary area and exceeds it in scale:

- A **primary study area**, defined as the extent of the farm portions on which the project footprint is located (these are listed in Table 1 and depicted in Plan 1), as well as its immediate surroundings. This area is likely to experience impacts related to the **physical intrusion of project activities** on the surrounding environment (which may include socio-economic impacts arising from land acquisition, disturbance of land use, traffic, noise, dust, and vibration).
- A **secondary study area**, defined as the municipality in which the proposed project is located, namely the Govan Mbeki Local Municipality (GMLM) (see Plan 2). This area is likely to experience impacts related to the **“economic pull”** exerted by the project (including job creation, an influx of workers and job-seekers into the project

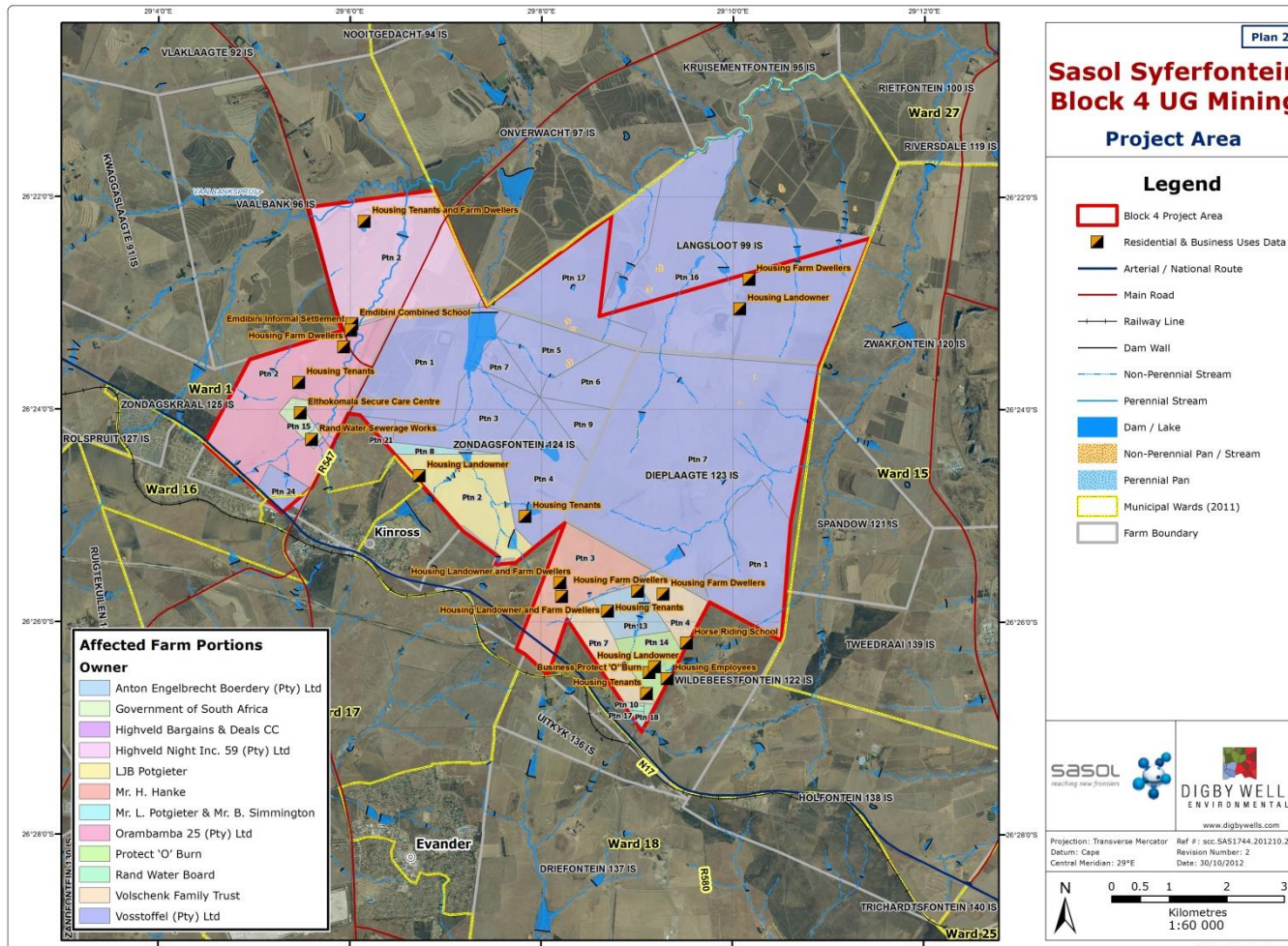
area, as well as the concomitant risk of increased social pathologies and community conflict), as well as **indirect** or **induced** impacts that are ripple-effects of other impacts experienced on a smaller scale. These indirect impacts could include *increased pressure on local services and resources* (as a result of population influx), *multiplier effects* in the local and regional economy (as a result of the creation of new jobs or continuation of existing employment, as well as project-related expenditure), *macro-economic benefits* of the project and *benefits derived from corporate social investments* by the project proponent. For the purposes of the baseline profile presented in Section 4, the secondary study area is considered against the backdrop of the Gert Sibande District Municipality (GSDM).

**Table 1: Land ownership within the primary study area (per farm portion)**

Ownership	Land/Business owner	Farm	Affected Portion (Ptn)
Vosstoffel (Pty) Ltd/ Paulina Boerderye	Mr. N. de Vos	Zondagsfontein 124 IS	1, 3-7, 9,12 & 21, 23,24, 26, 29
		Dieplaagte 123 IS	1 & 7
		Langsloot 99 IS	16-17
		Zondagskraal 125 IS	24
		Rietfontein 100 IS	4-6,8,9,11,13 & 14
		Kinross 133	6
Highveld Night Inc. 59 (Pty) Ltd	Mr. J. Barnard	Vaalbank 96 IS	2
Orambamba 25 (Pty) Ltd	Mr. J. Barnard	Zondagskraal 125 IS	2, 25
Highveld Bargains & Deals CC	Mr. G. Hayman	Wilbebeestfontein 122 IS	1
Individual	Mr. L.J.B Potgieter	Zondagsfontein 124 IS	42
Volschenk Family Trust	Mr. T. Volschenk	Wilbebeestfontein 122 IS	4, 7 & 12
Individual	Mr. P. Andrews	Wilbebeestfontein 122 IS	14
Individual	Mr. B. Simmington	Zondagsfontein 124 IS	41/43
Government of South Africa	N/A	Zondagskraal 125 IS	15
		Rietfontein 100 IS	15
Anton Engelbrecht Boerdery	Mr. A. Engelbrecht	Wilbebeestfontein 122 IS	13
Individual	Mr. H. Hanke	Wilbebeestfontein 122 IS	3
Individual	Ms. J.G. Taljaard	Wilbebeestfontein 122 IS	5
Unknown	N/A	Wilbebeestfontein 122 IS	44
Volschenk Family Trust	Mr. T. Volschenk	Wilbebeestfontein 122 IS	12
Extreme plant hire	Mr. K vd Merwe & Mr. P.J Rossouw	Wilbebeestfontein 122 IS	6
Rand Water Board	N/A	Wilbebeestfontein 122 IS	10,17,18 & 19
SANRAL	N/A	Wilbebeestfontein 122 IS	28
Individual	Mr. J.A. Taljaard	Wilbebeestfontein 122 IS	15 & 21
Individual	Mr. F. Viljoen	Wilbebeestfontein 122 IS	44
GMLM	N/A	Zondagsfontein 124 IS	29
Kinross Farms	Mr. B. Plastzky	Zondagsfontein 124 IS	10
Unknown		Zondagsfontein 124 IS	38 & 39
Anglo Operations Ltd		Rietfontein101 IS	RE & 2
Individual	JC Greyling	Rietfontein101 IS	4 & 5
		Rietfontein 100 IS	2 & 12
Individual	T Schwartz	Rietfontein 100 IS	7 & 10
Transnet Ltd	N/A	Kinross 133	10



Plan 1: Regional setting – secondary and primary study areas



Plan 2: Proposed project area – primary study area

2.2 Data collection

The information presented in this document was obtained through the following data collection activities:

- A **desktop review** of available documents to obtain relevant baseline socio-economic information on the different study areas. Documents reviewed include the following:
 - Integrated Development Plans (IDPs), Local Economic Development (LED) Plans and Spatial Development Frameworks (SDFs) of the local and district municipalities respectively;
 - Socio-economic and demographic statistics sourced from Statistics South Africa's (StatsSA) Census 2011 and Community Survey 2007 data;
 - Previous studies and reports concerning the proposed project, specifically the Environmental and Social Scoping report and the Mine Works Programme for the proposed project; and
 - Available maps and satellite imagery.
- **Investigative site visits** was undertaken during the baseline and impact assessment phase. The aims of these site visits were to:
 - Verify information obtained from secondary sources on the socio-economic characteristics of the receiving environment; and
 - Ascertain if there are any dwellings, businesses or livelihood activities in the vicinity of the proposed site that might be affected by the project; these features were recorded on a handheld Global Positioning System (GPS) device and are indicated in Plan 2.
- **Interviews with key informants** (see Table 2), the purpose of which were to:
 - Assess stakeholders' perceptions, concerns and expectations regarding the proposed project;
 - Identify potential impacts of the proposed project on people's lives and livelihoods; and
 - Identify possible mitigation measures to avoid or reduce negative impacts, and to enhance the positive impacts of the project.
- **Consideration of information from other specialist studies:** Social issues may overlap with other issues, such as visual impacts, impacts on ground water, cultural heritage and land use. Therefore, although these may have been dealt with in other specialist studies, their interrelationship with the social concerns should not be overlooked. The specialist studies conducted as part of the EIA are listed in Section 1

above. Relevant information was obtained from other specialists involved in the EIA (e.g. geo-hydrological assessment, groundwater assessment) on the anticipated biophysical impacts (traffic, air quality, ground water, noise etc.) that could give rise to indirect socio-economic impacts.

Table 2: Interviews conducted during impact assessment

Date	Interviewee	Designation	Representing
25/03/2014	Mr. J. Masango	Ward councillor	Govan Local Municipality – Ward 1
	Mr. T. Volschenk & Mr. Volschenk (snr)	Landowner	Wilbebeestfontein 122 IS – Ptn 4, 7 & 12
		Business owner	Volschenk Plumbing and Tiling
	Mr. D. Nhlapo	Ward councillor	Govan Local Municipality – Ward 16
26/03/2014	Mr. F. Viljoen	Land user	Renting: Wilbebeestfontein 122 IS – Ptn 3, 5, & 15 ; Owner of Wilbebeestfontein 122 IS Ptn 44
	Mr. L Potgieter	Landowner	Zondagsfontein 124 IS – Ptn 42
	Mr. Nicol de Vos	Landowner	Zondagsfontein 124 IS – Ptn 1, 3-7, 9,12 & 21, 23,24, 26, 29
			Dieplaagte 123 IS – Ptn 1 & 7 Langsloot 99 IS Ptn – 16-17 Zondagskraal 125 IS – Ptn 24 Rietfontein 100 IS – Ptn 4-6,8,9,11,13 & 14 Kinross 133 – Ptn 6
Mr. G. Hayman & Mrs. Hayman	Landowner	Wilbebeestfontein 122 IS – Ptn 1	
27/03/2014	Mr. Paul Andrews	Landowner	Wilbebeestfontein 122 IS – Ptn 14
		Business owner	Protect-O-Burn (Pty) Ltd
	Mr. J Barnard	Landowner	Zondagskraal 125 IS – Ptn 2
			Vaalbank 96 IS – Ptn 2
Mr. W. Green	Land user	Renting: Zondagskraal 125 IS – Ptn 2	

2.3 Compilation of a socio-economic baseline profile

On the basis of the information collected through the desktop review and interviews with key informants, a socio-economic baseline profile was compiled of the primary and secondary

study areas defined in Section 2.1. Topics considered as part of this profile include the following:

- Demographics, including population size, age and gender distributions, as well as ethnicity;
- Education and skills;
- Community health;
- Employment, including levels of employment and employment sectors;
- Economic conditions, including the trade, mining, and agriculture sectors, in addition to economic development targets;
- Infrastructure and services, including housing, household energy, water, sanitation, transport, and health;
- Community safety and security; and
- Spatial development and land claims.

Information pertaining to other projects in the local municipal area is also presented, as are the prevalent concerns regarding and attitudes towards the proposed project.

2.4 Identification of impacts

A range of issues and potential social impacts of the proposed project were identified based on specialist opinion and information obtained through consultation that took place for the purposes of the SIA. These impacts are categorised according to the project phase (construction, operation and decommissioning) in which each is likely to occur. Impacts are discussed in Section 5.

2.5 Rating of impacts

The impact rating process is designed to provide a numerical rating of the various social impacts identified. The significance rating process follows the established impact / risk assessment formula, as shown below:

Significance = consequence of an event x probability of the event occurring

where

Consequence = Type of impact x (Intensity + Spatial Scale + Duration)

and

Probability = Likelihood of an impact occurring

In the formula for calculating **consequence**:

Type of impact = +1 (for positive impacts) **or -1** (for negative impacts)

The weight assigned to the various parameters for positive and negative impacts in the formula is presented in Table 3 to Table 6 below.

Table 3: Rating options: intensity

Rating	Negative impacts (Type of impact = -1)	Positive impacts (Type of impact = +1)
7	Irreparable damage to highly valued items of great cultural significance or complete breakdown of social order	Noticeable, on-going social benefits which have improved the livelihoods and living standards of the local community in general
6	Irreparable damage to highly valued items of cultural significance or breakdown of social order	Great improvement to livelihoods and living standards of a large percentage of population
5	Very serious widespread social impacts. Irreparable damage to highly valued items	On-going and widespread positive benefits to local communities which improves livelihoods
4	On-going serious social issues. Significant damage to structures / items of cultural significance	Average to intense social benefits to some people
3	On-going social issues. Damage to items of cultural significance	Average, on-going positive benefits, not widespread but felt by some
2	Minor medium-term social impacts on local population. Mostly repairable. Cultural functions and processes not affected	Low positive impacts experience by very few of population
1	Minimal social impacts, low-level repairable damage to commonplace structures	Some low-level social benefits felt by very few of the population

Table 4: Rating options: spatial scale

Rating	Definition
7	International: The effect will occur across international borders
6	National: Will affect the entire country
5	Province/ Region: Will affect the entire province or region
4	Municipal Area: Will affect the whole municipal area
3	Local: Extending across the site and to nearby settlements
2	Limited: Limited to the site and its immediate surroundings
1	Very limited: Limited to specific isolated parts of the site

Table 5: Rating options: duration

Rating	Definition
7	Permanent: The impact will remain long after the life of the project
6	Beyond project life: The impact will remain for some time after the life of the project
5	Project Life: The impact will cease after the operational life span of the project
4	Long term: 6-15 years
3	Medium term: 1-5 years
2	Short term: Less than 1 year
1	Immediate: Less than 1 month

Table 6: Rating options: probability

Rating	Definition
7	Certain/ Definite: There are sound scientific reasons to expect that the impact will definitely occur
6	Almost certain/ Highly probable: It is most likely that the impact will occur
5	Likely: The impact may occur
4	Probable: Has occurred here or elsewhere and could therefore occur
3	Unlikely: Has not happened yet but could happen once in the lifetime of the project, therefore there is a possibility that the impact will occur
2	Rare/ improbable: Conceivable, but only in extreme circumstances and/ or has not happened during lifetime of the project but has happened elsewhere. The possibility of the impact materialising is very low as a result of design, historic experience or implementation of adequate mitigation measures
1	Highly unlikely/None: Expected never to happen

Impacts are rated prior to mitigation or enhancement and again after consideration of the proposed mitigation or enhancement measures. The impact is then determined and categorised into one of eight categories, as indicated in the table below.

Table 7: Significance ratings

Score	Description	Rating
109 to 147	A very beneficial impact which may be sufficient by itself to justify implementation of the project. The impact may result in permanent positive change	Major (positive)
73 to 108	A beneficial impact which may help to justify the implementation of the project. These impacts would be considered by society as constituting a major and usually a long-term positive change to the (natural and / or social) environment	Moderate (positive)
36 to 72	An important positive impact. The impact is insufficient by itself to justify the implementation of the project. These impacts will usually result in positive medium to long-term effect on the social and/or natural environment	Minor (positive)
3 to 35	A small positive impact. The impact will result in medium to short term effects on the social and / or natural environment	Negligible (positive)
-3 to -35	An acceptable negative impact for which mitigation is desirable but not essential. The impact by itself is insufficient even in combination with other low impacts to prevent the development being approved. These impacts will result in negative medium to short term effects on the social and / or natural environment	Negligible (negative)
-36 to -72	An important negative impact which requires mitigation. The impact is insufficient by itself to prevent the implementation of the project but which in conjunction with other impacts may prevent its implementation. These impacts will usually result in negative medium to long-term effect on the social and / or natural environment	Minor (negative)
-73 to -108	A serious negative impact which may prevent the implementation of the project. These impacts would be considered by society as constituting a major and usually a long-term change to the (natural and / or social) environment and result in severe effects	Moderate (negative)
-109 to -147	A very serious negative impact which may be sufficient by itself to prevent implementation of the project. The impact may result in permanent change. Very often these impacts are immitigable and usually result in very severe effects	Major (negative)

The relationship between consequence, probability and significance ratings is graphically depicted in the figure below.

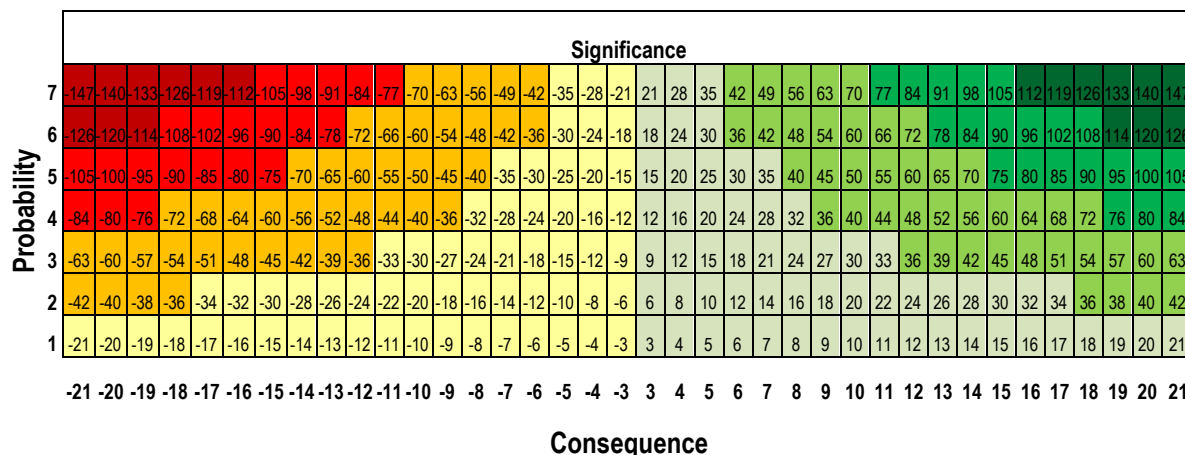


Figure 1: Relationship between consequence, probability and significance ratings

2.6 Mitigation measures and recommendations

Appropriate mitigation measures are recommended to avoid or ameliorate negative social impacts and to enhance positive ones. The criteria for the selection of mitigation measures included the following:

- They should be effective in ameliorating the impact without having severe negative secondary consequences; and
- They should be practically feasible and cost-effective.

After suitable mitigation measures were identified for each impact, the rating procedure described in Section 2.5 above was repeated to assess the expected consequence, probability and significance of each impact after mitigation. This post-mitigation rating gives an indication of the significance of residual impacts, while the difference between an impact’s pre- and post-mitigation ratings represents the degree to which the recommended mitigation measures are expected to be effective in reducing or ameliorating that impact.

In addition to recommending mitigation and enhancement measures, the study makes general recommendations that could aid the successful implementation of the proposed project; these are given in Section **Error! Reference source not found.**

2.7 Consideration of project alternatives

Current environmental legislation requires that project alternatives be considered during the impact assessment process. The “no-go” alternative is the only project alternative identified for the purposes of the EIA. Alternatives involving the project are briefly unpacked in Section 3.4 and assessed in Section 6.

3 Project description

This chapter provides basic information pertaining to the proposed project. It commences with a description of the project's regional setting and a general overview of the envisaged project. This is followed by details regarding employment requirements and policies, procurement strategies, expenditure estimated, project timing and possible alternatives.

3.1 Project location

The proposed project is to be located within the jurisdiction of the GMLM, which is in the GSDM in Mpumalanga Province (See Section 2.1). The proposed project area is 6 308.5ha in size, with approximately 2 784ha that will be undermined. The site is immediately adjacent to Kinross town, approximately 8 kilometres (km) north of Evander, 6km north-west of Secunda, and 15km south-west of Kriel. The proposed project area overlaps with several privately and government owned farm portions (see Plan 1 in Section 2.1).

3.2 Overview of the proposed project

Sasol Mining intends to expand their Syferfontein Mine into the Block 4 reserves area, which is situated towards the west of the current mining operation. The infrastructure (including shafts) will be on the adjacent, existing Sasol Syferfontein Colliery (SSC), and for this reason, the mine's surface infrastructure footprint will be limited to 25ha.

Mining will be undertaken by using the underground bord-and-pillar mining method as the means of primary development (see Figure 2). In addition, Sasol Mining utilises a special bord-and-pillar method for higher extraction, known as the Nevid Mining Method. According to proposed project's Mine Works Program (MWP) this method ensures that there will be minimal disturbances above ground/ at the surface. The reserves will be accessed by means of an adit in the highwall of the existing SSC.

Although the total annual production from the mine will vary, it will be approximately 4.5 million tonnes per annum (Mt/a), with a Life of Mine (LoM) of about 28 years. The high extraction mining reserves is estimated at 15 Mt run of mine (RoM) coal and will extend the current LoM by 18 months. The extractable No. 2 seam reserve is estimated at 3.6 Mt RoM coal and will extend the LoM by an additional 4 months.

Coal mined from the underground sections will be fed through a feeder breaker and then transported by a conveyor belt to the Sasol Synfuel Plant. Sasol Synfuels utilises the RoM coal to generate steam and synthetic fuels for the domestic market.

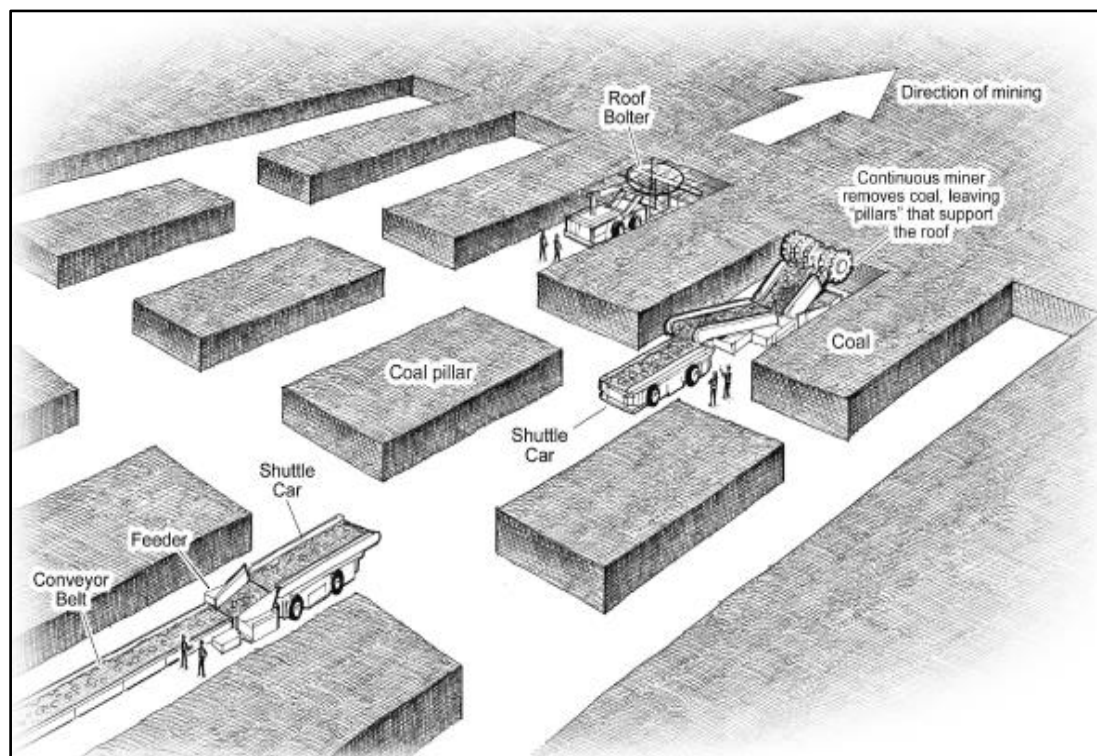


Figure 2: Bord-and-pillar Mining Method

3.3 Infrastructure requirements

The Block IV reserves will be accessed by means of an adit in the highwall of the existing SSC mine as a brownfields project. A Man-and-Material Shaft is being planned at a later stage in the life of the mine. According to the MWP the construction of the Tweedraai shaft will also be completed for the Syferfontein operation, the construction if the shaft is motivated by the current project. Upon its completion, it will allow mining in a westerly direction into the Block IV mining right area (Sasol Mining, 2014). The Tweedraai shaft will include the following infrastructure components:

- Electrical supply infrastructure (22 kilovolt overhead lines, main substation, incline substation, overland conveyor substation, tripper substation, pit floor mini substation and underground substation);
- Clean water pipeline from the Rand water board supply;
- Service water infrastructure (main pipe lines, service water storage dam, fire water storage dam and surface dam pump station);
- Various office buildings, workshops, change houses, parking areas and training facilities;
- A new overland conveyor belt;

- Man-and-material shaft, bunker, decline and ventilation shafts;
- Bunker and stockpile area;
- Polluted water dams;
- Sewage treatment plant; and
- Explosive magazine

3.4 Project timing

Estimated time frames are divided into the construction, operation, decommissioning and closure phases of the project, and are shown in Table 8.

Table 8: Project phases and estimated timeframes

Phase	Year of commencement	Duration
Construction	2013-2016	4
Operation	2016-2041	28
Decommissioning and closure	2042>	1
<i>Source: Sasol Mining, 2014</i>		

3.5 Workforce and expenditure forecasts

This section provides information pertaining to the expected size of the workforce for the proposed project, and presents some figures proving insight into the operational expenditure. It should be noted that the figures quoted here are estimates, thus the actual employment and expenditure figures will only approximate the forecasted figures.

3.5.1 Workforce forecasts

The workforce required for the construction period of the proposed project is currently unknown. However, as stated in Section 1.3, it is assumed that there will be some new employment opportunities during both the construction phase, especially considering that the new expansion will require some new infrastructure (see Section 3.3). The MPRDA stipulates that at least 40% of all employment opportunities (including all skills levels) must be afforded to individuals from within the GMLM or GSDM, which constitutes the mine's receiving environment.

Sasol Mining has indicated the intension to fill unskilled and semi-skilled positions with individuals from the local municipal area as far as possible (see Section 1.2.3.4). The construction workforce will not be accommodated on the project site; thus no construction or operational camp will be required. During construction contract labour will be accommodated

in private accommodation in Secunda, Trichardt, Evander, Embalenhle and Bethal. Construction workers will be transported to the proposed project area daily.

Approximately 113 job opportunities will be available during the first 25 years of the operations, this number will decrease to 34 during the mine's final year of operations (see Table 9) (Sasol Mining, 2014). The permanent workforce will consist primarily of existing mine workers transferred from the existing SSC operation and will therefore have no additional impact on housing infrastructure in the secondary study area. The redeployment of mine workers will sustain existing employment positions as these workers would otherwise be retrenched. Workers will be provided with a transport allowance and find their own transport to work. Most of this transport is likely to be by bus and taxi.

Table 9: Occupational distribution of the expected Sasol workforce for the first five years of operations

Occupational level	Year 1-25	Year 26	Year 27	Year 28
Top management	0	0	0	0
Senior management	1	1	1	1
Professionally qualified and experienced specialists and middle management	2	2	2	1
Skilled technical and academically qualified workers, junior management, supervisors, foremen and superintendents	5	4	3	2
Semi-skilled and discretionary decision making	70	49	40	20
Unskilled and defined decision making	35	25	20	10
Total permanent workforce	113	81	66	34
<i>Source: Sasol Mining, 2014</i>				

3.5.2 Expenditure forecasts

Due to the relatively small scale of construction activities the proposed project will have limited capital expenditure during construction. However, specific cost estimates were not available at the time of writing this report. The total cost of mining during operations will amount to R 251 544 million (mil) (see Table 10); while downstream beneficiation costs will amount to R 98 949 mil (see Table 11). As required by the MPRDA, a proportion of this expenditure should preferably be directed to HDSAs, mostly within either the GMLM or GSDM (unless the goods and services are not available within these areas). At the time of writing this report the estimated wages for mine employees and sub-contractors was not available; however, it is anticipated that salaries and wages will comprise substantial expenditure on the mine's behalf.

With regard to annual regulatory costs, it is forecasted that about R 3 093 mil of royalties will be paid, just more than R 46 mil to comply with mining health and safety regulations, and R 3 075 mil on occupational health (see Table 12). No rates and taxes will be paid as the Sasol Mining does not hold surface ownership of the affected land.

The costs associated with the execution of the SLP are provided in Table 13 below. Over the life of mine, just more than R 295 mil will be spent on Human Resources Development (HRD), R 31 mil on Local Economic Development (LED) and almost R 15 mil on the management of downscaling and retrenchment. A considerable proportion of these amounts have been assigned to the execution of the SLP for the first five years of the proposed project.

Table 10: Breakdown of cost of mining

Category	Cost in Millions (ZAR)
Fuel	13 086
Electricity	8 082
Water	1 943
Stores and materials	155 695
Total	251 544
<i>Source: Sasol Mining, 2014</i>	

Table 11: Breakdown of technology cost on product beneficiation

Category	Cost in Millions (ZAR)
Fuel	2 817
Electricity	13 084
Water	216
Stores and materials	82 832
Total	98 949
<i>Source: Sasol Mining, 2014</i>	

Table 12: Regulatory costs

Category	Cost in Millions (ZAR)
Royalty payments	309 331
Mine health and safety regulations	4 612
Occupational health	3 075
Rates and taxes	-
National skills fund	-
Carbon tax	-
Total	317 018
<i>Source: Sasol Mining, 2014</i>	

Table 13: Estimated expenditure on the SLP during the Life of Mine

SLP commitment	Cost in Millions (ZAR)
HRD	29 511
LED	311
Closure and Retrenchment	1 497
Total	34 118
<i>Source: Sasol Mining, 2014</i>	

4 Baseline profile of the affected environment

The socio-economic baseline profile of the receiving social environment is presented in this section. The inclusion of this information is motivated by the fact that an understanding of the social environment is required in order to anticipate and understand the potential social impacts that may result from the proposed project.

The baseline profile focuses on the socio-economic characteristics of the primary and secondary study areas defined in Section 2.1. The information presented is largely based on the results of the 2011 Census, supplemented by relevant information from other data sources such as the IDPs for the GSDM (2011-2014) and GMLM (2012-2015), as well as the GMLM's 2014-2034 SDF (GMLM, 2014). Both the qualitative data obtained through consultation with local stakeholders by means of interviews, and the data obtained during the investigative site visit have also been integrated into this section.

4.1 Population demographics

The population of the GSDM and GMLM is roughly 1 044 000 and 295 000 respectively (StatsSA, 2012). According to the GSDM IDP 2012-2015, the district has the smallest population size in Mpumalanga. Of the seven local municipalities in the district, GMLM has the largest population, calculated at approximately a third of the district population in 2011. With towns like Kinross, Secunda, Evander and Leandra offering more job opportunities than other towns in Mpumalanga, it seems that migration to urban areas is driven by the hope of employment.

More than half of the district's population (57%) resides in urban areas, such as Embalenhle. It is estimated that 53% of the Black population is urbanised, while only 12% of the White population, 17% of the Coloured population and 5% for the Asian population reside in non-urban areas (GSDM IDP 2012-2015). The SDF reiterates that rapid urbanisation within the Govan Mbeki Municipality increases the demand for land for urban development. The largest proportion of the GMLM population resides in Embalenhle (36%), followed by the eMzinoni/ Milan Park/ Sorrento Park settlement cluster (18%). Only 9% of the local municipal's population resides in Secunda, which is the economic heartland of the GMLM (see Figure 3).

The population distribution within the primary study area is characterised by a relatively low population density, which could be attributed to the fact that the majority of this area comprise commercial farms (see Section 4.4.5).

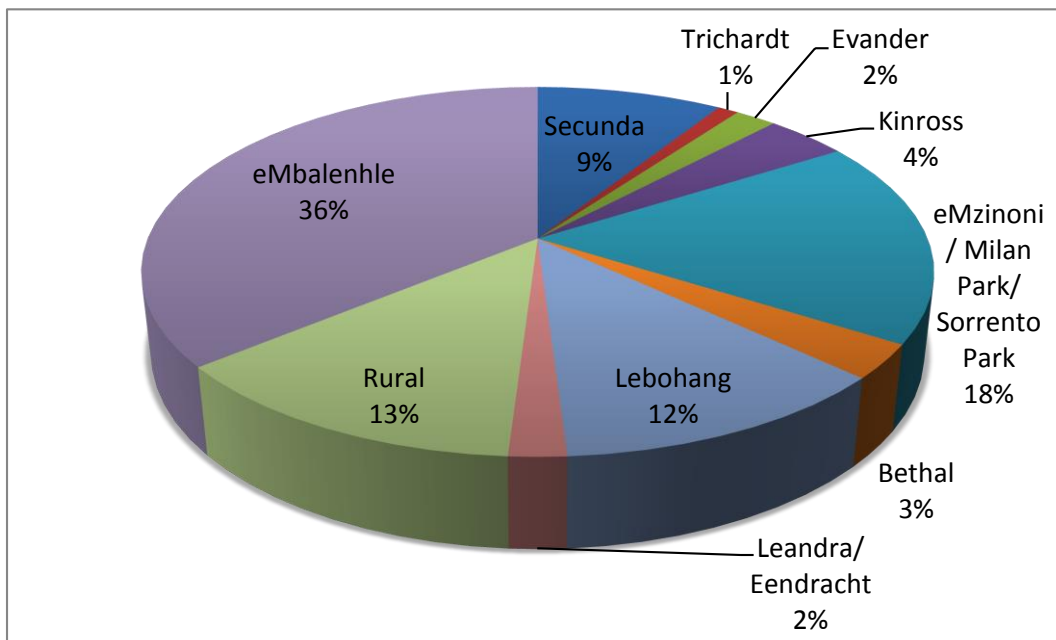


Figure 3: Distribution of GMLM population

The population of the district and local municipal areas is dominated by the Black African race group (89% and 81% respectively), followed by the White race group (9% and 16% respectively) (see Table 14). Racial distribution in the primary study area also reflects this trend, with the white proportion mostly comprised of farmers, while the majority blacks are usually farm-workers, or people residing on farms in the proposed project area.

Table 14: Race per municipal area (percentage)

Race	GSDM	GMLM
Black African	89%	81%
White	9%	16%
Coloured	1%	2%
Indian or Asian	1%	1%

Age and gender are important variables as they provide an indication of the labour-sending capacity of an area. Figure 4 depicts the population size by age for the GSDM and GMLM. The district has a significantly larger young population (aged 19 years and younger). From age categories 20 to 59 the GMLM hosts the larger population. Field investigations established that this is likely as a result of people from across the district and other parts of the country migrating to GMLM in search of job opportunities after they complete secondary schooling. The population numbers even out between the two areas as from retirement age

(60 years). The higher population numbers in the GSDM in the categories 65 to 69 and 80 to 84 years could be an indicator of people returning to their homes elsewhere in the district after retirement.

The youth (individuals between the ages of 14 and 35) comprises the largest age cohort in the district (38%) and local municipality (39%) (StatsSA, 2012). This is similar to the national figure of 40%, and is indicative of a large potential workforce (Mid-year population estimates, 2011).

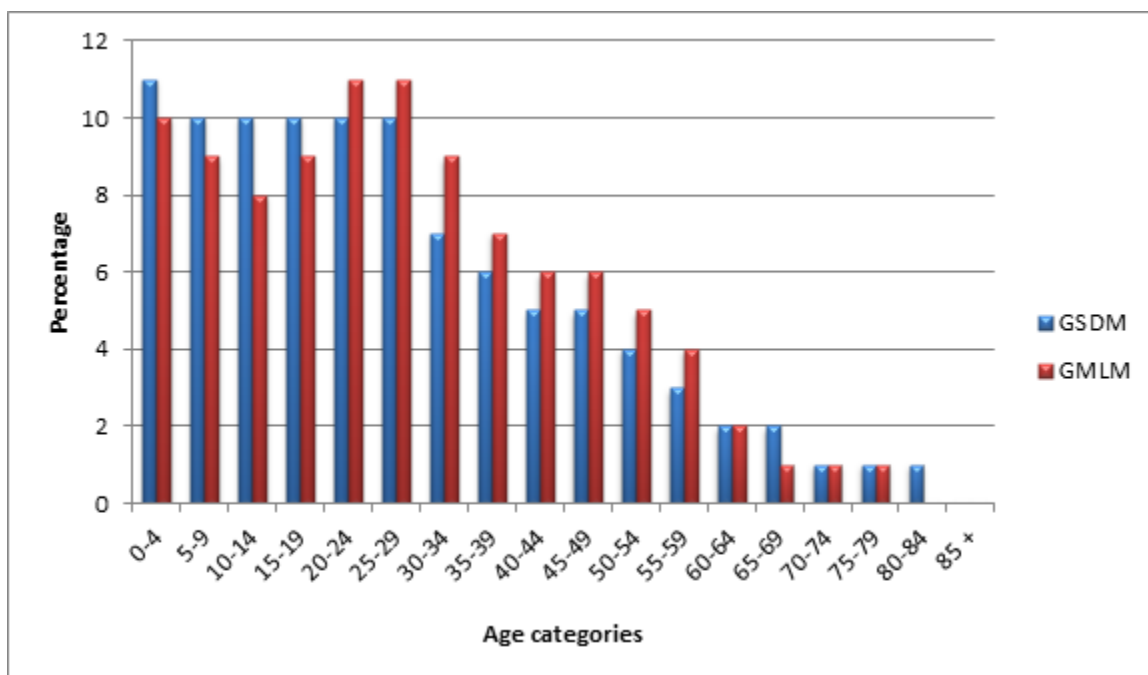


Figure 4: Population size and age categories

According to the GSDM IDP, Govan Mbeki and Lekwa are the only two local municipalities in this district where females do not outnumber males. This can be attributed to the higher prevalence of industries in Govan Mbeki and Lekwa municipalities (particularly mining) that employ a dominantly male workforce due to the nature of the work.

The dominant language in both municipal areas is isiZulu. This is followed by Afrikaans and SiSwati (see Figure 5 below). The prevalence of SiSwati is likely due to influences from Swaziland, which borders Mpumalanga.

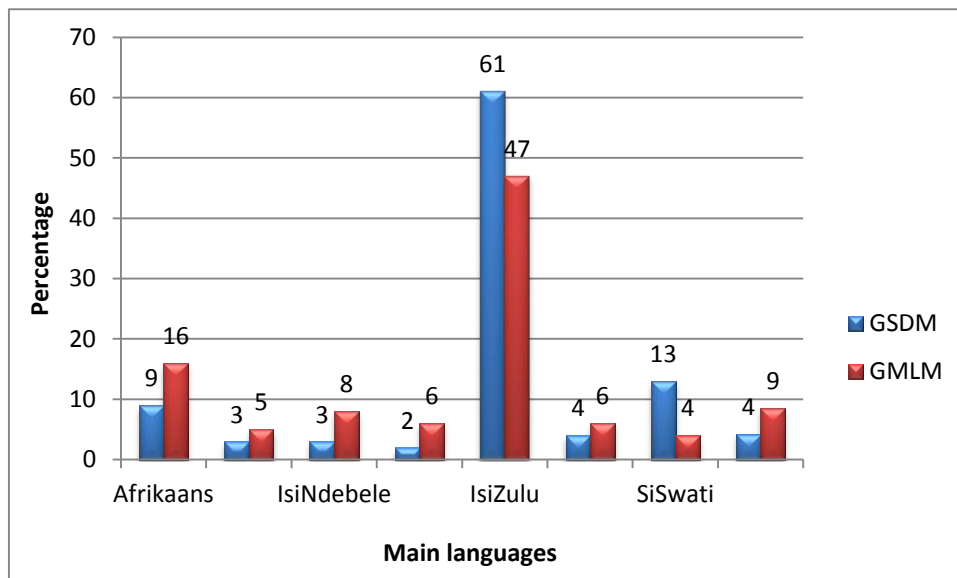


Figure 5: Main languages in the GSDM and GMLM

4.2 Education

Functional literacy is defined as the ability of an individual to apply reading, writing and computational skills efficiently in everyday life situations, while the literacy rate is the proportion of persons aged 20 and above who have completed Grade 7 and are functionally literate. An increase in the basic literacy skills of adults generally has a positive effect on an economy. Research has found that adults with higher literacy skills are more likely to earn more than those with lower literacy skills, even when taking account of other factors which affect work performance. Within the GSDM, the GMLM has the highest level of functionally literate people, at 74%.

According to Figure 6 below, 32% of the GMLM and 31% of the GSDM population have some *secondary education* (i.e. completed primary school and completed at least one year of secondary schooling) as their highest level of education. This is on par with the provincial average of 31%. The proportion of the population that has some *primary education* (i.e. completed at least one year of primary schooling) (23% in GMLM and 28% in GSDM) is high compared to all other provinces, which average 14%. The proportion of the population who have completed their secondary education is slightly lower than other provinces and the levels of higher education are also substantially lower (StatsSA, 2012). This highlights that the population of both municipalities have relatively low levels of education. It should be noted that these figures are skewed towards urban areas, where access to education services are readily available. During the site visit it was established that those within the more rural outskirts of the secondary study area (also including the primary study area) tend to have even lower levels of education.

Primary schools form the majority at both municipal scales, as shown in Table 15, followed by secondary schools. There is only one tertiary institution within the district. Currently schools within Kinross and its surrounds are experiencing extensive pressure to accommodate an increasing number of learners. Five educational facilities are situated within Kinross and another two facilities are situated within the rural outskirts of the primary study area; these include the Embidini Combined School and the Ethokolomala Secure care centre, the latter is used by the Department of Correctional Services as an educational centre for offenders (see Plan 1 and Figure 7).

Table 15: Educational facilities in the GMLM and GSDM

Status	GMLM	GSDM
Independent Schools	5	19
Public Primary Schools	62	417
Public Secondary Schools	21	171
Further Education and Training Colleges	1	5
Tertiary Institutions	1	1

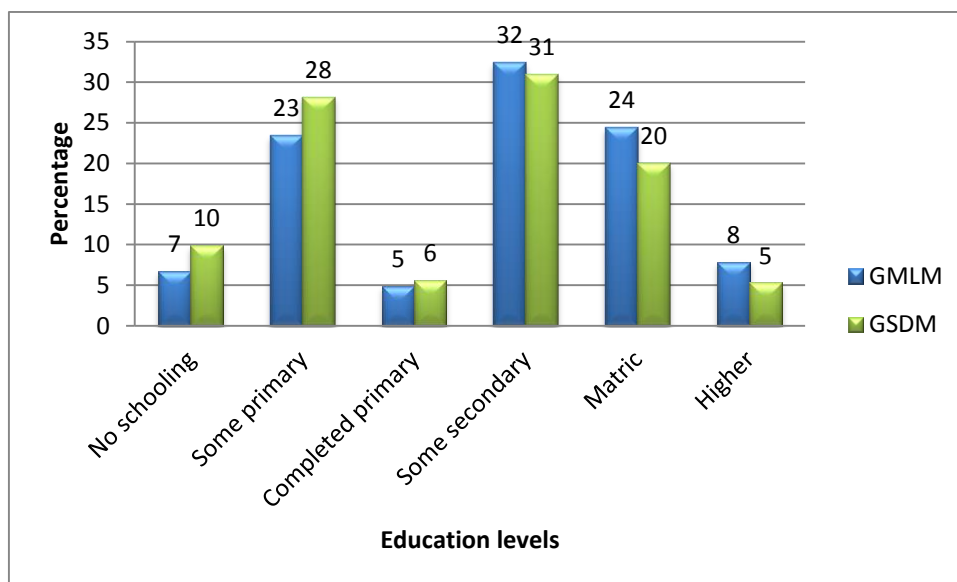


Figure 6: Highest levels of education for persons aged 20 and older



Figure 7: Embidini Combined School

4.3 Health

4.3.1 Provincial overview

Tuberculosis (TB) management remains a challenge in South Africa, especially considering its co-morbidity with HIV/AIDS. There has been a slow, but steady increase over the last four years in both the TB cure rate and smear conversion rate³ in Mpumalanga Province. Between 2006 and 2011, the TB cure rate increased from 56% to 61%, while the smear conversion rate increased from 58% to 78% between 2007 and 2008. Both are still below the World Health Organisation (WHO) recommended rates (>85%) (Day, 2012). In 2011 there were almost 780 cases per 100 000 people of TB in GSDM and the new HIV/AIDS positive patients with a confirmed TB rate was 8% (Day, 2012).

South Africa is experiencing a severe generalised HIV/AIDS epidemic that is affecting the social and economic fabric of the country. There are many causes, but poverty, lack of education and vulnerability in certain sectors are important factors. According to the National HIV and Syphilis Prevalence Survey of 2009, Mpumalanga Province had the second highest HIV/AIDS prevalence rate in the country at 36%, with a rate of 41% in GSDM (National Department of Health, 2010). GSDM also had the highest antenatal HIV/AIDS prevalence in Mpumalanga Province (38%), according to a 2010 antenatal survey. During the field investigation several stakeholders mentioned that HIV/AIDS and prostitution is a major problem in Kinross and surrounding towns. Reasons attributed to the high HIV/AIDS are high

³ Percentage of new smear positive Pulmonary Tuberculosis (PTB) cases who are smear negative after two months of anti-TB treatment, and are therefore no longer infectious - Source: <http://indicators.hst.org.za/healthstats/254/data#sthash.3Be4MW6g.dpuf>

levels of prostitution combined with substance abuse and high levels of disposable income in mostly urban areas.

In 2010/2011, the incidence of diarrhoea in children under the age of five in GSDM was 54 per 100 000 (Day, 2012). Recent data on the prevalence of stunting (low height-for-age indicating chronic malnutrition), underweight (low weight-for-age indicating food availability and use concerns) and wasting (low weight-for-height indicating acute malnutrition) for children under the age of five in the GSDM was not immediately available. However, the incidence of severe malnutrition in children under five years was estimated to be 3.4 per 1000 in 2011 (Day, 2012).

Non-communicable diseases (NCD) play an important role in the overall burden of disease in Mpumalanga Province. Strokes, chronic lung disease, heart disease, hypertension and diabetes are all mentioned in the top 20 disease burdens in the province. There is very little information in the public domain related to NCD at the district level. The diabetes mellitus and hypertension detection rate in 2011 was estimated to be 0.1% in Mpumalanga (Day, 2012).

4.3.2 District overview

As the largest district in Mpumalanga Province, GSDM has deep rural pockets where communities have challenges in accessing health services. Rural communities within the primary study area only have access to central clinics in the surrounding towns, which is often short staffed, and lack supplies. The percentage of residents with medical aid in the district is about 14% (Day, 2012). Within the GMLM, the primary clinic within Kinross (Thistle Grove Clinic) is also already exceeding its capacity to deliver health services. The nearest hospital to the primary study area is situated in Envander.

The TB cure rate for 2010 was 64% in GSDM and well below both the provincial (73%) and the national (73%) averages. The TB defaulter rate dropped from 11% in 2009 to 9% in 2010. The TB two-month smear conversion rate increased from 54% to 72% between 2010 and 2011 (Massyn et al, 2011).

Mpumalanga is one of the three provinces with the highest infection rates of HIV/AIDS. GSDM has been identified as one of the most affected areas in the country. Amongst the three district municipalities of Mpumalanga, GSDM has the highest HIV/AIDS prevalence rate at 46%, which shows an increase of 7% since 2010 (GSDM, IDP 2012/13).

The antenatal client HIV/AIDS prevalence rate in GMLM was 44% in 2010. The rate of antenatal clients initiated on Highly Active Antiretroviral Therapy (HAART) of 60% is significantly lower than the national average of 80% and ranks the district fifth lowest in the country. The rate of HIV-positive infant under 18 months initiated on HAART was 49% in 2011/12 (Massyn et al, 2011).

The hypertension detection rate was 0.4% for the second year in a row and slightly above the provincial and national averages of 0.3%. Mental health case load comprised 0.9% of the total case load, which is below the national average of 1.4% (Massyn et al, 2011).

Immunisation coverage under 1 year has varied over the last five years, but increased by 4.4 percentage points from 2010/11 to 84% in 2011/12 – the highest coverage in the province.

The diarrhoeal incidence under five years decreased consistently from 74 per 1 000 children in 2007/08 to 35 in 2011/12, the second lowest incidence in the country. The mortality rate among children under 5 years, due to diarrhoea with dehydration, was 6% (Massyn et al, 2011).

The stillbirth rate decreased consistently from 28 per 1 000 births in 2007/08 to 23 in 2011/12 and is lower than the province average of 24. The early neonatal death rate was 11 per 1 000 live births, close to the national average of 10 per 1 000 live births. The under-1 and the under-5 facility mortality rates decreased between 2010/11 and 2011/12 to 9% and 5% respectively, but are both still above their respective national averages (Massyn et al, 2011).

4.4 Economic activity

GMLM has the most undiversified economy within the GSDM with a Tress index rating⁴ of 61.17. The local economy is dominated by interdependent mining (gold and coal) and petrochemical and other secondary industries (GMLM, 2014). The district has the largest underground coal mining complex in the world, which makes it an important strategic area within the national context (GMLM IDP 2007 – 2011 report). Commercial agricultural is the most dominant land use in the district while the petrochemical industry is the main contributor to municipal output.

4.4.1 Sector contribution to the regional economy

According to Table 16 below, mining is the dominant sector in the GSDM. The community services sector is the second largest (15.1%), followed closely by manufacturing (14.6%). Agriculture is the lowest contributor to the regional economy (4%).

⁴ The Tress Index is a measurement of a region's economic diversification. If the index is zero it indicates that the region's economy is completely diversified, but the closer the index moves to 100 shows that the economy is much more vulnerable to exogenous factors such as climatic condition and price fluctuations, and that the economy is considered to be more concentrated.

Table 16: Contribution of sectors to the regional economy (percentage)

Sectors	2006	2007	2008	2009
Mining	22.7%	23.5%	30%	28.8%
Community services	15.4%	15.1%	14%	15.1%
Manufacturing	18.4%	17.7%	15.8%	14.6%
Finance	12.8%	13.2%	12%	12%
Trade	10.9%	10.5%	10.4%	10.7%
Transport	8.6%	8%	7.2%	7.6%
Electricity	5.1%	4.9%	4.4%	4.8%
Agriculture	3.9%	4.6%	3.6%	3.5%

Mining and manufacturing are the foremost contributors to the GSDM economy. Mining activities are mainly tied to coal, which serves as input material for the petrochemicals industry in GMLM, and electricity generation for the various power stations. Gold mining also contributes to the mining output in the district according to the GSDM IDP 2012-2015.

GMLM's manufacturing sector is driven mainly by Sasol's petrochemical / synthetic fuels plants at Secunda. Economic activity in this area contributes 60% towards the district municipality's total economy.

According to the Govan Mbeki IDP report, Secunda is the most active business zone in the municipality; 45% of the financial, administrative and professional concerns of the region are situated in Secunda. Industrial activity in the area is dominated by Sasol, whose site area makes up to 85.7% of the total industrial / commercial land in the area.

4.4.2 Occupations

The mining and quarrying sector employed the largest number of people in the GMLM (22%) in 2011. This is followed by the wholesale and retail trade (21%), then manufacturing (18%). The agriculture, hunting, forestry and fishing sector employs only 3% of the local municipal population, as shown in Table 17 below. In contrast, economic activity and occupations within the primary study area are mostly concentrated within the agricultural sector.

Table 17: Percentage of persons employed by industry in the GMLM

Industries occupied	2001	2010
Agriculture, hunting, forestry and fishing	4.8%	3.0%
Mining and quarrying	21.5%	21.8%
Manufacturing	22.9%	18.2%
Electricity, gas and water supply	0.7%	0.6%
Construction	3.9%	5.3%
Wholesale and retail trade	20.9%	21.0%
Transport, storage and communication	3.8%	4.3%
Financial, insurance, real estate and business services	3.5%	5.4%
Community, social and personal services	10.2%	12.2%
Private households	7.7%	8.1%

4.4.3 Employment

According to Figure 8 below, there is little difference in employment between the GSDM and the GMLM; overall employment levels in the GMLM are only slightly higher than in the district. Sasol mining is one of the most prominent sources of employment throughout the area, with Sasol Mining directly responsible for the employment of approximately 8 600 people and a further 7 000 indirect employment opportunities (GMLM IDP 2012-2015).

Throughout the primary study area unemployment is high especially among rural households outside Kinross. Areas such as Evander, Leandra, and Embalenhle also experience high unemployment when compared to Secunda.

When comparing male and female employment, unemployment amongst females is significantly higher than males at both municipal levels. Furthermore, when women do generate income, it is likely to be through the informal sector and of a survivalist nature. The shortage of, and associated long distances to, primary health facilities in the area puts additional pressure on mothers to engage in employment opportunities, as the distant location of provincial and district hospitals increases travelling expenses. Where access to grid electricity is lacking, women (and girl children) need to allocate time for collecting wood, which further affects income generating ability of women.

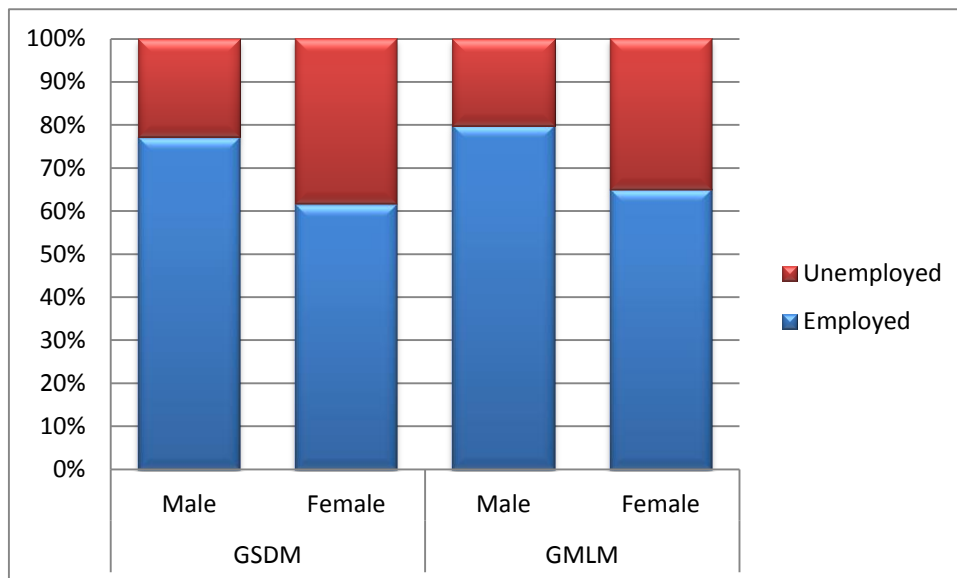


Figure 8: Employment status by sex

4.4.4 Poverty, vulnerability and crime

Within the district, GMLM has the lowest percentage of people living in poverty (29%) and the lowest unemployment rate. Table 18 below provides some indicators of poverty, further demonstrating that GMLM is in a relatively better socio-economic position than the rest of the district and province as a whole. It should be noted that this situation is skewed towards the more affluent urban areas such as Kinross and Secunda, with rural and informal communities experiencing high levels of poverty and underdevelopment, as is evidenced among especially farm-worker and other households residing in the rural outskirts of the primary study area, such as Embidini Informal settlement (refer to Section 2.1 for the definition of the various study areas)

Crime in general was identified by the informants as a problem within Kinross. Crime prevention and safety were noted by most in the primary study area as a priority. The most common crimes in this study area include prostitution, house breaking, robbery, and livestock theft.

Table 18: Indicators of poverty

Development indicators (2010)	GMLM	GSDM	Mpumalanga
Human Development Index ⁵ (HDI) (0 worst to 1 best)	0.59	0.52	0.52
Gini-coefficient ⁶ (0 best to 1 worst)	0.65	0.65	0.64
Poverty rate	37.1%	49.2%	45.6%
Per capita personal income per year ⁷ (current prices)	R37 880	R25 769	R26 623
% households earning below R42 000 per year (R3 500 p/m)	40.7%	49.9%	46.9%

4.4.5 Local Economic Development

The GMLM SDF lists six strategic objectives that guide municipal development. The first of these objectives pertains to economic development and job creation, through the following:

- Integration of regional and sub-regional spatial development initiatives, with the aim of leveraging investments to have an overall greater regional impact;
- Implementation of regional strategic investment initiatives, which include:
 - Developing a Special Economic Zone at Secunda diversifying and supporting the local economy providing for logistics and manufacturing;
 - Encouraging partnerships between provincial Government, Municipalities and Private Enterprises, in particular Sasol Mining;
 - Linking rail systems to unlock the northern mineral belt with Waterberg (SIP1) and making coal available to the Gert Sibande District and Nkangala District;
 - Increasing rail capacity to Richards Bay;
 - Shifting from road to rail in GMLM to alleviate the congestion or caused by freight ; and
 - Continuous upgrading of the N17 route as a high mobility regional route,
- Diversifying and strengthening the Govan Mbeki Economy through focussing on mining, manufacturing and Synfuels production, agricultural and trade sectors. With

⁵ The HDI is an indicator developed by the United Nations to measure the level of social and economic development based on four criteria: Life expectancy at birth, mean years of schooling, expected years of schooling and gross national income per capita.

⁶ The Gini-coefficient, developed in 1912 by Italian statistician Corrado Gini, is a mathematical measure of income inequality. Its theoretical maximum value is 1 – which would imply that a single person receives 100% of the total income and the remaining people receive none – and its theoretical minimum value is 0 – in which case everyone receives exactly the same income.

⁷ Per capita personal income per year: the mean income of the people in an economic unit such as a District or Local municipality or city. It is calculated by taking a measure of all sources of income in the aggregate (such as GDP or Gross national income) and dividing it by the total population

regards to mining the SDF advocates the optimal exploitation of minerals to provide a long term advantage to the creation of sustainable economies, communities and jobs within GMLM without compromising biodiversity, water quality and availability, agriculture and tourism.

4.5 Other mining and industrial operations

The primary study area falls within the Highveld Coalfield, which hosts a large number of coal mining operations, including Sasol Mining's Twistdraai, Brandspruit, Bosjesspruit Middelbult, and Syferfotein Collieries. Other coal mining title holders in GMLM include Anglo Operations, Ingwe, Xstrata (now Glencore Operations South Africa), Eyesiswe, Igoda and Total Exploration SA.

There are currently a total of 13 mine shafts in the local municipal area, as well as an extensive network of surface conveyor belts to transport coal from the shafts to the Sasol Coal Supply blending facility, which in turns feed homogenised coal to Sasol Synfuels.

Most of the coal mining activities during the next 10 years will take place in the central part of the local municipal area (GMLM, 2006b). It is noteworthy that coal seams in this area are generally shallow, while undermining in the local municipal area leads to the sterilisation of land for surface development. The land normally takes approximately 1 to 2 years to settle, after which surface development can be considered subject to certain conditions (GMLM, 2006a). In addition to coal mining several coal-fired power stations are also situated within the secondary study area, these include the Matla and Kriel Power stations.

Gold Mining operations in the GMLM include Plan African Resources' Evander 5, 7, and 8 shafts, as well as Taung Gold. Taung Golds' Evander project in Mpumalanga is made up of two adjacent properties – the No 6 shaft area formerly owned by Harmony Gold and the virgin Twistdraai property.

4.6 Current land use and ownership within the primary study area

Commercial agricultural is the most dominant land use in the district (although the petrochemical industry is the main contributor to municipal output). Mining, particularly coal mining, is also an important land use, with Secunda being the most active business hub in the municipality. The expansion of industrial activity and mining, while promoting economic growth, has led to the encroachment of agricultural land (GMLM, 2014).

Table 19 (and depicted in Plan 3) below provides an overview of the farms comprising the proposed MRA as well as their registered owners main land-use activities and details of occupants living on and structures built on the property.

The most dominant land use is agriculture, including several commercial maize and soya farms and a variety of livestock and game farming (see Figure 9 and Figure 10 below). Livestock kept is mostly cattle, with some sheep and goat farming; game farming is mostly

limited to springbuck, blesbuck, ostrich and gnu. Livestock is usually sold at auctions, whereas game is hunted on the farms.

Residential land uses are also prominent in the primary study area. As mentioned earlier the southern section of Kinross town falls entirely within the proposed MRA. The majority of residential units within this suburb consist of single dwelling houses on serviced stands with an average size of 2200m² in the eastern part of the town and ±750m² in the central part. Prominent landowners within Kinross town, apart from private ownership, are GMLM, and Sasol Mining. It should be noted that Section 48 of the MPRDA prohibits the granting of mining right over land comprising an existing residential area.

In the remainder of the study area residential use is limited to several landowning families, farm-workers and tenants occupying homesteads located within the rural sections of the primary study area (see Table 19). It is estimated that at least a few hundred farm-workers live on the rural properties in the primary study area. This includes labourers, farm managers and contractors as well as their spouses and children. Informal discussions during field investigations highlighted the plight of these occupants. They are generally poor households, while most of them have little or no formal education and/or skills. Some workers have been living on the farms for many years and they have no other homes and/or livelihoods. In many cases where farms were recently sold workers are left unemployed as the new owner rarely employs the existing farm-workers. These employees usually continue to reside on the property. Most farm-worker households reside in informal dwellings and have little access to public services and facilities. Where these exist, they usually have to travel long distances using limited public transport. Farm-worker salaries are relatively low, and are increasingly linked to the compulsory minimum wage. Two informal settlements are also situated within the primary study area (see Section 4.8.1.3).

Mr. N de Vos owns the majority of land within the primary study area, followed by Volschenk Family Trust, Anglo Operations Pty Ltd and other Government institutions. Where a landowner owns several farms, these are generally all run as one business. Therefore, the sale of one farm will impact on the business operations of all farms. Many farms in the area are 'erfplase' and have been in the family for many years. Not all farm owners live on their properties. Some would visit the farm over weekends while others have appointed farm managers who stay on the farm with their families. Farmers that are leasing land in the study area, in many instances, lease more than one property – this refers to properties within and outside the study area.

The industrial/commercial area of Kinross is mostly situated in the eastern part of Thistle Grove (northern suburb of Kinross), while grain silos and related commercial activities are situated south of Kinross abutting the railway line. Business is concentrated in the Central Business District (CBD) which is situated along the N17 highway. The CBD has been earmarked within the GMLM SDF for possible urban regeneration and restructuring. There are a number of vacant industrial-zoned stands in the area.

Industrial and commercial nodes also exist on Wildebeesfontein 122 IS (e.g. Volschenk Plumber's, Protect 'O' Burn etc.) and Zondagskraal 125 IS, whilst isolated parts of the landscape are reserved for public works such as the sewage treatment plant on Zondagsfontein 124 IS Portions 2 and 8 and refuse removal dumps.

It should be noted that Digby Wells has enquired if there are any land claims on the various affected properties, and is currently awaiting a response from the Department of Rural Development and Land Reform, Land Claims Commission. According to the GMLM SDF 2014 no successful or gazetted land claims coincide with the proposed MRA area (GMLM, 2014).


Table 19: Land uses within the primary study area

Farm Name	Ptn	Owner	Land occupants and livelihoods	Land-use	Structures
Wildebeestfontein 122 IS	1	Highveld Bargains & Deals CC	<ul style="list-style-type: none"> Owner and his family reside on the farm One farm-worker also resides on the property Farm in a 50% partnership with the Hancke family 	<ul style="list-style-type: none"> Residential use; Agriculture and cattle farming; and Planned residential development 	<ul style="list-style-type: none"> One formal residential structures; Two general farm buildings – used for storage etc; Two informal residential structures
	8	Eskom	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> Power supply infrastructure 	<ul style="list-style-type: none"> Power lines
	20	Transnet	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> Railway infrastructure 	<ul style="list-style-type: none"> Railway line
	3	Hancke Family	<ul style="list-style-type: none"> One household – son of owner and his family, Two farm-workers also reside on the farm 	<ul style="list-style-type: none"> Residential uses Farm is leased out for grazing and maize cultivation purposes to Mr. F Viljoen and Mr Hayman 	<ul style="list-style-type: none"> Two formal residential structures One informal residential structure Several farm buildings
	4	Volschenk Family Trust	<ul style="list-style-type: none"> Five ex-farm worker households reside in mostly informal structures, these individuals were employed by the previous owner, the majority of these individuals are currently unemployed 	<ul style="list-style-type: none"> Residential use; Several sections of the farm is leased out for grazing and maize cultivation purposes 	<ul style="list-style-type: none"> Two formal business structures Several informal housing structures
	7		<ul style="list-style-type: none"> Ten households leases households from the owner; the majority of these persons are either mine contractors or people working in Kinross 	<ul style="list-style-type: none"> Residential leases Leases for grazing and maize cultivation purposes 	<ul style="list-style-type: none"> Four formal residential complexes



	12		<ul style="list-style-type: none"> • Location of primary residence of Volschenk family who owns a large Plumbing business and cattle and maize farming operations. Plumbing business employs +/- 50 people • Three households • Two farm-workers also reside on the property 	<ul style="list-style-type: none"> • Cattle and maize farming • Residential leases • Workshop and offices for Volschenk Plumbing • Family and employee home 	<ul style="list-style-type: none"> • Five primary residential structures • Two informal residential structures • Two formal business structures – offices and warehouse for plumbing business • Four formal business structures used for farming operations
	11	JC van der Walt	<ul style="list-style-type: none"> • The owner resides on farm; • Two households resides within the primary residence • No farm-workers reside on property 	<ul style="list-style-type: none"> • Residential use; • Cattle, goat, and game farming; 	<ul style="list-style-type: none"> • Two formal residential structures • Five formal business structures:- farm buildings used for storage etc.
	13	Anton Engelbrecht Boerdery (Pty) Ltd	<ul style="list-style-type: none"> • Owner does not reside on farm, leases main residential structures to mine contractors +/- 35 • Two workers and their families live on the farm as well as two couples and their children, these people reside in informal structures towards the northern corner of the farm 	<ul style="list-style-type: none"> • Residential use; • Remainder of the farm is rented by Mr. Francois Viljoen for grazing and maize cultivation purposes. 	<ul style="list-style-type: none"> • Primary residence two formal residential structures • Farm-worker residence, five informal structures • General farm storage, three warehouses
	14	Mr. P. Andrews – Protect ‘o’ Burn (previously GOR Konstruksie CC)	<ul style="list-style-type: none"> • Two landowner households, owner of Protect ‘O’ Burn, which is a fire-fighting equipment manufacturer that is established on the same property • One farm-worker household, who rents a flat 	<ul style="list-style-type: none"> • Residential; and business property for Protect ‘O’ burn – manufacturing of fire-fighting equipment • Horse riding school 	<ul style="list-style-type: none"> • Four formal residential structures • Five formal business structures – workshops, offices, and showroom • Three formal rental houses



	15	Mr. J.A. Taljaard	<ul style="list-style-type: none"> Two-three households reside on property immediately west of the roadway; Business, which leases farm implements and other plant construction vehicles, several employees who reside elsewhere 	<ul style="list-style-type: none"> Residential use; Business property, which leases farm implements and other plant construction machinery 	<ul style="list-style-type: none"> Two formal primary residential structures Several business structures 	
	22	FJ de la Guerre	<ul style="list-style-type: none"> Farm leased by Francois Viljoen Rents house on property to a household 	<ul style="list-style-type: none"> Cattle farming Foster home for 30 children Residential rental 	<ul style="list-style-type: none"> Foster home Several formal residential structures 	
	5					
	21	Mr. J.A. Taljaard	<ul style="list-style-type: none"> Information unobtainable 	-	-	
	6	Mr. PJ Rossouw	<ul style="list-style-type: none"> Information unobtainable 	-	-	
	10	Rand Water Board	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> Water reservoirs 	<ul style="list-style-type: none"> Three concrete reservoir structures 	
	17					
	18					
	19					
	28	SANRAL	<ul style="list-style-type: none"> Information unobtainable 	-	-	
44	Mr. Francois Viljoen	<ul style="list-style-type: none"> Property owner and family reside on property One farm-worker household One ex-farmworker household 	<ul style="list-style-type: none"> Cattle farming Goat farming Maize and soya cultivation 	<ul style="list-style-type: none"> Several formal residential structures Three informal residential structures, Buildings used for farming operations 		
Dieplaagte 123 IS	1 & 7 (1,2, 3 &4)	Nicol de Vos/Paulina Boerderye	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> Maize and soya cultivation 	<ul style="list-style-type: none"> None 	



Langsloot 99 IS	16	Nicol de Vos/Paulina Boerderye	<ul style="list-style-type: none"> • Primary residence of Mr. N de Vos, owner of Paulina Boerderye and Vosstoffel Pty Ltd. Three landowner households reside on the property • Six farm-worker households also rent housing on this land at two separate properties • Paulina Boerderye and Vosstoffel Pty Ltd employees approximately 80 people • Mr de Vos's workers have worked for him since the 1990s 	<ul style="list-style-type: none"> • Residential • Maize and Soya cultivation • Cattle farming 	<ul style="list-style-type: none"> • Six formal residential structures • Five informal residential structures • Ten formal business structures – Offices, warehouses, general farm buildings, livestock pens etc.
	17	Nicol de Vos/Paulina Boerderye	<ul style="list-style-type: none"> • None 	<ul style="list-style-type: none"> • Maize and Soya cultivation • Cattle farming 	<ul style="list-style-type: none"> • None
Zondagsfontein 124 IS	1,3,5-7,9,12,21 & 23	Nicol de Vos/Paulina Boerderye	<ul style="list-style-type: none"> • None 	<ul style="list-style-type: none"> • Maize and Soya cultivation • Cattle farming 	<ul style="list-style-type: none"> • None
	4	Nicol de Vos/Paulina Boerderye	<ul style="list-style-type: none"> • Three households reside on this property, including the farm manager and other contractors employed at Paulina Boerderye 	<ul style="list-style-type: none"> • Residential • Maize and Soya cultivation • Cattle farming 	<ul style="list-style-type: none"> • Three formal residential structures • Several business structures – used for storage
	42	Mr. LJB Potgieter	<ul style="list-style-type: none"> • Primary residence of landowner, three households who are related to the owner reside on this property as well as three farm-worker households 	<ul style="list-style-type: none"> • Game farming; 	<ul style="list-style-type: none"> • Several formal residential structures • Several formal farm buildings • Three housing structures for farm-workers and their households



	41/43	Mr. B. Simmington	<ul style="list-style-type: none"> Primary residence of Owner, who resides on the property with his family Some farm-workers also reside on property 	<ul style="list-style-type: none"> Residential and business use 	<ul style="list-style-type: none"> Several formal residential structures
	10	Mr. B. Plastzky	<ul style="list-style-type: none"> Business property – Kinross farms Primary residence of owner and family Several farm-worker or ex-farm-workers reside on the property 	<ul style="list-style-type: none"> Residential, cattle grazing, cultivation 	<ul style="list-style-type: none"> Several formal residential structures
	26 & 29	Nicol de Vos & GMLM	<ul style="list-style-type: none"> Kinross Golf Club 	<ul style="list-style-type: none"> Recreation 	<ul style="list-style-type: none"> Business structures for Kinross Golf Club
	38 & 39	Unknown	-	-	-
Vaalbank 96 IS	2	Highland Night Inc 59 (Pty) Ltd (Mr. J. Barnard)	<ul style="list-style-type: none"> One household rents a formal residential structure on the property 16 people are employed for farming activities on all the Highland farms Two ex-farmworker households reside on property Embidini Primary School is also situated on the property, which is neighboured by an informal settlement which houses 10-15 households 	<ul style="list-style-type: none"> Cattle farming Maize cultivation Farm school on premises Initiation site on premises Residential use Education 	<ul style="list-style-type: none"> Two formal residential structures Two informal residential structures Four business structures previously used as storage facilities for the farm, currently abandoned Embidini Primary School Embidini Informal Settlement
Zondagskraal 125 IS	2	Orambamba 25 (Pty) Ltd (Mr. J. Barnard)	<ul style="list-style-type: none"> A household rents the primary residence on the farm Two ex-farm worker households is also located on the farm 	<ul style="list-style-type: none"> Residential Cattle farming Maize and soya cultivation 	<ul style="list-style-type: none"> One formal residential structures Two informal residential structures



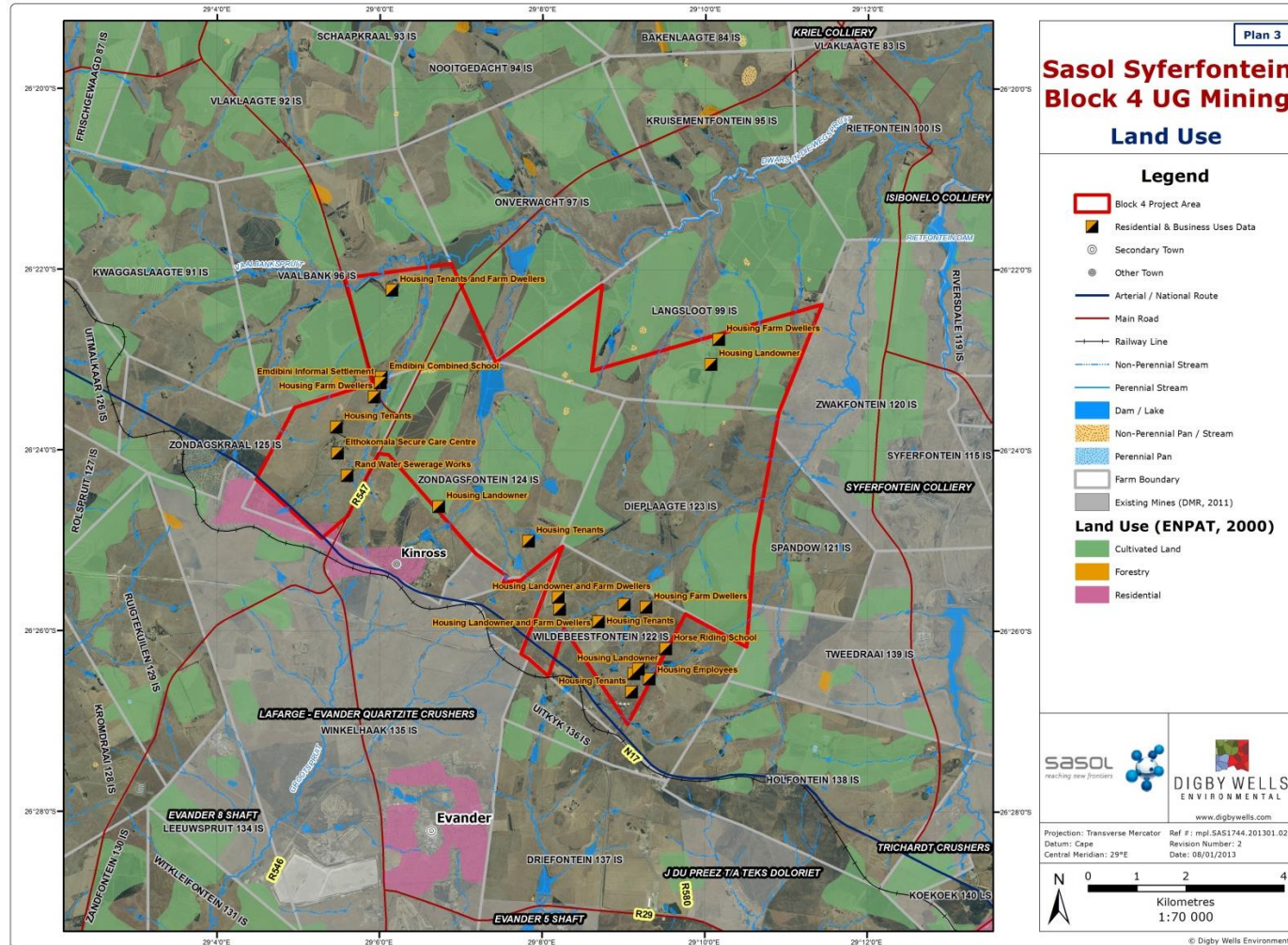
	15	Republic of South Africa	<ul style="list-style-type: none"> Ethokolomala Secure care centre, which is used by correctional services as an educational centre for offenders 	<ul style="list-style-type: none"> Correctional services 	<ul style="list-style-type: none"> Ethokolomala Secure care centre
	24	Nicol de Vos/Paulina Boerderye	<ul style="list-style-type: none"> No occupants Industrial businesses 	<ul style="list-style-type: none"> Scrapyard, Transport, Workshops 	<ul style="list-style-type: none"> None
Rietfontein 101 IS	2 & RE	Anglo Operations Ltd	<ul style="list-style-type: none"> No occupants Anglo has been mining in the area since 2002 and leases out some of its properties to farmers. The workers of farmers are not allowed to live on the leased properties. No people live on the properties. 	<ul style="list-style-type: none"> The main activity on the properties is farming, and underground mining 	<ul style="list-style-type: none"> Some mining infrastructure
	4 & 5	JC Greyling	<ul style="list-style-type: none"> Farm manager and wife live on Langsloot as well as 2 farm labourers and their families and the maid On Rietfontein there are 3 labourers, 2 of which have spouses. About 10 people have been living on 20 ha of Rietfontein for generations. They buy and sell coal and own cattle and goats. The gardener lives on a neighbouring farm Owns a portion of Langsloot, 10 km away 	<ul style="list-style-type: none"> Agriculture and cattle farming 	<ul style="list-style-type: none"> Several informal dwellings for farm-workers
Rietfontein 100 IS	2 & 12	JC Greyling	<ul style="list-style-type: none"> Several farm workers reside on property 	<ul style="list-style-type: none"> Residential, Crop cultivation and grazing 	<ul style="list-style-type: none"> Several informal dwellings for farm-workers



	4-6,8,9,11,13 & 14	Paulina Boerderye (Pty) Ltd and Vosstoffel Pty (Ltd)	<ul style="list-style-type: none"> Several households reside on these portions, however the greater majority of land is either cultivated or empty Several farm-worker households also reside here 	<ul style="list-style-type: none"> Residential, cultivation and cattle grazing 	<ul style="list-style-type: none"> Several residential structures, farm buildings, several informal dwellings
	7 & 10	T Schwartz	<ul style="list-style-type: none"> Rietfontein farms are leased to Nicky Boshoff He has 5 farm-workers. His children live on Vlaklaagte. He and his wife live on Uitkyk, which is next to Rietfontein. He hires part of Vlaklaagte for cattle and agriculture and to run his dairy 	<ul style="list-style-type: none"> Cattle, maize, soya bean farming 	<ul style="list-style-type: none"> Two formal residential structures, several farm building, and multiple informal dwellings for farm-worker households
	15	RSA	<ul style="list-style-type: none"> Rietfontein dam, Sub-station, Several households seem to reside on this property 	<ul style="list-style-type: none"> Residential, Recreation and Department of Water affairs 	<ul style="list-style-type: none"> Several office buildings, formal residential structures, and power supply infrastructure
Kinross 133	6	Vosstoffel (Pty) Ltd	<ul style="list-style-type: none"> Information unobtainable 		



	10	Transnet Ltd; Sasol Mining; GMLM; Private Owners hip	<ul style="list-style-type: none"> Kinross town 	<ul style="list-style-type: none"> Primarily residential use 	The majority of residential units within this suburb consist of single dwelling houses on serviced stands with an average size of 2200m ² in the eastern part of the town and ±750m ²
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Plan 3: Land use



Figure 9: Livestock farming



Figure 10: Commercial maize farming



Figure 11: Sasol Synfuel Plants

4.7 Spatial development

Kinross, the closest urban settlement to the primary study area, was established as an agricultural service centre on the N17 between Leandra and Trichardt. The town expanded and developed in a linear fashion with the development of Sasol and the emergence of coal and gold mining in the area. The town comprises two major residential suburbs, one situated towards the north-west, situated on the south-western side of the R29 roadway which runs through the town. The second suburb is situated towards the south-east on the northern side of the R29. The proposed MRA overlaps entirely with the southern suburb of Kinross Town. It is however assumed that no undermining of Kinross town will take place (see Section 1.3).

Land uses within and surrounding Kinross are directed by the Govan Mbeki SDF and Land use Scheme, which provides for existing land use rights as well as future land uses that will be allowed (also see Section 1.2.2.8). The future zoning per land parcel is set by the land use scheme and provides the basis on which future spatial development should take place. According to these policies the majority of the surface land area which covers the MRA is zoned for agricultural use, with some sections also earmarked for future residential and industrial development. The SDF indicates that the MRA coincides with a large area earmarked for low impact industrial development located on Portions 24 and 25 of Zondagskraal 125.

With regard to residential development potential there are a large number of vacant serviced stands in the central part of Kinross, as well as several large proclaimed stands in the south eastern part of the town, the latter have, however, not been serviced or developed yet. The MRA also overlaps with several areas on the outskirts of town earmarked for residential development, one of these areas are located on Zondagskraal 125 IS Ptn 2. In particular the MRA overlaps with the proposed Kinross Extension 30 housing development. This settlement aims to provide approximately 1000 housing units to the lower to middle income earners and will also include services. The site is located within Portion 32 of the farm

Zondagsfontein 124 IS. If these areas are undermined it could put certain restrictions on the town’s future expansion, due to the potential sterilisation of several of parcels of land fit for residential development within the urban edge.

The GMLM SDF stipulates that residential development should be restricted to within the urban edge, which will ensure the development of an integrated and compact city in support of Govan Mbeki and the region. Only two parcels of land which has been earmarked for future residential development in Kinross fall outside the MRA. The SDF reiterates that rapid urbanisation within GMLM increases the demand for land for urban development. The extension of existing townships and settlements is however restricted by coal mining operations. It is reiterated in the SDF that it is imperative that land be reserved for urban development.

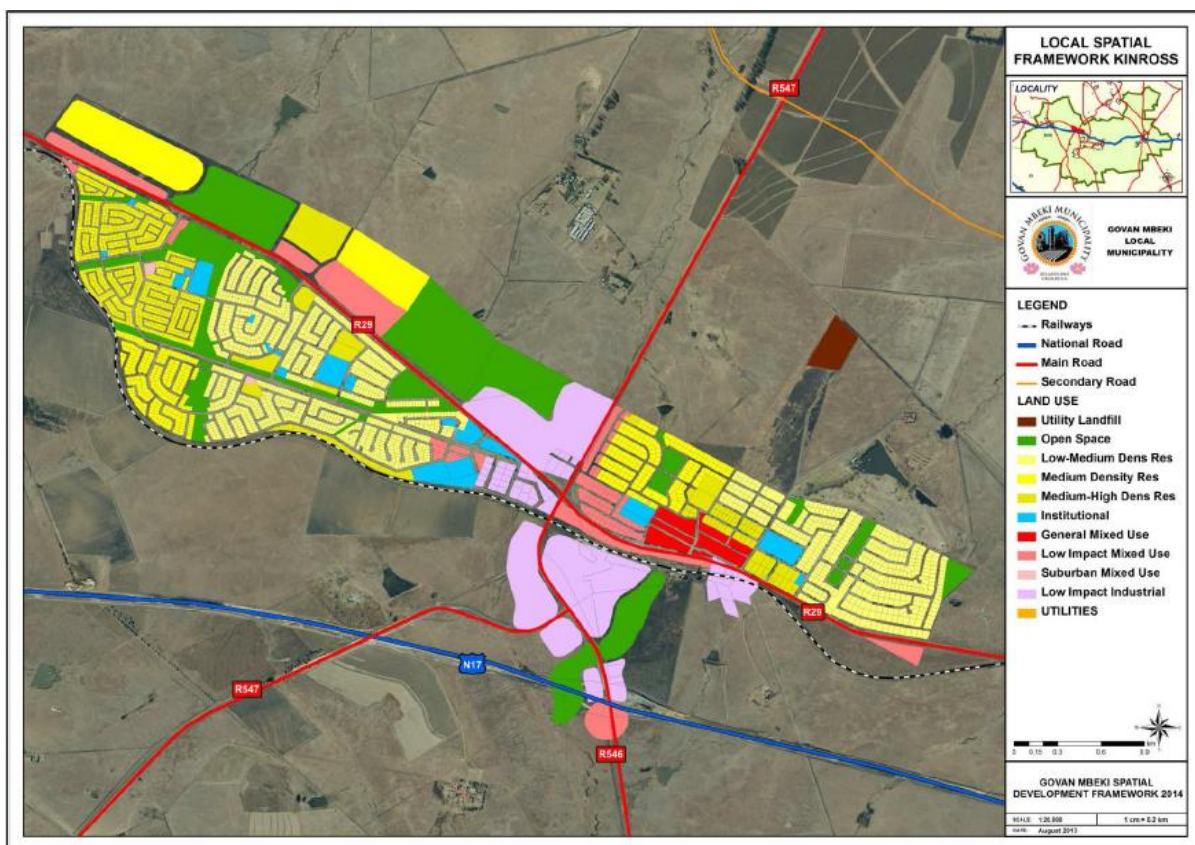


Figure 12: GMLM Kinross SDF

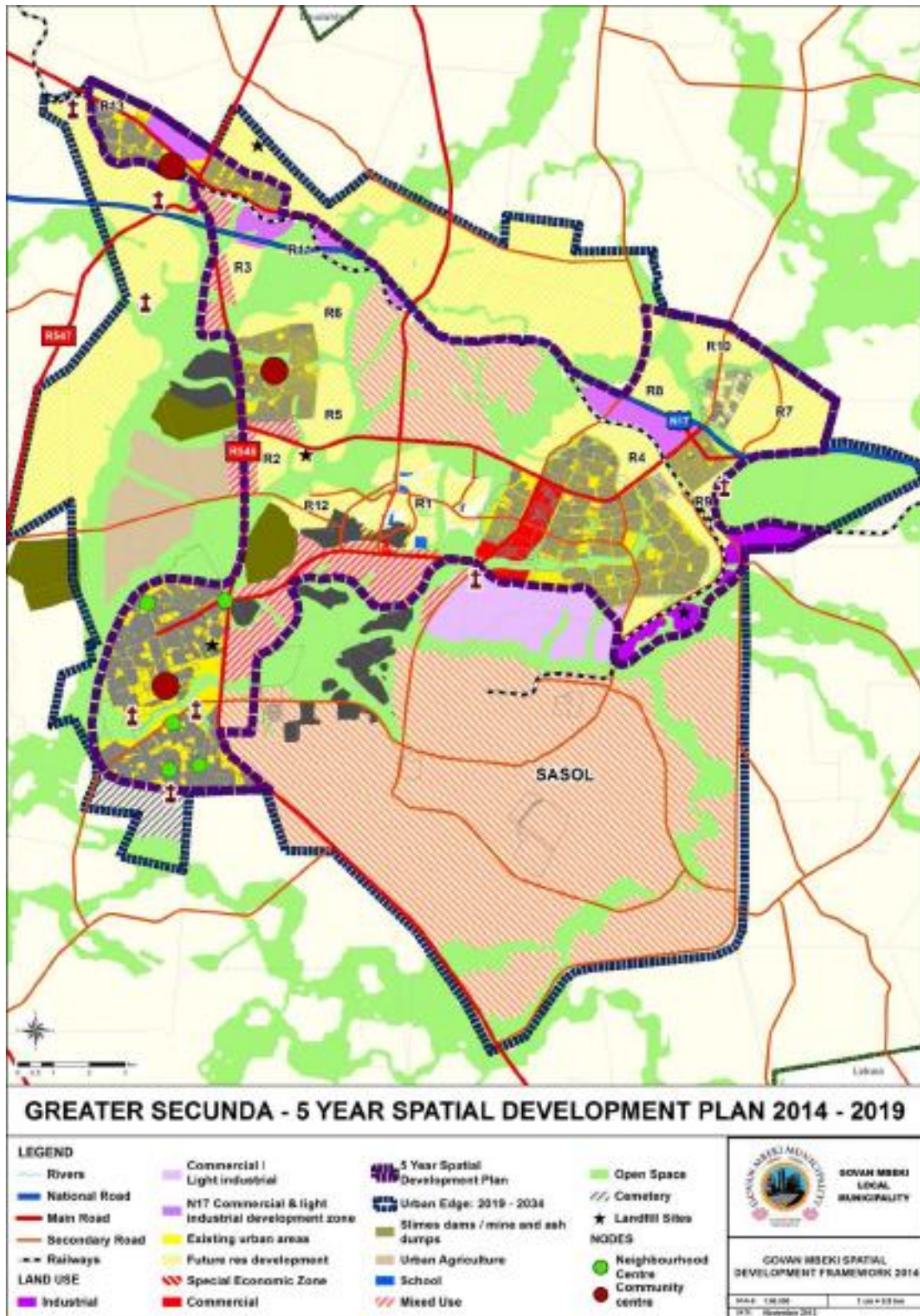


Figure 13: Spatial development planning for the Greater Secunda Area

4.8 Service delivery and infrastructure

Municipal service infrastructure in the GMLM is located mostly within the urban areas. According to the GMLM IDP and the GMLM SDF, some infrastructure backlogs exist especially within the previously disadvantaged township areas. Inadequate maintenance of existing infrastructure is a problem. As far as the outlying rural areas are concerned, these rely almost exclusively on borehole water and septic tanks/pit latrines, while electricity is provided by Eskom (GMLM SDF, 2014). The remainder of this section discusses more detailed trends regarding different aspects of municipal service delivery.

4.8.1 Housing

4.8.1.1 *Housing shortage*

The GMLM IDP 2012-2015 estimates the housing backlog in the LM to be approximately 58 000 units. The GMLM is in the process of purchasing 3 800 ha of land to accommodate population growth within the municipality (based on economic growth of 3%). A number of low cost housing projects are under way to provide for the increasing housing need, one of these projects are planned for an area within the MRA, the proposed Kinross Extension 30 housing development will establish 1000 housing units. Other areas within the MRA have also been earmarked for future residential development (also see Section 4.7). The GMLM SDF notes that Kinross in particular is experiencing increased need for land in response to development pressure.

In addition to catering for the existing backlog, the GSDM also receives several township establishment applications per year for new housing developments. All these housing developments will require services and infrastructure such as waste collection and bulk water supply, which the district and local municipalities currently struggle to provide.

The shortage of affordable housing is also evidenced by the growing number of informal settlements throughout and surrounding the primary study area (see Section 4.8.1.3).

4.8.1.2 *Home ownership*

Roughly equal proportions of households in the GSDM (40%) and GMLM (38%) own their homes and have paid it off - see Figure 14. This is close to the national average of 41%. The proportion of households in the local municipality who are renting (36%) is 11% higher than the national average. This could be an indicator of a semi-permanent population that will leave the municipal area after their work commitments come to an end. This is congruent with the age groups that highlight a smaller population in the local than district municipality before and after the working age group from 20 to 59.

Within the primary study area almost all farmers own their homes, while workers residing on farms receive free accommodation as part of their remuneration package; several farm dwellers have also been granted life-long tenure by previous or current farmers. Most

properties within Kinross town is privately owned, however Sasol Mining and GMLM also owns a considerable amount of properties (GMLM, 2014)

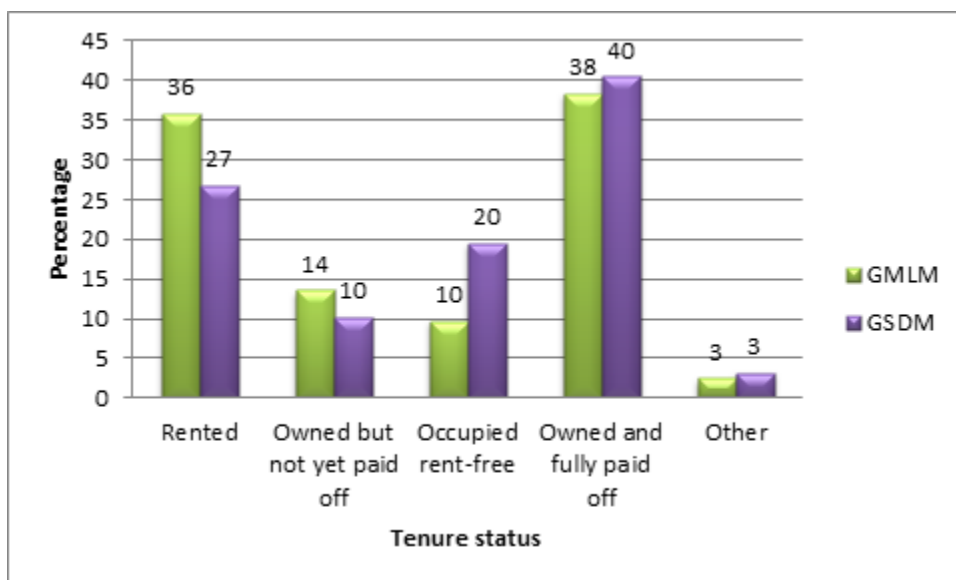


Figure 14: Tenure status of households

4.8.1.3 Type of dwelling

Figure 15 shows that nearly three-quarters of households in both municipalities live in formal dwellings. The remainder in the GSDM is split between informal dwellings and traditional housing. The GMLM has a significantly larger proportion of informal dwellings (28%), which is an indicator of the influx of job-seekers and lower wage employees into the local municipality where job opportunities are more prevalent than throughout the remainder of the district.

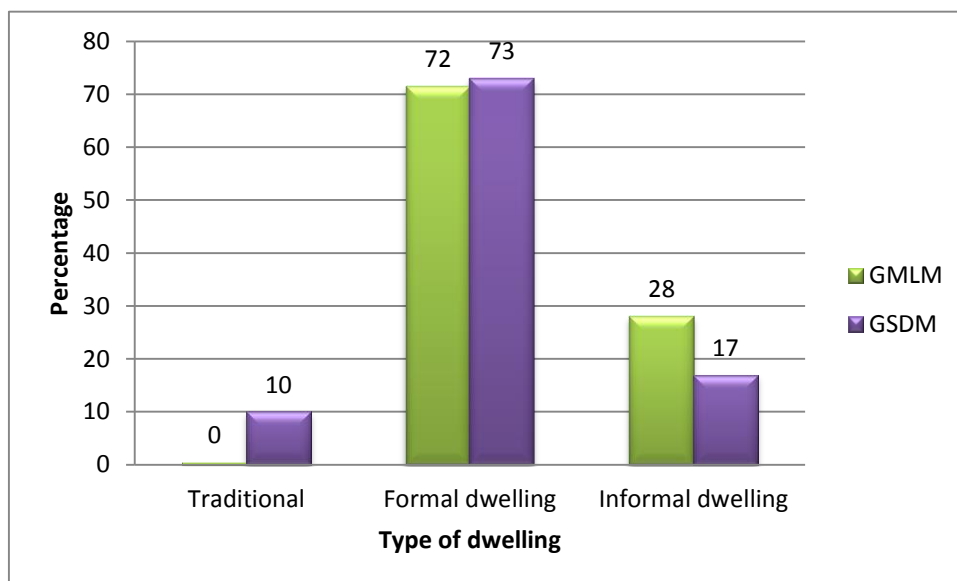


Figure 15: Types of dwellings occupied by households

Informal settlements are most prevalent in Lebohang, eMzinoni/ Milan Park and Embalenhle where there are 500, 3 150 and 4 000 un-serviced shacks respectively (GMLM IDP 2012-2015). The only recognised informal settlement near the primary study area is Holfontein. The settlement is located on the N17 highway between Trichardt and Kinross, only 500m outside the primary study area. More specifically this settlement, of approximately 1 500 households, is located adjacent to the railway track on Portion 6 of the Farm Holfontein 138. Holfontein is the largest informal settlement in Govan Mbeki and was established in 1982 by farm-workers from surrounding farms (GMLM, 2014). The land is currently owned by a local farmer and the settlement is a classic case of ‘shack farming’, with households each paying R100 monthly rent. Basic and municipal services are extremely poor – there are only two communal taps, pit latrine sanitation, and dirt and gravel roads in bad condition. There is no education-, health- or social facilities nearby. A mobile clinic visits the settlement once per month. Another smaller informal settlement is situated in-between the boundaries of the primary study area, on the farm Winkelhaak 135 IS (see Figure 18).

Within the project area informal settling is limited to the Embidini informal settlement (see Figure 16), which is situated towards the south-east boundary of the primary study area just north of the N17 (see Figure 18) and several informal farm-worker dwellings (and Figure 17). During field investigations it was established that the number of these dwellings are increasing due to growing families, as well as farm dwellers letting rooms to employees of neighbouring mines or other job-seekers.

In most cases farm dwellers have access to free accommodation on the farms they reside, as this is usually part of their employment agreement. Although these dwellings usually have

access to piped water and electricity, a substantial number are without these services. In terms of sanitation most have access to pit latrines.

In several instances past or current farm-workers have been awarded the right to reside at the property for the remainder of their lives by previous land owners. After the sale of the property some land owners are unhappy with this agreement, which creates conflict between themselves and those believed to be occupying their land unrightfully. In terms of ESTA (Act No. 62 of 1997), these land occupiers are entitled to certain land tenure rights, which prevents new landowners and government from evicting them unless the provisions of ESTA have been strictly followed and a Court Order has been obtained.



Figure 16: Embidini informal settlement



Figure 17: Typical informal farm dwelling within the primary study area



Figure 18: Informal settling just outside primary study area

4.8.2 Access to water and sanitation

Bulk water supply is the largest form of water supply to households (95% in GMLM and 82% in GSDM). This again reflects the greater prosperity of the GMLM, compared to other LMs (see Figure 19). Within the primary study area, most households have access to piped water, in several cases this water is supplied by boreholes.

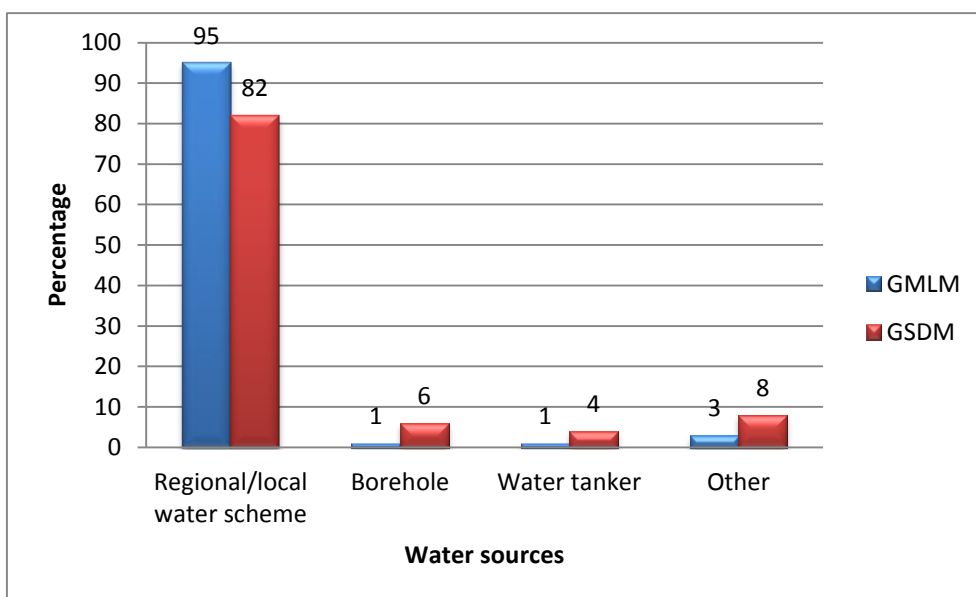


Figure 19: Water sources

There are marked disparities in the provision of toilet facilities across the two municipalities. The GMLM has a significantly larger proportion of households (90%) that have access to flush toilets, compared to 66% in the GSDM. The latter has 14% use of pit latrines without ventilation and 10% use of pit latrines with ventilation (see Figure 20). Due to their relatively isolated location rural households within the primary study area mostly rely on pit latrines for sanitation purposes.

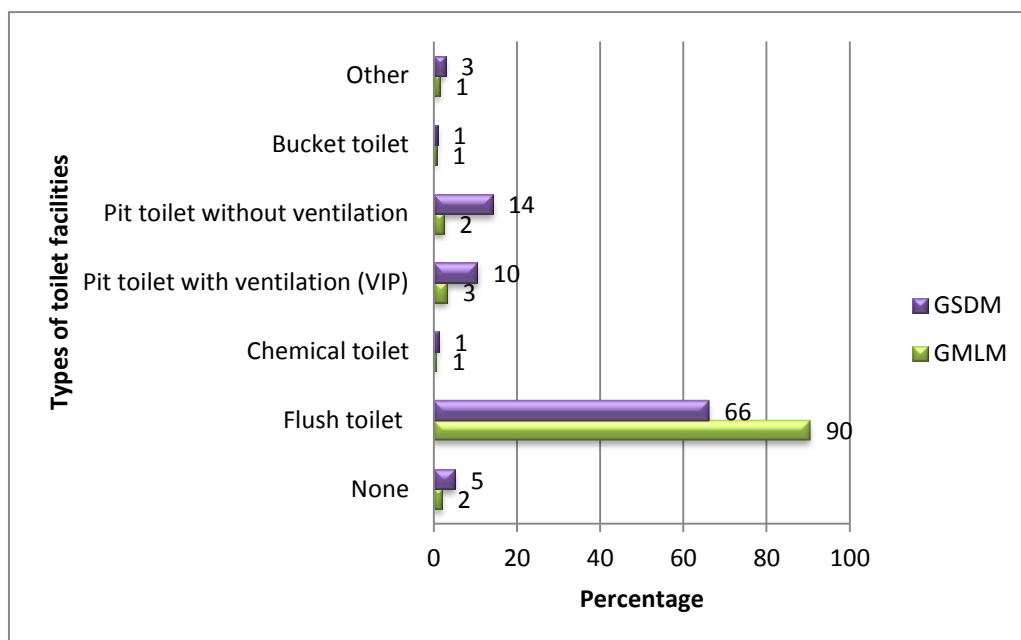


Figure 20: Access to toilet facilities

The GMLM generates the majority (65%) of the waste in the GSDM, as shown in Table 20 below. Msukaligwa Local Municipality hosts approximately half the population of GSDM and generates only 15% of the district’s waste. The GSDM is in the process of establishing a second regional landfill site to complement the one in Ermelo. This will assist local municipalities to meet the current shortfall they are experiencing in their waste disposal services. The GMLM currently has a backlog of one landfill site, while other municipalities in the district have an average backlog of 3.5 landfills. The Kinross open landfill site is situated within the primary study area towards its south-eastern boundary.

Table 20: Waste production per municipality in GSDM, 2005

Local Municipalities	Waste produced (%)	Population number
Albert Luthuli	1	186 010
Dipalasang	0.2	42 390
Govan Mbeki	65	294 538
Lekwa	11	115 662
Mkhondo	18	171 982
Msukaligwa	15	149 377
Pixley ka Seme	4	83 235

The GMLM displays significantly higher levels (92%) of weekly domestic waste removal by the local authority or private companies than the GSDM (64%) (see Figure 21 below). In the GSDM this type of waste disposal is on par with the national average of 62% (StatsSA, 2012). A quarter of households in the GSDM have their own refuse dump. This could be due to the lack of municipal waste removal in certain parts of the district.

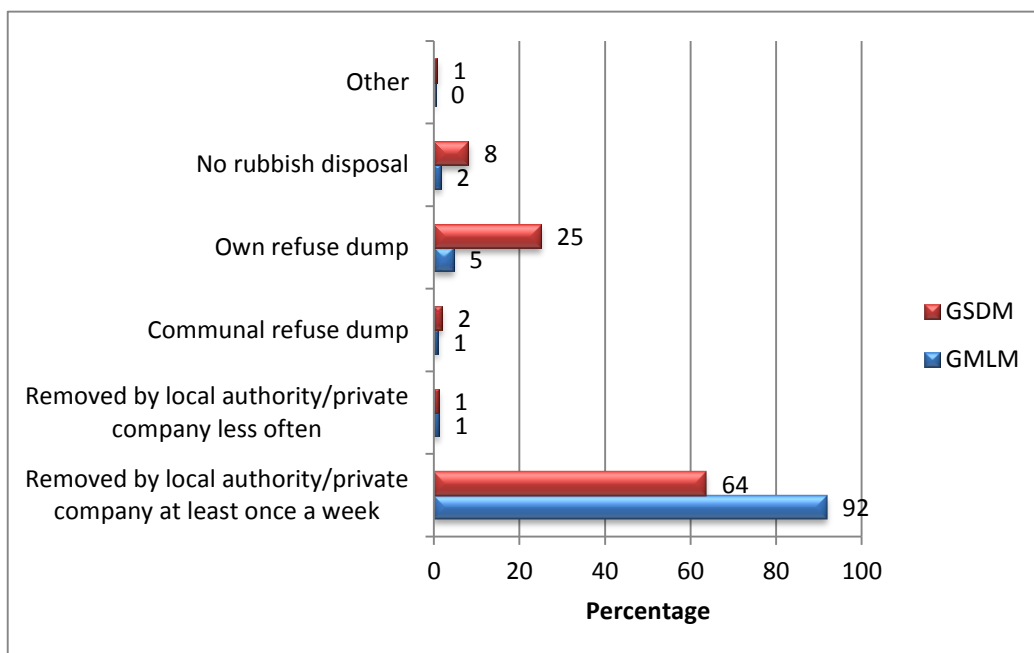


Figure 21: Household waste removal

4.8.3 Energy used for lighting, cooking and heating purposes

More than three-quarters of local and district households use electricity for lighting (90% and 83% respectively), (see Table 21). A significant portion of the district municipality, however, uses candles for lighting (15%). This number is expected to be higher among the households within the primary study area, as a large proportion of these households reside in informal housing not connected to municipal services.

Table 21: Source of energy for lighting (percentage)

Source of energy	GMLM	GSDM
Electricity	90%	83%
Candles	8%	15%
Other	2%	2%

The proportion of households that use electricity for cooking is lower than that of lighting, with district-use being below three-quarters (63%) and local-use just above (81%). There is significant reliance on wood (19%) in the district, and coal at both district (11%) and local (10%) scale.

Table 22: Source of energy for cooking (percentage)

Source of energy	GMLM	GSDM
Electricity	81%	63%
Paraffin	6%	4%
Wood	1%	19%
Coal	10%	11%
Other	2%	3%

4.8.4 Road infrastructure and traffic

The secondary study area is strategically located on the Gauteng/Richards Bay Corridor and is linked to neighbouring areas by freight railway lines and national roads, particularly the N17 highway. This roadway is the nearest national route and overlaps with certain portions of the southern boundary of the primary study area. Major accidents are common along the N17, between Embalenhle, Secunda and Kinross.

The R547 main road, connecting Kinross with Kriel, runs through the primary study area in a north-south direction and there are other minor roads that intersect it. The R547 could therefore, be directly affected by the proposed Project.

Road infrastructure is in a deteriorated state, during field investigations this was attributed to a combination of trucks transporting coal, heavy rains, and lack of maintenance, the R29 is particularly affected. Public transport in the region consists of taxi's, whereby residents can select between a taxi which only circulates within the Kinross Township and one which travels to other areas. Bus services are also available.



Figure 22: One of many deteriorated sections along the R29 roadway

4.9 Attitudes, perceptions and concerns

Local communities are generally welcoming to the proposed project, as they associate it with employment opportunities and other project related benefits. During field investigations it became clear that expectations for employment throughout communities are high. If these expectations are not managed it could result in negative feelings towards the proposed project. During 2012, communities in the greater Secunda area launched protest action against a mining house, due to the perception that not enough local people were employed.

Stakeholders alluded to the fact that cases of xenophobia have been recorded in areas such as Embalenhle; during field investigations it was mentioned that residents might react in a similar fashion if people perceive that foreigners are employed instead of locals. Several stakeholders are also concerned that the mine will result in an additional increase in traffic and deterioration of roads.

Several commercial farmers are concerned about the future viability of their crop, cattle and game farming business activities, as these operations depends significantly on ground water sourced from boreholes. If mining activities restrict or significantly decrease ground water, these businesses might perish.



The perceptions and attitudes of the interested and affected parties that were interviewed are summarised in Table 23 below.

Table 23: Attitudes and perceptions of stakeholders

Aspect	Interested Parties	Affected Parties ⁸
General	<ul style="list-style-type: none"> Most interested and affected parties are in favour of the development, they believe that it will contribute positively to socio-economic development 	
Site location	<ul style="list-style-type: none"> Although the land area in which the site falls is zoned for agriculture, authorities foresee no restrictions on proposed development Proposed site will fall outside the new urban edge of the town; 	<ul style="list-style-type: none"> Concerns regarding subsidence effecting viability of farming activities through diminishing borehole yields
Expectations and concerns	<ul style="list-style-type: none"> Mining related influx within Kinross and surrounding area contributed to service delivery backlogs; especially electricity and sanitation connections. Influx correlated with increase in social pathologies such as prostitution and HIV/AIDS, ascribed to the high frequency of mining traffic in Kinross Believe the project can assist with development projects planned for the locality Believe that the project will have several positive impacts including employment, road upgrades etc. Developer should strongly consider using local labour and local SMMEs; Possible conflict and protest action if local recruitment is not optimised Concern among authorities that project can exacerbate existing population influx into the area; this may place additional pressure on housing 	<ul style="list-style-type: none"> Expectations mostly limited to compensation for a.) any structural damage due to blasting, and/or b.) if farming activities becomes unviable due to subsidence Landowners indicated that they will insist on future consolation fees from consultants in relation to this project as consultations with specialists take up a significant amount of time they can spend on economic activities Continuous communication regarding the progress of the project is crucial Subsidence may affect properties, if blasting results in structural damage Concerned that construction workers might poach small livestock Several landowner indicated that they will be very reluctant to sell land, they are of the opinion that it will be very difficult to get land that is similar in size and has the

⁸ **Affected parties** refer to those who might experience direct effects of proposed project activities, with these effects being significantly greater than or different from the effect on the general public. **Interested parties** denote a broader group than 'affected persons', and includes everyone who has an interest in issues related to the proposed project. In several instances, interested parties also represent concerns of affected parties (e.g. municipal officials represent the interests of their constituencies).



Aspect	Interested Parties	Affected Parties ⁸
	<ul style="list-style-type: none"> • Sasol Mining should consider implementing skills and development projects as part of the proposed project • Currently there is no overarching monitoring authority that assess socio-economic impacts in Kinross • Farmers have also expressed frustration at now knowing whether and when Sasol plans to go ahead with the development. They have held back on making improvements to their land because of the possibility of Sasol purchasing their land. 	<p>same grazing quality</p> <ul style="list-style-type: none"> • Major concerns regarding the mine's impact on borehole and surface water, as abundance of natural water makes most agricultural operations within the study area financially viable • The operation could possibly result in influx, which could result in land grabbing and the establishment of new and/or the expansion of existing informal settlements • Concerns regarding blasting vibrations causing property damage

4.10 Summary

The table below provides a summary of the baseline profile. It highlights features and trends within both the secondary and primary study areas that might have relevance for Sasol Mining in terms of possible opportunities/ benefits and constraints/ challenges. As indicated in the second column of the table, several attributes apply for both study areas, whereas certain aspects are limited to the primary study area.


Table 24: Summary of the socio-economic baseline profile

Socio-economic attribute	Supporting data	Relevance to the project
Opportunities and benefits		
District and Local development plans are in place	Local and district Municipal IDPs, LED plans, and SDFs are readily available	Opportunity for Sasol Mining to align future socio-economic development programmes or SLPs (if any) with existing municipal development plans; this will increase sustainability and relevance of initiatives.
Most people only have a relatively basic skill level	Only 32% of the GMLM and 31% of the GSDM have some secondary education; those within the more rural outskirts of the secondary study area tend to have even lower levels of education	Opportunity for Sasol Mining to contribute to community development through skills development programmes during construction and operational phases
Mining is the dominant sector in the GSDM	Mining and quarrying sector employed the largest number of people in the GMLM (22%); Mining is the primary contributor to regional economy at 28%	Procurement could potentially be from suppliers located within the GMLM who are currently servicing mines in the area
Large potential labour force	The youth comprises the largest age cohort in the local municipality (39%); high unemployment, especially among rural households	Sasol Mining can likely meet any local recruitment targets for semi-unskilled positions
Shortage of services (water, electricity, housing, etc.)	Field investigations and GMLM IDP: Holfontein, an informal settlement 4km north-west of the proposed project, has almost no municipal services Rural households within the primary study area mostly rely on pit toilets for sanitation purposes Clinics in the surrounding towns is often short staffed, and lack supplies Several secondary roads are heavily deteriorated, partially due to heavy motor vehicle (HNV) traffic.	Provides opportunities to make a significant contribution to local development as part of Local Economic Development (LED) (but may also hinder the productivity of the local workforce). In this regard Sasol could continue to collaborate with existing municipal SLP and LED forums
Gender disparity in employment rates – financial vulnerability among females	StatsSA (2011) - Unemployment amongst females is significantly higher than males at both municipal levels. Furthermore, when women do generate income, it is likely to be through the informal sector and of a survivalist nature	Sasol Mining could contribute to gender equity by implementing female employment targets – this requirement, if feasible, could be formalised by incorporating it into the construction contractor's conditions of contract.



Socio-economic attribute	Supporting data	Relevance to the project
Constraints or challenges		
Concerning HIV/AIDS prevalence rates	41% in GSDM; 36% in GMLM; Prostitution is a major problem	A considerable proportion of the potential workforce might be affected by this condition; project related influx may exacerbate the situation
Population influx	Field investigation - Establishment and growth of several informal settlements within/surrounding the primary study area, likely as a result of people from across the district and other parts of the country migrating to GMLM in search of job opportunities	Project-induced population influx will add to existing influx, placing increased pressure on available local resources, services and facilities Although this indicates a relatively large available labour force, it might complicate local recruitment, as migrants will be perceived as outsiders
The land area which will be mined host several residential and agricultural land uses, including Kinross town	Field investigations	Sasol Mining should consider the financial risk of subsidence, as significant subsidence will likely effect surface land uses, which could result in compensation and/or resettlement related costs
The most dominant land use within the proposed mining right area is agricultural activities.	GMLM and field investigations	Agricultural activities may potentially be directly affected by the proposed project, if subsidence significantly decreases borehole yields this would likely result in some stakeholder issues which could impact on the progress of the MRA

5 Impact assessment and mitigation

The organisation and presentation of the full range of socio-economic impacts that are expected to arise because of a proposed project or activity is challenging, for a number of reasons.

First, potential impacts, and the elements that combine to determine the socio-economic status of affected populations, are multi-dimensional and interrelated. For example, insufficient access to services such as water, sanitation and health care is both a cause and an effect of poverty. On the one hand, the lack of access to such services impacts negatively on health status, the opportunity to acquire market-related skills and the amount of time available for productive activities. On the other hand, poor people are often forced to live in areas where service delivery is limited or absent. Thus, if a project increases the availability of services in an area, the ability of surrounding communities to take advantage of these services may to some extent depend on their current socio-economic status.

Second, the linkages between various potential project impacts are complex and can be mutually reinforcing. For example, in-migration and increased incomes can combine to put pressure on economies and infrastructure, as housing demand and purchase power will increase. Impacts may also have both positive and negative dimensions. For example, employment creation is an important project benefit, but it may also generate a context for negative impacts such as social conflict and/or excessive in-migration.

Finally, many socio-economic impacts cascade. For example, in-migration is in itself an impact, but in turn may engender additional impacts, for example pressure on available services such as housing and health services.

5.1 Overview of impacts

Although it is necessary to keep the complexity of social impacts in mind, it is also necessary to produce an SIA report that will be accessible to a non-specialist audience and meet the requirements of the project proponent. For this reason, predicted impacts have been categorised within the project phase (construction, operation, and decommissioning) they are likely to originate, recognising that many impacts will span over more than one project phase. This categorisation of impacts is shown in Table 25 which also provides the structure for the remainder of this section.

Table 25: Summary of potential impacts

Project phase and impact type		Impact name
Construction	Positive	Job creation during construction
		Multiplier effects on the local economy
	Negative	Increase in spread of communicable diseases and social pathologies
		Increased pressure on local services/ resources
		Establishment and growth of informal settlements
		Conflict/competition between newcomers and incumbent population
		Construction-related health and safety impacts
		Disruption of movement patterns
Operation	Positive	Potential financial implications for commercial agricultural operations
		Job creation during operation through continuance of retained employment
		Regional economic development
	Negative	Community development induced by LED and CSI
		Dependency on mine for sustaining local economy
		Operation-related health and safety impacts
Decommissioning	Positive & Negative	Potential subsidence induced impacts
		Impacts on the work force
		Impacts on the local community
Cumulative impacts	Positive	Impacts on the wider community (incl. Government)
	Negative	Job creation and multiplier effects on the local economy
		Impacts related to population influx
	Dependency on mine for sustaining local economy	

5.2 Construction phase

This section deals with the social impacts that will originate during the construction phase associated with proposed project. The construction phase will span four years during which the infrastructure listed in Section 3.3 will be established. Some construction activities are also scheduled to commence during the operational phase.

Most of the identified construction impacts will continue beyond this phase. Predicted construction phase impacts include:

- Two positive impacts, namely job creation during construction and multiplier effects on the local economy
- Seven negative impacts as indicated in the table above. These impacts are discussed in greater detail below, and appropriate mitigation measures are recommended to ameliorate negative impacts and enhance positive ones. Where relevant, the reader is referred to the appropriate specialist studies, in which more comprehensive and quantitatively-orientated information is provided regarding aspects that contribute to the identified social impacts.

In the following sections the discussion of each impact is structured as follows:

1. Narrative description of the impact;

2. Discussion on mitigation measures to avoid and/or ameliorate negative impacts and enhance positive ones; and
3. A table presenting the rating of the impact, summarises the recommended mitigation measures, and repeats the rating exercise after mitigation. The table also explains the motivation for assigning particular ratings to an impact.

5.2.1 Job creation during construction

5.2.1.1 Impact description

The proposed project will require some new infrastructure (see Section 3.3) and therefore has the potential to provide some direct employment to people within the secondary study area during the construction phase, which will span a period of 4 years. However, it is not currently known if the mine, or its contractor, will use an existing workforce. It is also not known how many of these workers will be sourced from within the communities located closest to the project. Many of these positions will only last for a relatively short period, and will largely involve unskilled and semi-skilled positions. However, the acquisition of new skills during the construction period will make individuals more employable in the future.

Most rural and informal communities within the study areas are characterised by poverty, unemployment and underdevelopment (see Section 4.4). It is evident that a substantial proportion of households within especially rural areas face significant socio-economic challenges. Any construction related employment therefore has the potential to improve the livelihoods and income stability of future employees and their dependants. The creation of employment opportunities during the construction phase of the project can therefore be seen as a considerable positive impact on the benefitting individuals and their dependants.

Whether the unemployed and under-employed will be able to take up employment opportunities during construction depends largely on their level of education and skill, as well as work experience; a relatively small proportion of the secondary study area graduated from secondary school (see Section 4.2).

In addition to creating employment opportunities for construction workers, the project could also *indirectly* lead to employment creation both in the formal and informal sectors following project expenditure in the project area and through the creation and/or expansion of local businesses to serve the mine and/or its workforce.

5.2.1.2 Recommended enhancement measures

Given that communities in the vicinity of the mine (e.g. Kinross, farm-worker communities and informal settlements) will likely be most affected by the project (see Sections 5.2.3-5.2.9), it is consistent with national legislation (such as guidelines set by the Mining Charter, MPRDA and Sasol Mining's sustainable development policy) that they should be given special consideration in terms of the benefits arising from the project (MPRDA, Act No. 28 of

2002). In order to enhance the benefits of employment creation for these communities, it is recommended that the following measures be implemented:

- It is recommended that any recruitment during the construction phase should not take place on site but should be coordinated through the appropriate institutions such as the local Department of Labour (DoL) or institutions recommended by the local authorities (if applicable). However, care must be taken that recruitment practices are fair and transparent and are not unduly influenced by pressure groups in the communities;
- The project should consult neighbouring business enterprises to determine if they would be willing to make their skills registers/ databases available for use by the project. This option should be investigated during the development of the mine's SLP;
- Promote the creation of employment opportunities for women and youth, above the targets set out in the Mining Charter. The positions reserved for the youth and women may only be filled with persons outside of these categories if it can be demonstrated that no suitable persons are available to fill these positions. The performance indicator for the promotion of employment of women and youth could be the number of local women and persons under the age of 35 who are employed during the construction phase of the project;
- Where feasible offer appropriate training and skills development to improve the ability of local community members to take advantage of employment opportunities arising through the project;
- A monitoring system should be established to ensure that the subcontractors honour the specified local employment policy;
- Provide local employees with reference letters that they can submit to gain further employment. Also, provide certificates of completion for in-house (on-the-job) training provided; and
- Where possible, labour-intensive construction methods should be promoted. Aspects of construction that could potentially be amenable to such methods include earthworks, construction of access roads, etc.

5.2.1.3 Impact rating

IMPACT DESCRIPTION: Job creation during construction				
Predicted for project phase:	Pre-construction	Construction	Operation	Decommissioning
Dimension	Rating	Motivation		
PRE-MITIGATION				
Duration	Short term (2)	Equal to the duration of the construction phase (4 years)	Consequence: Slightly beneficial (6)	Significance: Negligible - positive (24)
Extent	Local (3)	Workforce will likely originate from the local municipality		
Intensity x type of impact	Very low - positive (1)	Recruitment policies already promote local employment; however employment numbers expected to be low and for short period. It is possible that contractors will use their existing workforce, thereby sustaining current employment with these companies		
Probability	Probable (4)	Without appropriate mitigation, local employment targets might not be achieved.		
ENHANCEMENT:				
<ul style="list-style-type: none"> -Recruitment to be coordinated through the appropriate institutions -Provide local employees with reference letters certificates of completion for in-house (on-the-job) training -Consult neighbouring business enterprises to determine if they would be willing to make their skills registers/databases - Promotion of female and youth employment - Effective implementation of training and skills development initiatives - Monitoring subcontractors in terms of local employment targets - Labour-intensive construction methods should be promoted 				
POST-MITIGATION				
Duration	Short term (2)	As for pre-mitigation	Consequence: Slightly beneficial (9)	Significance: Minor - positive (54)
Extent	Local (3)	As for pre-mitigation		
Intensity x type of impact	Moderately high - positive (4)	Employment opportunities will act as a positive change agent in especially local rural areas with high unemployment and low HH income		
Probability	Highly probable (6)	Mitigation will maximise probability that local recruitment targets are achieved and local benefits optimised.		

5.2.2 Multiplier effects on the local economy

5.2.2.1 Impact description

The proposed project will result in several economic benefits for local communities through multiplier effects stimulated by capital expenditure, as well as construction and operational activities. Firstly, it will increase the demand for a wide variety of goods and services, and as a result, will stimulate local manufacturing and service sectors. Impacts in this category are referred to as *indirect economic impacts*. These impacts may also create opportunities for small businesses and entrepreneurs, provided they are formalised and able to meet the procurement requirements of the mine and mine contractors. Revenue accruing to local

enterprises, as a result of mine-related procurement and expenditure (see Section 3.5.2), will produce sustained beneficial downstream impacts on the local economy, especially during the operational phase.

Due to the fact that Kinross, Evander and Secunda are urban centres, which developed around the coal mining and petrochemical centre, many of the mine's highly technical needs can be procured from businesses in the Local Municipality, which will concentrate the economic stimulus of the proposed project.

A second multiplier effect, referred to as *induced* economic impact, is related to the presence of the project's construction and operational workforce. The salaries earned from the mine or its contractors will maintain/increase the spending power of the local population. Given that a significant proportion of moneys derived from wages earned would likely be spent in the vicinity of the project, it is anticipated to increase revenue within surrounding communities, thus acting as a catalyst for growth in the formal and informal economy. This would likely generate or sustain informal employment opportunities in the small and informal business sector.

There are several legal and other requirements which stipulate that the proposed project should contribute to the socio-economic development of its host communities. There was insufficient project information available to assess the potential multiplier effect on the local economy in terms of total value of business sales leveraged by the project's capital investment, as well as through indirect and induced employment creation. It is, nevertheless, expected that the project's multiplier effect will be significant. While most of these economic benefits will accrue to the construction and manufacturing sectors, other sectors will also benefit from the multiplier effect (e.g. service sector).

Legislation also requires the mine to draft a SLP which should, among other things, focus on increasing opportunities for local HDSA suppliers of goods and services to the operation. This requirement together with Sasol Mining's existing policy's regarding Enterprise Development (see Section 1.2.3.4.3) would likely have several positive impacts on local SMMEs.

The proposed project will likely result in some population influx, which is often associated with negative socio-economic consequences (see Sections 5.2.4-5.2.5); however, it will also have some positive effects on the local economy. Small businesses may experience improved markets and increased numbers of customers for consumable items they sell. This will particularly be the case if workers recruited from elsewhere represent higher-level occupations and have relatively high disposable incomes. Increased markets for local entrepreneurs will compound on existing economic multiplier effects.

Finally, the local economy will benefit from the estimated R 31.1 mill to be spent on LED and R 295.11 mil on HRD (see Section 3.4); both these aspects represent progress within the local municipality, thereby also creating conditions conducive to economic growth.

5.2.2.2 Recommended enhancement measures

The measures recommended in Section 5.2.1 to maximise local employment through the project will also serve to maximise the positive impacts of the proposed project on the local economy. In addition, the following measures are recommended:

- If any subcontractors are appointed, Sasol Mining should give preference to suitable subcontractors/SMMEs located in the surrounding communities such as Kinross, then in the municipal area, and then only to contractors located elsewhere or outside the province;
- Where appropriate SMMEs do not exist locally, Sasol Mining should investigate the possibility of aligning their current ESD programmes to develop this service capacity among local suppliers. SMMEs development programmes should be outlined in the Mine's SLP to ensure the effective implementation and monitoring thereof;
- In order to enhance the effort to create suitable local service providers the project proponent should establish linkages with other Sasol Mining operations as well as other local mining companies. The aim of such linkages should be to seek opportunities where envisaged ESD programs with existing programs;
- Investigate the feasibility of establishing linkages with institutions other than the local municipality involved in skills development and SMME development, such as community-based development projects and non-governmental organisations (NGOs) active in the broader project area;
- At the time of writing the SIA the mine's SLP was not available for appraisal. It is proposed that the Plan should (if not already) include the following activities:
 - The establishment and upgrading of services and infrastructure, where feasible;
 - Creating improved economic opportunities through entrepreneurship development and the development of skills supporting employment and economic development;
 - Implementing selected poverty eradication, infrastructure development and welfare creation projects that meet the criteria of the company, and other legislation. These measures could include providing financial support to higher education institutions (including bursaries);
 - Empowering local black businesses, and undertaking/supporting development initiatives in the mine's labour sending areas and affected communities, where these are feasible/appropriate;

- Developing a register of local SMMEs, as well as the types of goods and services they provide, and work with the local municipalities to develop SMMEs through the relevant forums and working groups;
 - Investigate the possibility of launching a training/ skills development initiative under the auspices of the skills development programme required for the SLP;
 - Create synergies with other mining companies' LED projects;
 - Complying with legislation through implementing portable skills programmes through the SLP that will contribute to the empowerment of employee households and community members (particularly the unemployed, women and the youth) so as to encourage sustainable development; and
 - Continually assess the current/projected IDP and LED initiatives of the municipality and review the SLP after five years to ensure its relevance for the above initiatives.
- Develop a clear strategy for corporate social investment (CSI) and communicate that to communities. This will also help to manage community expectations with regard to the role of the mine in providing municipal infrastructure and community services; and
 - Appoint a community liaison officer (CLO), or similar function/position to interact with communities regarding community development priorities that should be incorporated into the mine's SLP/LED, and/or corporate social investment programmes.

It is expected that Sasol Mining, through its corporate investment initiatives, will invest in local development programmes and provide sponsorship for community initiatives. While these projects are often awarded based on the holding company's approved CSR policy/principles, it is recommended that the project participate in activities that will contribute to addressing underlying development issues such education and health (including HIV/AIDS). It is further recommended that these initiatives should make special provision for including vulnerable groups in these projects. These kinds of investments will afford communities the opportunity to improve their living conditions and their environment. Host communities, however, must be well organised to receive such benefits and explore avenues of acquiring resources.

5.2.2.3 Impact rating

IMPACT DESCRIPTION: Multiplier effects on the local economy				
Predicted for project phase:	Pre-construction	Construction	Operation	Decommissioning
Dimension	Rating	Motivation		
PRE-MITIGATION				
Duration	Project Life (5)	Will continue throughout the life of mine due to legal obligation to pay taxes and royalties, as well implement SLP throughout life of mine	Consequence: Moderately beneficial (12)	Significance: Minor - positive (48)
Extent	Regional (4)	Will include mostly local and some regional impacts		
Intensity x type of impact	Moderate - positive (3)	Will derive from increased cash flow from wages, local procurement, economic growth, taxes and LED and HRD initiatives		
Probability	Probable (4)	Will depend on: proportion of local spending by employees; capacity of local enterprises to supply; effectiveness of LED and HRD initiatives; contributions to local government.		
ENHANCEMENT:				
<p>'-As for maximising employment benefits. Also:</p> <ul style="list-style-type: none"> - Give preference first to capable local subcontractors - Align skills development and ESD to build capacity of local SMMEs - Development of a register of local SMMEs - Linkages with skills development/ SMME development institutions and other mining operations - SMME skills development as part of mine SLP/LED commitments - Create synergies with other mining/electricity enterprises' LED/CSR projects - Include measures conducive to LED within SLP (e.g. upgrading infrastructure, poverty eradication and welfare projects, empowerment of local black businesses, portable skills development etc.) 				
POST-MITIGATION				
Duration	Project Life (5)	As for pre-mitigation	Consequence: Highly beneficial (14)	Significance: Moderate - positive (84)
Extent	Local (3)	SMME capacity building will limit procurement from outside the local municipality		
Intensity x type of impact	Very high - positive (6)	Mitigation will likely increase intensity of multiplier effects as it will concentrate impact to local area; sustainability of initiatives outlined in the SLP will also be increased if aligned with other those of other institutions		
Probability	Highly probable (6)	Increased local employment and procurement as well as skilled SMMEs will enhance likelihood of benefits to local economy;		

5.2.3 Increase in spread of communicable diseases and social pathologies

5.2.3.1 Impact description

Development projects offer people the opportunity to be employed. As news regarding the proposed project spreads, expectations regarding possible employment opportunities usually take root. Consequently, the areas surrounding the proposed project might experience an

influx of job-seekers, who are likely to travel from neighbouring towns or rural outskirts in pursuit of securing employment. This trend is already evident in the primary study area, especially if one considers existing pressure on service such as housing (see Section 4.8.1). The pull factor for job-seekers to the area will be intensified by the high unemployment (29%) and poverty rate in the secondary study area (see Sections 4.4.3 and 4.4.4).

The presence of mining activities and resulting influx of job-seekers is usually associated with an increase in social pathologies, such as substance abuse, prostitution, increased incidence of sexually transmitted diseases (STDs) and other communicable diseases. As noted in Sections 4.3.2, HIV/AIDS is already a major cause of death throughout the GSDM and GMLM. Incidence of social pathologies is usually increased in areas where there is a combination of poverty, lack of education and vulnerability and where community services and facilities are limited or under pressure. This scenario makes rural communities and farm-worker households especially susceptible to this impact. It is also conceivable that risky behaviour, such as substance abuse and sexual promiscuity could increase as a result of irresponsible spending associated with newly available or increased disposable income. During field investigations it was established that prostitution in Kinross and Secunda is a major problem, with women coming from rural areas to sell their services in higher income areas (see Sections 4.3 and 4.9).

Often those infected with HIV/AIDS succumb to TB as this disease is more likely to be fatal when one has a substantially weakened immune system. An increase in the prevalence of HIV/AIDS is usually correlated with an increase in the TB incidence rate.

An influx of non-local job-seekers might also be accompanied by an increase in crime; many job-seekers are usually left unemployed or underemployed, due to formal employment policies usually excluding them. Even if particular instances of crime are not as a result of the newcomers, they may still be attributed to them by local communities. The incidence of crime can increase if failed migrant job-seekers stay in the area and revert to criminal strategies to survive.

Apart from the impact described above, the influx of job-seekers and mine workers can impact on the local population in several other ways. These impacts are described in Sections 5.2.4 to 5.2.6)

5.2.3.2 Recommended mitigation measures

The following measures are recommended to address the aforementioned impacts:

- Measures to address population influx
 - Considering that the influx of job-seekers is only partially attributable to the proposed project and that mining activity in GMLM will likely increase in the foreseeable future, it is recommended that Sasol Mining, together with other mining houses, commission the compilation of an Influx Management Plan (IMP).

This plan is aimed specifically at managing both population influx and the social consequences thereof.

- In the interim, the following measures should be put in place to discourage population influx and minimise the negative social consequences associated with it:
 - Community development projects and social upliftment initiatives (as discussed in Section **Error! Reference source not found.**) should continue to address basic infrastructure and service needs.
 - The recruitment of employees and contractors should be executed as discussed in Section **Error! Reference source not found.** (especially in terms of preferentially employing from the local study area), thereby discouraging loitering near the mine complex.
 - Ensure that the intention of giving preferential employment to locals is clearly communicated, so as to discourage an influx of job-seekers from other areas; and
 - Involve local community structures (e.g. ward councillors and/or ward committees) to assist in communicating the intention to give preference to local labour, and also to assist in identifying the local labour pool;
 - It is strongly recommended that the mine liaise with the local municipality to ensure that expected population influx is taken into account in infrastructure development planning of the LLM; and
 - The project should in consultation with GMLM and its development forums, investigate if the mine's SLP and LED initiatives can contribute to the relevant infrastructure and delivery priorities of the LLM
- Project employees (especially truck drivers) should be educated about the dangers of casual sex with, for example, sex workers, with an emphasis on HIV/AIDS and other STDs. Furthermore, condoms should continue to be available to all employees free of charge, and access control to on-site accommodation facilities should be improved to prevent sex workers from coming to these facilities. This could be accomplished by issuing identity cards to all who are authorised to stay in the facilities.
- It is recommended that existing employee welfare and HIV/AIDS prevention measures implemented by Sasol Mining (see Section 1.2.3.4.8) should apply to the proposed project, and where possible be extended to communities within the primary study area. In addition the following measures to combat the spread of STDs, particularly HIV/AIDS are recommended, as follows:

-
- Implement HIV/AIDS and alcohol abuse campaigns in the communities;
 - Sasol Mining should make HIV/AIDS and STD awareness and prevention programmes a condition of contract for all suppliers and sub-contractors;
 - Align awareness campaigns with those of other organisations active in the area (Department of Health, NGOs, local municipality, and other Sasol mining operations etc.);
 - Contractors should provide an adequate supply of free condoms to all workers. Condoms should be located in the bathrooms and other communal areas on the construction site; and
 - A voluntary counselling and testing (VCT) programme should be introduced during the construction phase and continued during operations. This should preferably be undertaken in conjunction with the existing governmental VCT programmes;
 - Measures to address crime:
 - Construction workers should be clearly identifiable by wearing proper construction uniforms displaying the logo of the construction company; this will decrease the number of opportunistic people wandering the construction site, under the guise of being Sasol Mining employees;
 - Liaison structures are to be established with local police to monitor social changes in crime patterns during the construction phase. Liaison should also be established with existing crime control organisations, such as local community policing forums, private security companies and other crime prevention organisations;
 - Through the abovementioned forums, identify if recorded criminal activities (e.g. rape, housebreaking and stock theft) involved members of the mine's workforce, and act accordingly.
 - Sasol Mining should enforce clear rules and regulations for access to the project site to control loitering. The proponent should consult with the local police service to establish standard operating procedures for the control and/or removal of loiterers; and

5.2.3.3 Impact rating

IMPACT DESCRIPTION: Increase in spread of communicable diseases and social pathologies				
Predicted for project phase:	Pre-construction	Construction	Operation	Decommissioning
Dimension	Rating	Motivation		
PRE-MITIGATION				
Duration	Beyond project life (6)	Would continue into the operational phase, during which it is likely to increase as result of larger number of employees. Several health impacts will outlast the project	Consequence: Highly detrimental (-15)	Significance: Moderate - negative (-90)
Extent	Local (3)	Will affect surrounding communities due to multiple sexual partners, but might extend further to areas such as Embalenhle		
Intensity x type of impact	Very high - negative (-6)	Could severely affect well-being of communities, especially as cumulative impact combining with existing effects of other mining operations in the area (i.e. high rate of prostitution)		
Probability	Highly probable (6)	Communities are already experiencing extensive social pathologies (e.g. crime, prostitution, HIV/AIDS)		
MITIGATION:				
<ul style="list-style-type: none"> - Compilation of Influx management Plan - Discourage influx of job-seekers by prioritising employment of unemployed members of local communities. - Enforcing local employment targets for contractors - Liaise with GMLM to ensure that expected population influx is taken into account in infrastructure development planning. - Create synergies with local government IDP and other companies' SLP/CSR projects - Extensive HIV/ AIDS awareness and general health campaign - Identify if recorded criminal activities (e.g. rape, housebreaking and stock theft) involved members of the mine's workforce - Clear identification of workers; prevention of loitering - Liaison with police, community policing forum 				
POST-MITIGATION				
Duration	Beyond project life (6)	As for pre-mitigation	Consequence: Moderately detrimental (-11)	Significance: Minor - negative (-44)
Extent	Local (3)	As for pre-mitigation		
Intensity x type of impact	Low - negative (-2)	Mitigation measures should be effective in reducing severity of impacts on employees, and to a certain degree community		
Probability	Probable (4)	Mitigation measures should be effective in reducing severity of impacts		

5.2.4 Increased pressure on local services/ resources and facilities, especially housing

5.2.4.1 Impact description

An influx of job-seekers into the area, combined with the presence of an additional construction workforce, can place pressure on local infrastructure and services. This pressure may increase when the operational workforce of the mine is activated, however in

the case of the proposed project the operational workforce will reside in existing housing. The fact that several aspects of municipal service delivery and infrastructure is already taking strain throughout the secondary and primary study areas means that any additional service delivery requirements imposed by population influx will exacerbate the situation. Therefore there is some risk that the local municipality would not be able to meet the additional demand for services (especially sewerage, housing, and road maintenance).

It is important to note that during times of stress or scarcity of services at a local level, there will be a need to access resources that extend further than the GMLM and this is likely to increase the extent of this impact to possibly the GSDM, as the local population might start to rely more on services elsewhere in the District, extending the pressure to services in these areas. It should also be noted that although the proposed project may by itself increase pressure on local services/resources, this impact would also combine with other projects to have a cumulative impact on service delivery and availability of housing. The same is true for impacts related to establishment and growth of informal settlements and dependency on mining to sustain the local economy.

5.2.4.2 Recommended mitigation measures

In order to address this impact, it is recommended that:

- The proportion of job opportunities allocated to locals be maximised by means of the measures recommended in Section 5.2.1 above – thus reducing the need for outsiders and the consequential increase in demand for housing and other services;
- It is recommended that Sasol Mining liaise with the local municipality to ensure that mine-related services, housing and other needs are taken into account in infrastructure development planning (e.g. Sasol Mining could consider directing their LED and/or CSI projects to contribute to infrastructure or facility development);
- Sasol Mining should consider using mining methods that will avoid or minimize subsidence, and allow for surface development to accommodate future residential expansion of Kinross town; and
- Measures specified in Section 5.2.3 to discourage an influx of job-seekers will also help to mitigate the consequences of increased pressure on services and infrastructure.

5.2.4.3 Impact rating

IMPACT DESCRIPTION: Increased pressure on local services/ resources				
Predicted for project phase:	Pre-construction	Construction	Operation	Decommissioning
Dimension	Rating	Motivation		
PRE-MITIGATION				
Duration	Project Life (5)	Influx related pressure on services will start during construction and continue during the operational phase	Consequence: Highly detrimental (-14)	Significance: Moderate - negative (-84)
Extent	Regional (4)	May affect resource management at on local district municipal level		
Intensity x type of impact	High - negative (-5)	Intensify existing service delivery and resource problems and backlogs, especially sewerage and road networks		
Probability	Highly probable (6)	Population influx will affect the ability of the local municipality to meet increased demand		
MITIGATION:				
<ul style="list-style-type: none"> - Liaison with district and local municipalities well in advance to ensure needs are met - Ensure that municipalities take into account expected population influx - Promotion of mining methods to allow for surface development -Influx management 				
POST-MITIGATION				
Duration	Long term (4)	Mitigation measures will likely take a while before being effective, also municipal services will adapt to a certain degree on the medium term	Consequence: Slightly detrimental (-9)	Significance: Minor - negative (-36)
Extent	Local (3)	Effective planning can reduce impacts to local municipal level		
Intensity x type of impact	Low - negative (-2)	Proactive planning will alleviate pressure on service delivery		
Probability	Probable (4)	Mitigation will reduce the demand placed on services considerably		

5.2.5 Establishment and growth of informal settlements

5.2.5.1 Impact description

The shortage of services in the primary and local areas described in Section 4.8 includes a shortage of housing. This issue deserves special mention as it underlies an increasing social problem in the primary study area – the establishment and growth of informal settlements. A number of informal settlements already exist in the primary study area (see Section 4.8.1). Informal settlements, because of their lack of access to services such as water, sanitation and electricity, tend to be associated with several economic, social and health-related problems such as: increased dependency on local government, increased demand for goods and services and increase in social pathologies.

Project related influx into the area will increase the housing demand, which will likely inflate already high housing prices even further. The proportion of the population categorised in the lower socio-economic class can already not afford formal housing, this is evidenced by the increasing number of informal settlements scattered throughout the secondary study area. By driving up housing prices, a larger proportion of the local populace might be forced to resort to informal housing.

Unless properly managed, an influx of job-seekers and workers from outside the primary study area, in combination with a shortage of affordable housing options, will contribute to the growth of such settlements, and possibly also the establishment of new ones in areas such as Secunda, Evander, Holfontein and Embalenhle.

It should be clear that it is not the responsibility of the project to control informal settlement or provide public services and facilities in these areas. However, the existence of informal settlements in close proximity to the mine may pose a risk to the project in terms of political in/stability and community relations/support. Furthermore, in terms of IFC requirements, the project proponent has a shared responsibility (together with the relevant local authorities and key stakeholders) to address project-induced in-migration to affected communities.

5.2.5.2 Recommended mitigation measures

Mitigation measures recommended in Section 5.2.3 to discourage influx into the municipal area are deemed sufficient to minimise growth of informal settlements. Additionally Sasol Mining should consider promoting development projects, which includes low cost housing options.

5.2.5.3 Impact rating

IMPACT DESCRIPTION: Establishment and growth of informal settlements				
Predicted for project phase:	Pre-construction	Construction	Operation	Decommissioning
Dimension	Rating	Motivation		
PRE-MITIGATION				
Duration	Project Life (5)	Likely to extend into the operational phase, due to constant influx	Consequence: Highly detrimental (-15)	Significance: Moderate - negative (-75)
Extent	Regional (4)	Will affect the primary study area and likely spill over to other nearby settlements such as Secunda, Evander, Holfontein and Embalenhle		
Intensity x type of impact	Very high - negative (-6)	Will exacerbate existing negative social conditions		
Probability	Likely (5)	Informal settlements is already a problem		
MITIGATION:				
<ul style="list-style-type: none"> - Mitigation measures recommended in Section 5.2.3 to discourage influx - Promote projects providing housing, especially low cost housing 				
POST-MITIGATION				
Duration	Medium term (3)	Effective mitigation will minimise influx as the project continues	Consequence: Slightly detrimental (-9)	Significance: Minor - negative (-36)
Extent	Local (3)	Effective mitigation will restrict influx related issues to the secondary area		
Intensity x type of impact	Moderate - negative (-3)	Mitigation could potentially reduce the number of new squatting residences established		
Probability	Probable (4)	Mitigation will reduce the likelihood of this impact occurring to the extent predicted		

5.2.6 Conflict / competition between newcomers and incumbent population

5.2.6.1 Impact description

Political and community demands for sharing in project benefits by local communities are particularly blatant within the mining sector. Similarly, local municipalities often claim that the affected municipality is disproportionately benefitting, or not benefitting at all, from mining in comparison to district municipalities and provinces at large. It is not unrealistic to expect that these demands will appeal to sections of affected local communities, which could become the battlefields for community- and labour unrest, political electioneering and community upheaval.

As was mentioned in Section 5.2.1 above, a proportion of the construction and mine workforce for the project will be locals, while at least a certain percentage employees (mostly semi- and highly skilled) will likely be sourced from elsewhere in South Africa. It is possible that *conflict* might arise between those perceived as foreigners and local residents. One

possible reason for such conflict would be the perception among locals that the outsiders are taking up jobs that could have gone to unemployed members of the local community. During field investigations for the SIA stakeholders indicated that the local population have in the past reacted negatively (and even violently) towards migrants (e.g. cases of xenophobia have been recorded in areas such as Embalenhle). Past protest action in the secondary study area have also in part been instigated by perceptions that mines do not employ enough locally (see Section 4.9).

The likelihood of this impact will increase as a result of a.) the high unemployment rate in the two study areas (see Section 4.4.3) and b.) if migrant workers fill positions that could have been filled from within the local municipality. If outsiders instigate sexual relationships with wives, daughters or girlfriends of locals, this would exacerbate the problem.

Finally, it is very likely that the mine's workforce, whether local or non-local, will be aware of working conditions, salary levels and labour demands at other large projects in the GMLM. This knowledge could be used to pressurise Sasol Mining and instigate community resistance.

5.2.6.2 Recommended mitigation measures

Measures described in Section 5.2.1 and 5.2.3 to increase local recruitment and mitigate population influx, will serve to reduce the consequences of this impact to a minor level. The following additional measures are recommended:

- The mine's recruitment policy must be fair and transparent;
- Establish a community liaison office and grievance mechanism at a location that is accessible to aggrieved members of the surrounding communities;
- Mine security should be empowered in terms of resources and facilities to effectively manage security issues relating to incidents of community unrest at/near the mine site. However, great care should be taken that the human rights of all people involved are respected;
- Develop standby procedures with the local police service to assist with crowd control; and
- Comply with the international 'Voluntary Principles on Security and Human Rights', for extractive industry, which emphasises the need for, and value of, effective risks assessment to address human rights issues, and establish appropriate relations with public and private security structures.

5.2.6.3 Impact rating

IMPACT DESCRIPTION: Conflict/ competition between newcomers and incumbent population				
Predicted for project phase:	Pre-construction	Construction	Operation	Decommissioning
Dimension	Rating	Motivation		
PRE-MITIGATION				
Duration	Medium term (3)	Will continue into the operational phase when employment numbers will increase	Consequence: Moderately detrimental (-10)	Significance: Minor - negative (-40)
Extent	Limited (2)	Will mostly affect surrounding rural communities		
Intensity x type of impact	High - negative (-5)	High unemployment in the rural areas is likely to engender intense competition for jobs, as is evident in past protest activity, and incidences of Xenophobia		
Probability	Probable (4)	Highly probable that some workers would have to be recruited from elsewhere and that locals will feel overseen, due to low local skill levels and only 40% local recruitment requirement		
MITIGATION:				
<ul style="list-style-type: none"> - Measures to mitigate population influx and local recruitment (See Sections 5.2.1.3 and 5.2.4.3) - The mine's recruitment policy must be fair and transparent; - Ensure that labour- and living conditions at the mine is in line with industry standards and responsive to reasonable labour demands; - Establish a community liaison office and grievance mechanism - Mine security should be empowered in terms of resources and facilities to effectively manage security issues - Develop standby procedures with the local police service - Comply with the international 'Voluntary Principles on Security and Human Rights', for extractive industry 				
POST-MITIGATION				
Duration	Medium term (3)	As for pre-mitigation	Consequence: Slightly detrimental (-5)	Significance: Negligible - negative (-20)
Extent	Limited (2)	As for pre-mitigation		
Intensity x type of impact	Low - negative (-2)	Stringent enforcement of preferential local employment policy may reduce influx of jobseekers		
Probability	Unlikely (3)	Verification of workers as locals will reduce probability of outsiders fraudulently gaining positions		

5.2.7 Construction-related health and safety impacts

5.2.7.1 Impact description

Although minimal construction activities will be required for the proposed project, activities might still result in an increase in traffic volumes on roads in the primary study area and this could pose a safety risk to surrounding communities. Hence, insofar as traffic impacts affect the lives and well-being of people, it also qualifies as a social impact.

The transportation of machinery, construction materials and employees on road sections that is also used by private motorists (N17, R547, R29 and local roads in the Kinross area), will pose a risk to the safety of all road users due increased traffic volumes and the presence of HMs on the roads. Increased traffic could also lead to further damage of roads and

increased speeding through residential areas, thereby impacting on the safety of residents residing along the affected roads. During field investigations it became clear that several roads are heavily deteriorated, partially due to other HVM traffic (see Section 4.8). Increased traffic volumes and further deterioration of roads could also disrupt movement patterns (See Section 5.2.8).

It should be noted that in some instances, the social impact experienced may not necessarily be the actual increase of risk to one's safety, but the perceived increase of such a risk, which has the potential to have a debilitating effect on the psychological well-being of the local population.

5.2.7.2 Recommended mitigation measures

The following measures are recommended to mitigate the potential traffic related impacts described above:

- Roads must be adequately maintained to prevent further deterioration of road surfaces due to heavy vehicle traffic. Road maintenance should not be the sole responsibility of the GMLM or the Department of Public Works, in this regard Sasol Mining should collaborate with other major mining or power supply operators to maintain roads;
- Safe travelling speeds must be determined and measures implemented to ensure that these restrictions are enforced. Such measures may include monitoring vehicle speeds, erecting speed limit signs and installing speed humps;
- HVM traffic should be restricted to daylight hours and the workweek if at all possible. Thus, it is recommended that trucks should not be operated after sunset (when driving conditions are dangerous) or over weekends (when the volume of private motorist traffic is heavier);
- Headlights of HVM should be on at all times.
- A mechanism, which is accessible to the public, should be put in place to lodge complaints regarding mine induced damage to roads with the mine or contractor's Environmental Safety Officer; and
- Community education should take place as part of an on-going community engagement process and include the following:
 - A community awareness campaign to be implemented in the surrounding communities to sensitise community members to traffic safety risks;
 - Activities undertaken as part of the awareness campaign and the education/communication programme should be recorded and reflected in a formal progress report compiled on a quarterly basis to ensure the implementation and success thereof; and

- Mechanisms must be established to ensure that any health and safety concerns or incidents should be dealt with promptly by Sasol Mining.

5.2.7.3 Impact rating

IMPACT DESCRIPTION: Construction-related health and safety impacts				
Predicted for project phase:	Pre-construction	Construction	Operation	Decommissioning
Dimension	Rating	Motivation		
PRE-MITIGATION				
Duration	Short term (2)	Will be limited to the construction phase which spans 4 years	Consequence: Slightly detrimental (-9)	Significance: Minor - negative (-36)
Extent	Limited (2)	Will affect road users from nearby communities		
Intensity x type of impact	High - negative (-5)	Could place the lives of neighbouring community members at risk		
Probability	Probable (4)	Traffic is already a problem on several roads in the area, construction related traffic might exasperate the problem		
MITIGATION: -Traffic control - Road maintenance - Community education				
POST-MITIGATION				
Duration	Short term (2)	As for pre-mitigation	Consequence: Slightly detrimental (-6)	Significance: Negligible - negative (-24)
Extent	Very limited (1)	Safety measures will likely restrict impacts on road users		
Intensity x type of impact	Moderate - negative (-3)	Appropriate mitigation will reduce the risk of this impact		
Probability	Probable (4)	As for pre-mitigation		

5.2.8 Disruption of movement patterns

5.2.8.1 Impact description

The only disruption of movement likely to occur is as a result of some construction-related disturbance of vehicle and pedestrian traffic on local roads. During the field investigation, it was established that the volume of traffic and resultant safety risks and congestion is a prevailing problem in the area, especially during shifts changes at surrounding mines, mostly affecting those travelling on the N 17 and R 547 to Secunda. Any additional traffic will thus exacerbate this problem. As with most local roads in the municipality, several primary roads (e.g. R29) are currently in deteriorated condition. Additional heavy traffic caused by construction will cause further deterioration of the roads, which can add to disruption. Mine-induced traffic will likely return to baseline volumes during the operational phase, as the proposed workforce currently travels to SSC operations on a daily basis.

Construction activities may also temporarily disrupt vehicle and pedestrian traffic and restrict the mobility of cattle (and possibly game) that is periodically moved to different farm portions for grazing purposes. While farm access roads are also likely to be impacted, this impact may be particularly pronounced on the public road network.

5.2.8.2 Recommended mitigation measures

The measures suggested (see Section 5.2.7 to minimise traffic related problems will also serve to minimise the disruption of daily movement patterns on the N17 and other affected roadways.

5.2.8.3 Impact rating

IMPACT DESCRIPTION: Disruption of daily movement patterns				
Predicted for project phase:	Pre-construction	Construction	Operation	Decommissioning
Dimension	Rating	Motivation		
PRE-MITIGATION				
Duration	Medium term (3)	Will start during construction and could continue beyond, depending on condition of roads after construction	Consequence: Slightly detrimental (-9)	Significance: Minor - negative (-36)
Extent	Limited (2)	Will affect road users		
Intensity x type of impact	Moderately high - negative (-4)	Will affect the quality of life of neighbouring communities		
Probability	Probable (4)	Traffic is already a major problem, therefore increased mine traffic will affect travelling on national and local roads in the area		
MITIGATION: -Measures to alleviate traffic problems suggested Section 5.2.7				
POST-MITIGATION				
Duration	Short term (2)	Through mitigation and time traffic patterns will likely adjust and reduce; it will also promote road maintenance	Consequence: Slightly detrimental (-6)	Significance: Negligible - negative (-24)
Extent	Limited (2)	As for pre-mitigation		
Intensity x type of impact	Low - negative (-2)	Mitigation will reduce impacts to some extent		
Probability	Probable (4)	As for pre-mitigation		

5.2.9 Potential financial implications for commercial agricultural operations

5.2.9.1 Impact description

The proposed mining operation might entail negative financial implications for some commercial farmers. Several commercial farms operate and depend on land within and surrounding the primary study area, most of these farms depend solely on underground water for irrigation purposes (see Section 4.4.5 and 5.2.9). The geo-hydrological impact

assessment established that the proposed mining activities will not significantly decrease the yield of most private boreholes, as these tend to be relatively shallow. However, boreholes deeper than 90m would potentially be impacted upon. It is assumed that a very small number of farmers, if any, rely on water from boreholes below this threshold. Such farmers, especially crop farmers, could potentially be affected in that they would have to supplement crop irrigation from boreholes with water from municipal schemes, in some instances this would require substantial supply infrastructure to be installed to access government schemes. Additionally farmers would have the added cost of purchasing water from the GMLM, which would likely exceed the cost of electricity used to pump water from boreholes. Several commercial crop farmers indicated that a significant decrease in borehole yields would likely result in considerable financial implications for their businesses.

5.2.9.2 Recommended mitigation measures

The following measures are recommended to mitigate the potential impacts described above:

- Sasol Mining should consider negotiating terms with the relevant farmers to supply or partially subsidise water to any affected operations; such provisions would have to be considered with the available water supply for the remainder of the population in the surrounding area;
- It is recommend that Sasol Mining should monitor borehole yields and suitability of water for irrigation in the primary study area during the mine's operational life and 5 years beyond. Such programmes should be incorporated into the Mine's EMP;
- Recommendations contained in the Project's EIA and EMP should continuously be implemented to minimise impacts on ground water levels;
- Sasol Mining should establish efficient channels of communication with surrounding farmers to promote the early identification of any water quality and quantity problems. Reported problems should be subject to objective monitoring, which will allow the mine to verify the validity of each claim; and
- Such a channel of communication will also serve to manage farmers' perceptions and concerns regarding the proposed project's impact on ground water.

5.2.9.3 Impact rating

IMPACT DESCRIPTION: Potential financial implication for commercial crop farmers				
Predicted for project phase:	Pre-construction	Construction	Operation	Decommissioning
Dimension	Rating	Motivation		
PRE-MITIGATION				
Duration	Project Life (5)	Effects on borehole yields would likely be long term	Consequence: Moderately detrimental (-13)	Significance: Minor - negative (-65)
Extent	Limited (2)	Will be restricted to the boreholes deeper than 90m within the proposed project area, and the properties surrounding it		
Intensity x type of impact	Very high - negative (-6)	Considerable financial cost are at stake if commercial farms become financially unviable		
Probability	Likely (5)	Geo-hydrological assessment findings indicate that significant drop in some borehole yields is almost certain		
MITIGATION:				
-Water subsidising program - Monitor borehole yields and suitability of water for irrigation in the primary study area - Recommendations contained in the Project's EIA and EMP - Establish efficient channels of communication with surrounding farmers to promote the early identification of any water quality and quantity problems				
POST-MITIGATION				
Duration	Project Life (5)	As for pre-mitigation	Consequence: Slightly detrimental (-9)	Significance: Negligible - negative (-27)
Extent	Limited (2)	As for pre-mitigation		
Intensity x type of impact	Low - negative (-2)	Subsidising water supply will likely not be able to replace quantity ground water lost through subsidence		
Probability	Unlikely (3)	Mitigation will reduce likelihood of negative consequences		

5.3 Operational phase

This section deals with the social impacts that will be triggered during the operational phase of the proposed project. Only three of the impacts identified, described and rated in Section 5.2 will not continue during the operational phase of the proposed project, namely construction-related job creation, construction-related health and safety impacts and disruption of daily movement patterns. Additional impacts expected to arise during the operational phase are as follows:

- Three positive impacts, namely job creation during operation through continuance of retained employment, regional economic development and community development induced by LED and CSI; and
- Three negative impacts, namely economic dependency on the project, operational-related health and safety impacts, and potential subsidence induced impacts.

As with the construction phase impacts, each of the abovementioned impacts is discussed in greater detail below, and appropriate mitigation measures are recommended. Where

relevant, the reader is referred to the appropriate specialist studies, in which more comprehensive and quantitatively-orientated information is provided regarding aspects that contribute to the identified social impacts.

5.3.1 Job creation during operation through continuance of current employment

5.3.1.1 Impact description

A large proportion of the mine's permanent operational workforce will be sourced from the existing workforce of SSC. The proposed project would therefore create the opportunity for these employees to extend current employment, instead of being retrenched. A large number of these employees are likely to reside within secondary study area, due to the close proximity to the operation.

Employment during the operational phase has the potential of being over an extended period (life of mine is estimated at 20 years), which can have a major, long term, positive impact for employees and their dependents. As indicated in Section 3.4, it is anticipated that production will span over 28 years from 2016-2041, the number of people to be employed by the project will be 113 people, which will decline to 34 in the last three years of operation.

During the mine's lifetime there will likely be moderate staff turnover, especially considering that a certain proportion of employees would have been working at the existing SCC for an extended period of time and would be close to retirement age. This will increase the normal staff turnover rate. These vacancies could constitute new employment opportunities to be filled from the local labour sending area.

Available information indicates that, although surrounding communities have high unemployment rates and high percentages of people with low education levels, a sufficient number of appropriately skilled local recruits would be available to fill most of the vacancies that become available during the life of the mine. This conclusion is based on the fact that mining and quarrying is a prominent industry in the secondary study area, it is therefore expected that at least some of the unemployed will have relevant skills to qualify them for employment at the mine (see Section 4.4.1).

The operational phase of the proposed project could give rise to some indirect employment opportunities. These could include jobs in the informal sector (as increased disposable income will likely create more employment opportunities in this sector), and in the formal sector (for instance, by sourcing goods and service from enterprises in the local municipal area where possible).

The proposed mine will be a captive operation, supplying coal to its only client, Sasol Synfuels. In ensuring that Sasol Synfuels has a constant long term supply of raw product to produce secondary petrochemical by-products, the mine will indirectly increase the job-security of those employed at the Plant. This is due to the fact that ultimately the job security

of a large number of Sasol Synfuel staff's job depends on whether Sasol Mining has enough raw coal to produce profitable amounts of by-products.

5.3.1.2 Recommended enhancement measures

Measures to maximise the benefits derived from employment creation during the operational phase of the project are the same as those recommended for the construction phase (see Section 5.2.1). In addition, it is recommended that local employment opportunities be maximised as far as possible, by including efforts in the proposed projects SLP which are, amongst others, aimed at developing scarce skills.

5.3.1.3 Impact rating

IMPACT DESCRIPTION: Job creation during operation through continuance of current employment				
Predicted for project phase:	Pre-construction	Construction	Operation	Decommissioning
Dimension	Rating	Motivation		
PRE-MITIGATION				
Duration	Project Life (5)	Life of mine will be 28 years	Consequence: Moderately beneficial (13)	Significance: Minor - positive (52)
Extent	Local (3)	Existing Sasol Mining employees are likely to be residing within the GMLM; also some new positions are likely to be filled by persons living in the local municipal area		
Intensity x type of impact	High - positive (5)	Continuation of employment for 113 individuals; some new positions due to staff turnover; creation of indirect employment		
Probability	Probable (4)	Likely that SSC will extend or renew contracts of existing staff		
ENHANCEMENT: - As for construction phase - Section 5.2.1.2				
POST-MITIGATION				
Duration	Project Life (5)	As for pre-mitigation	Consequence: Highly beneficial (14)	Significance: Moderate - positive (84)
Extent	Local (3)	As for pre-mitigation		
Intensity x type of impact	Very high - positive (6)	Mitigation will maximise local job creation		
Probability	Highly probable (6)	Mitigation will maximise probability that any local recruitment targets are achieved and local benefits optimised		

5.3.2 Regional economic development

5.3.2.1 Impact description

The state will receive royalty and tax payments in the amount of R 309 331mil for the permanent extraction of non-renewable commodities by Sasol Mining (SARS, 2011). A

proportion of these funds will likely be used to stimulate regional economic growth by re-investing the funds into infrastructure development throughout the secondary study area.

It is expected that the benefits of the proposed project will extend beyond members of the mine's workforce to suppliers through the procurement of products and services (see Section 1.2.3.4.4). In terms of current legislation, the mine and its contractors should consider the use of HDSA companies in their procurement practices. Sasol Mining's preferential procurement strategy (see Section 1.2.3.4.4) adheres to the stipulation of the MPRDA and aims to achieve HDSA procurement targets. The strategy will increase opportunities for HDSA suppliers which will in turn be conducive to economic growth in the region.

The mine will employ a substantial workforce during its operational phase, and the projected monthly operational wage and procurement bill will result in a substantial injection of cash into the economies of the both study areas (see Section 3.4). This will stimulate the formal and informal retail and service sectors and other downstream secondary industries.

5.3.2.2 Recommended enhancement measures

Measures recommended to enhance the benefits from local employment and economic multiplier effects (see Section 5.2.1 and 5.2.2), as well as community development (see Section 5.3.3); will also serve to maximise the positive impacts of the proposed project on the regional economy. In addition the following measures are recommended:

- Incorporate SMME capacity building programmes into the mine's SLP, which will enable HDSA suppliers to take maximum advantage of opportunities provided by the mine;
- In order to maximise the empowerment of HSDA companies (and the sharing in project benefits by the disadvantaged communities in general), the project should attempt to procure from local suppliers throughout the life of the mine; and
- A *monitoring system* should be established to ensure that the mine and its contractors comply with government regulations and company policies related to HDSA procurement

5.3.2.3 Impact rating

IMPACT DESCRIPTION: Regional economic development				
Predicted for project phase:	Pre-construction	Construction	Operation	Decommissioning
Dimension	Rating	Motivation		
PRE-MITIGATION				
Duration	Project Life (5)	Life of mine is 28 years	Consequence: Moderately beneficial (11)	Significance: Minor - positive (44)
Extent	Regional (4)	Royalties and taxes will aid regional development; contribution to regional infrastructure projects (if any) - culmination of positive economic effects will stimulate regional economic growth		
Intensity x type of impact	Low - positive (2)	Effects on regional economy will not be as pronounced		
Probability	Probable (4)	Sasol is obliged by law to pay royalties and taxes, and some economic multiplier effects will spill-over into regional economic development		
MITIGATION: -Measures recommended to maximise benefits from local employment, economic multiplier effects, as well as community, economic and skills development				
POST-MITIGATION				
Duration	Beyond project life (6)	Successful mitigation will prolong benefits of economic development beyond life of mine	Consequence: Highly beneficial (14)	Significance: Moderate - positive (84)
Extent	Regional (4)	As for pre-mitigation		
Intensity x type of impact	Moderately high - positive (4)	Successful mitigation will create an environment conducive for economic growth		
Probability	Highly probable (6)	Mitigation will increase the chance of the manifestation of this impact		

5.3.3 Community development induced by LED and skills development

5.3.3.1 Impact description

Sasol Mining's SLP should include plans for LED, and skills development, with local communities being the major benefactors (Sasol Coal, 2012). The proposed project has budgeted to spend just over R 31 mil on LED and R 295 mil on HRD (see Section 3.5.2). It is also consistent with Sasol Mining's policies (see Sections 1.2.3.4.2, 1.2.3.4.5, 1.2.3.4.6, and 1.2.3.4.7) that several community and skills development programmes will be directed to those communities within and surrounding the primary study area.

These programmes will likely be planned during the construction phase and initiated during the operations, and have the potential to facilitate and catalyse socio-economic development within the project affected communities, as several of these communities (e.g. Holfontein informal township, Embalenhle, Evander and people residing in rural communities) have a

relatively low socio-economic base. These initiatives – especially if implemented in consultation with those of other developmental role-players (such as government, other Sasol operations, and the petrochemical sector and development organisations) – can contribute substantially towards socio-economic development, sustainable jobs and income stability within the regional study area.

Successful implementation of LED, Skills and other community development programmes will contribute to maximising the benefits of the proposed project for Kinross and surrounding communities, as well as towards counteracting any negative impacts that these communities may experience as a result of the proposed project (see Section 5.2.3 - 5.2.9). It is recognised that, unless LED projects are designed to be sustainable beyond the life of the mine, they can also have negative long-term impacts by increasing economic dependency on the mine (see Section 5.6.3).

5.3.3.2 Recommended mitigation measures

In order to maximise this positive impact, the following measures are recommended:

- The details of Sasol Mining's LED programmes should (where still possible) be designed in consultation with community representatives in order to ensure that the actual needs of communities are met;
- In addition to the development initiatives described in the SLP, it is recommended that the project proponent investigates the feasibility of implementing additional development projects, benefitting a wider audience than those described above, under the auspices of Corporate Social Responsibility (CSR). The identification of such initiatives should occur in consultation with both the local municipality and the affected communities, and care should be taken to ensure adequate involvement of women and the youth in this consultation process. In this regard Sasol Mining should consider conducting a needs assessment to determine the types of additional investments it can make to local development. The implementation of CSR initiatives will not only serve to further develop the local area, but will enhance the proponent's a social license to operate in the area and minimise potential mobilisation against the project (also see Section 7.2); and
- Often there are already initiatives underway, in need of some financial or technical support that the mine could provide. It is suggested that Sasol Mining's department responsible for any CSI or community development, contact the CSI and socio-economic development departments of other mines or NGOs in the area to gauge whether they can align or synergise with any of their efforts to collaborate in some of the development initiatives already planned for the area.

5.3.3.3 Impact rating

IMPACT DESCRIPTION: Community development induced by LED and CSI				
Predicted for project phase:	Pre-construction	Construction	Operation	Decommissioning
Dimension	Rating	Motivation		
PRE-MITIGATION				
Duration	Long term (4)	LED and CSI activities are planned for the life of mine	Consequence: Slightly beneficial (9)	Significance: Minor - positive (36)
Extent	Local (3)	Will be beneficial to communities in the primary study area		
Intensity x type of impact	Low - positive (2)	Rural community currently experiences high poverty and low literacy levels; without targeted implementation of programs these communities won't optimally benefit		
Probability	Probable (4)	Without adequate stakeholder involvement, LED and CSI projects is unlikely to be on target and sustainable		
MITIGATION:				
-Assuring stakeholder buy-in and participation - Aligning LED and CSI initiatives with those of other development role-players				
POST-MITIGATION				
Duration	Beyond project life (6)	If sustainably managed and effectively marketed, development benefits should extend beyond the life of the mine	Consequence: Moderately beneficial (13)	Significance: Moderate - positive (78)
Extent	Local (3)	As for pre-mitigation		
Intensity x type of impact	Moderately high - positive (4)	Recommended measures will enhance stakeholder involvement and increase effectiveness of programs, increasing the intensity considerably		
Probability	Highly probable (6)	Recommended measures will improve likelihood of benefits reaching those with a low socio-economic base.		

5.3.4 Dependency on mine for sustaining local economy

5.3.4.1 Impact description

As indicated in Section 4.8, the local economy is relatively dependent on mining, with almost 29% of the municipal GDP derived from the sector, and most other sectors being (e.g. manufacturing and services) dependant on mining. While the proposed mining operation can contribute significantly to economic development through its lifetime, this positive impact also has a negative permutation, in that mining is not a permanent activity. Inevitably, mines close, and this can have devastating consequences for an area that has not invested in economic diversification.

The mining operation will reach the end of its life after 28 years, if no new viable deposits are located in the interim. It is not known if the mine workforce will be transferred to other Sasol operations. However, it is probable that local employment opportunities associated with the mine will be lost at mine closure, as will be the corresponding project benefits such as any LED and community development programmes implemented by the mine (e.g. Sections 5.2.2 and 5.3.3).

Those employed from the project area are likely to be unskilled or semi-skilled employees and therefore less employable than their skilled counterparts. It will be more difficult for them to secure other jobs once they have been retrenched. If they have accumulated sufficient work experience and have benefitted from training and mentorship, they may be more employable and more likely to obtain similar work elsewhere, possibly at another mine. If however they are unable to secure alternative employment, the loss of work will mean the loss of a stable income source for their families.

Retrenchments before the end of life of mine is another possibility and could be necessitated by downscaling as a result of external forces such as reduced profitability, technical innovation, the need to remain globally competitive or changes to the mine's strategic business plan. At such a time, project employees may not be able to secure alternative employment. Retrenchments would lead to loss of income and local expenditure, particularly if other mines in the area also approach the end of their economic life at about the same time, and if no new mines are developed. Retrenched staff may be unable to pay for municipal services such as water and electricity and will be unable to service their debts. This will have a significant economic impact on their livelihoods. Inability to find alternative employment could lead to an increase in social pathologies such as alcohol and drug abuse and crime.

Suppliers could also be affected as the opportunity to sell goods and services to the Project will be lost. This could furthermore affect those companies that supply these businesses with goods and services. This impact will mostly be felt by suppliers at regional or municipal level.

Economic downturn and the resultant loss of employment could result in increases in social pathologies, such as crime, prostitution, and substance abuse. Taking into consideration the

likely dependency on employee income, the loss of income will have considerable negative impacts on the wellbeing of households where employees were the sole breadwinners.

5.3.4.2 Recommended mitigation measures

An important approach to mitigating economic dependency on the mining and energy sector is to develop alternative and sustainable livelihoods so that, by the time coal resources are depleted, local communities and local businesses are able to support themselves through other economic sectors.

The proposed project along with other mines and energy producers, should work through the GMLM and relevant government agencies to support the diversification of the local economy so that, by the time the project and other developments in the area close down, non-mining sectors are able to continue supporting the local economy. Generally, these mitigation measures will be more effective if implemented in partnership with local authorities and other developers in the project area. Existing diversification programmes focussing on mining, manufacturing, trade and agriculture is outlined in the GMLM SDF.

The MPRDA requires that the mine's SLP provide strategies and measures that could prevent job loss in the event of circumstances threatening guaranteed employment. Certain processes must be followed when economic conditions cause the profit-to-revenue ratio of the mine to drop below 6% on average for a continuous period of 12 months, or where the above scenarios occur.

In the event of retrenchments becoming unavoidable as a result of downscaling or closure, alternatives to save jobs/avoid downscaling should be investigated beforehand. These could include developing and implementing turnaround strategies and mechanisms to save jobs. The project will therefore develop and implement strategies to introduce measures that could prevent job loss in the event of circumstances threatening permanent employment.

In accordance with legislative requirements, a mine Closure Plan (which will include distinct socio-economic measures), will be developed well in advance of planned mine closure and will include a socio-economic impact assessment and stakeholder consultation process. The Closure Plan will be reviewed every five years starting 15 years before mine closure. The Closure Plan should include the following:

- Predicting the likely socio-economic impact of closure on employee households, local communities and the region;
- Identifying critical issues which could affect the on-going sustainability of employees and communities during closure, by means of a detailed consultation process;
- Implementing the recommendations of the abovementioned assessments;
- Identification of alternative livelihood and socio-economic development opportunities for employees, as well community-based development projects which may become sustainable over the long term; and

-
- Providing financial and/or technical support for the establishment of sustainable community projects.

In addition, the mine should make every effort to proactively assess and mitigate/manage the social and economic impacts on individuals, regions and economies where retrenchment and/or closure of the mine are certain. If/when downscaling and/or retrenchment take place the mine should assist affected employees in finding alternative employment or livelihood opportunities. This should be done if workers cannot be integrated or redeployed to other operations, or where they are not of a retirement age.

As is required by law, the mine will in partnership with the relevant government departments, jointly manage any process of this nature. The integration of the workforce into various LED projects, if required, will be done in collaboration with the district and local municipalities, and other stakeholders serving on the LED Forum. Where workers cannot be absorbed into LED initiatives, they should be furnished with skills training opportunities, enabling them to find alternative employment after decommissioning or retrenchment. Other initiatives could focus on assessment and counselling services for affected individuals. In particular, the mine could:

- Liaise with institutions and structures such as the National Productivity Institute⁹ to assist in identifying other economic sectors and ventures that can absorb employees. This will involve the development of alternative livelihoods over several years to ensure that these livelihoods are well developed by the time the mine is decommissioned;
- Partner with LED programmes of other mines, energy projects and the GMLM as this will strengthen project initiatives, whereas initiatives funded by the project alone may not be as effective;
- Ensure that local (and other) employees are trained in alternative skills. Link training to the initiatives described above; and
- Provide financial life skills to employees.

⁹ The National Productivity Institute works towards ensuring that sustainable productivity performance in sectors and organisations is achieved in an inclusive, collaborative manner.

5.3.4.3 Impact rating

IMPACT DESCRIPTION: Dependency on mine for sustaining local economy				
Predicted for project phase:	Pre-construction	Construction	Operation	Decommissioning
Dimension	Rating	Motivation		
PRE-MITIGATION				
Duration	Long term (4)	Effects of retrenchments/ mine closure will be long-lasting	Consequence: Moderately detrimental (-13)	Significance: Moderate - negative (-91)
Extent	Local (3)	Will mainly affect surrounding communities as a large proportion of the workforce is to be recruited locally		
Intensity x type of impact	Very high - negative (-6)	A large number of HHs will be heavily dependent on the mine		
Probability	Certain (7)	Mining is not a permanent activity		
MITIGATION:				
<ul style="list-style-type: none"> - Develop alternative and sustainable livelihoods - Collaborate with other mines, working through the GSDM and GMLM and relevant government agencies, to support the diversification of the local economy - The Mine's SLP should provide strategies and measures that prevent job loss - Alternatives to save jobs/avoid downscaling should be investigated beforehand - Develop a Mine Closure Plan - Proactively assess and manage the social and economic impacts on individuals, regions and economies where retrenchment and/or closure of the mine are certain -Partner with the relevant government departments, to jointly manage Closure process 				
POST-MITIGATION				
Duration	Long term (4)	As for pre-mitigation	Consequence: Slightly detrimental (-9)	Significance: Minor - negative (-36)
Extent	Local (3)	As for pre-mitigation		
Intensity x type of impact	Moderate - negative (-3)	Mitigation will not be able to entirely replace salaries derived from mining employment		
Probability	Probable (4)	Mitigation will somewhat reduce dependency of local economy of mining		

5.3.5 Operation-related health and safety impacts

5.3.5.1 Impact description

It is expected that during its operational life the proposed mine can give rise to a number of negative health and safety impacts. These impacts may result from changes in air quality and noise, as well as traffic volumes. As is the case with construction-related impacts, the health and safety risk of the project during its operational phase is expected to be minimal, and limited to traffic related risks resulting from the workforce travelling to and from the Mine. The remainder of the impact will be confined almost exclusively to mine personnel, as proposed operations will ultimately result in several situations where accidents involving employees can occur.

5.3.5.2 Recommended mitigation measures

Measures to decrease risk to personal health and safety during the operational phase of the project are the same as those recommended for the construction phase. In addition Sasol Mining's existing policies to monitor and address occupational health and safety impacts should continue for the duration of the Project's lifespan.

5.3.5.3 Impact rating

IMPACT DESCRIPTION: Operation-related health and safety impacts				
Predicted for project phase:	Pre-construction	Construction	Operation	Decommissioning
Dimension	Rating	Motivation		
PRE-MITIGATION				
Duration	Long term (4)	Impacts will continue for the life of the mine	Consequence: Moderately detrimental (-13)	Significance: Moderate - negative (-78)
Extent	Local (3)	May affect mine employees and local road users		
Intensity x type of impact	Very high - negative (-6)	Accidents/ injuries could have severe negative consequences		
Probability	Highly probable (6)	The scale of proposed operations will ultimately result in several situations where accidents can occur		
MITIGATION:				
- Measures for construction phase health and safety impacts see Section 5.2.7.2				
-Continuation of existing occupation health and safety policies				
POST-MITIGATION				
Duration	Long term (4)	As for pre-mitigation	Consequence: Moderately detrimental (-11)	Significance: Minor - negative (-44)
Extent	Local (3)	As for pre-mitigation		
Intensity x type of impact	Moderately high - negative (-4)	Strict mitigation will reduce incidence of accidents/injuries, however some accidents could still happen and these could be fatal		
Probability	Probable (4)	Mitigation will reduce likelihood of negative consequences		

5.3.6 Potential subsidence induced impacts

5.4 Mining induced subsidence

5.4.1.1 *Impact description*

The quantitative assessment of subsidence is the subject of separate specialist studies and will not be repeated here except to stress that all surface subsidence could affect the quality of life of people in surrounding communities, and should therefore be viewed as constituting a potential social impact. The MWP indicates that the proposed project will represent extensive underground mining activities (see Section 3.2). Underground mining can be associated with surface subsidence, which would in turn impact on surface land uses as well as groundwater levels in boreholes. In the context of this study subsidence can impact on:

- Business and residential structures, by damaging and reducing the structural integrity of buildings, which could potentially displace residents and farm dwellers residing on affected properties.
- Road networks and power lines could be affected in a similar fashion;
- Groundwater, in that yields of deeply drilled boreholes can decrease considerably, which can diminish the financial viability of some agricultural operations in the vicinity in the mining right area as they would have to supplement water supply by purchasing water from the municipality (also see Section 5.2.9);
- Surface contours on agricultural land, by changing water flow and damming patterns on land, which can have negative effect on commercial farming; and
- Land value, as land rendered vulnerable to subsidence will likely be perceived less valuable and less attractive for prospective properties developers, buyers and tenants.

It should be noted that from a technical point of view the proposed project is highly unlikely to result in any subsidence that will affect surface land uses (see Section 3.2), which implies that any displacement and consequential resettlement impacts involving farm-workers are unlikely to manifest. According to the proposed Projects MWP minimum, if any, subsidence will occur as result of mining activities.

However, public perception with regard to subsidence might be different, these perceptions, albeit incorrect, can still ultimately result in a devaluation of land. Ultimately such perceptions can have financial implications on property investors who bargained on certain profit margins on their initial property investments.

5.4.1.2 Recommended mitigation measures

The following measures are recommended to address the aforementioned impacts:

- Sasol Mining should undertake a rock engineering study, which could be supplemented by a detailed geotechnical investigation to establish whether the proposed activities may result in unpredictable and unstable soil conditions;
- Sasol Mining should establish efficient channels of communication with surrounding landowners to promote the early identification of any surface subsidence. Reported problems should be subject to objective monitoring, which will allow the mine to verify the validity of each claim; and
- Sasol Mining should prepare contingency measures to compensate for any financial and/or livelihood impacts that might result from mining related surface subsidence.

5.4.1.3 Impact rating

IMPACT DESCRIPTION: Potential subsidence related impacts				
Predicted for project phase:	Pre-construction	Construction	Operation	Decommissioning
Dimension	Rating	Motivation		
PRE-MITIGATION				
Duration	Project Life (5)	Subsidence can usually occur for an extended period of time	Consequence: Moderately detrimental (-12)	Significance: Minor - negative (-36)
Extent	Limited (2)	Will affect land uses in project footprint		
Intensity x type of impact	High - negative (-5)	Subsidence may lead to considerable negative impacts, if any.		
Probability	Unlikely (3)	No technical information is available to determine the likelihood of subsidence		
MITIGATION:				
- Undertake rock engineering and geotechnical studies; - Stakeholder communication and objective monitoring; and - Contingency measure for compensation for any livelihood or impacts				
POST-MITIGATION				
Duration	Long term (4)	As for pre-mitigation	Consequence: Slightly detrimental (-8)	Significance: Negligible - negative (-24)
Extent	Limited (2)	As for pre-mitigation		
Intensity x type of impact	Low - negative (-2)	Mitigation measures should be able to compensate for any subsidence related damages		
Probability	Unlikely (3)	As for pre-mitigation		

5.5 Decommissioning phase

The eventual termination of a mine's operating life is common to most extractive operations, and socio-economic consequences are inevitable. It should be noted that Socio-economic impacts associated with the eventual decommissioning of the mine at the end of its life are

briefly discussed but are not subject to detailed assessment. This omission is motivated by the fact that predictions concerning the characteristics of the receiving socio-economic environment at the time of decommissioning (e.g. 28 years in the future) are subject to a large margin of error, thus significantly reducing the accuracy of impact assessment.

Several socio-economic impacts could arise when the mining operation is decommissioned and should therefore form part of the scope of study when the EIA, SLP and mine closure plan for decommissioning of the mine is drafted. Socio-economic issues that could be focussed on include:

- **Impacts on the workforce** – *psychological issues* (e.g. distraction from normal activities, with a potentially negative impact on performance and safety), and *personal and family income issues* (e.g. concerns about the effect of reduced income on family life);
- **Impacts on the local community** – *economic dependency* (e.g. if new jobs are created, through dismantling and plant rehabilitation, but at remuneration levels lower than those in the mining industry, this might impact negatively on the local economy), *demographic changes* (e.g. migration of skilled workforce from the area); and *dependency on CSI initiatives* (e.g. financial support to local amenities may be withdrawn by the mine, see Section 3.5);
- **Impacts on the wider community** - *the national and regional economy* (e.g. impact on the viability of other industries, such as Sasol Synfuels, due to the loss of locally produced outputs), financing of decommissioning (e.g. adequate funds may not have been provided for decommissioning and site rehabilitation); and infrastructure (e.g. mining assistance with road and infrastructure maintenance); and
- **Impacts on government** - District/local governments will no longer receive tax and royalty payments.

As with several of the construction and operational phase impacts, decommissioning impacts can contribute to existing cumulative impacts, especially if closure of mining operations overlaps with the closure of other major mining or industrial operations in the secondary study (see Section 4.4.5).

5.6 Cumulative Impacts

Cumulative socio-economic impacts are impacts that could act together with other impacts (including those from concurrent and/or planned future third party activities), resulting in an incremental effect on natural and social resources, social processes and/or socio-economic conditions. The importance of identifying and assessing cumulative impacts stems from the fact that, in social as well as natural systems, the whole is often more than the sum of its parts – implying that the total effect of multiple stressors or change processes acting simultaneously on a system may be greater than the sum of their effects when acting in

isolation. Cumulative impacts usually relate to large-scale and more extensive rather than primary concentrated impacts and have a tendency to increase the intensity of impacts already predicted for the proposed project.

Development of the proposed project, together with other existing or planned developments, could result in large-scale economic development in the broader project area (see Section 4.4.5). The impacts that would result from a combination of the proposed project and other future developments in the broader project area are likely to have a significant cumulative effect in the region. A list of potential cumulative impacts is provided in Table 26 below. The list is only intended to illustrate the scope of potential cumulative impacts. These impacts are likely to increase gradually, while the contribution of the proposed project towards cumulative impacts will be incremental based on the implementation of various project phases, peak phases.

Table 26: Potential cumulative impacts

Nature	Direction of change	Extent of impact
Contribution to energy security in the country.	Positive	National and regional
Potential diversification of the local economy through LED activities of the mine and other companies.	Positive	Local
Improved standard of living through increased employment, local business development and improved public infrastructure and community services and facilities (the latter will be dependent on private-sector contributions)	Positive	Local and district and regional
Urban sprawl, housing backlog and/or growth of informal settlements.	Negative	Local
Added pressure on local public service delivery and infrastructure, including roads, water and sewage treatment works, schools, police services and waste management facilities.	Negative	Local and district
Possible increase in poverty in the area due to greater influx of job seekers and inability of the economy to absorb job seekers or to generate local employment.	Negative	Local
Climate change	Negative	International

The aim of the remainder of this section is to highlight the nature of the key cumulative socio-economic impacts that are expected to occur as result of the combined effect of the proposed project and other current power plants or mines or planned operations in the area (see Section 4.4.5). Six possible cumulative impacts were identified; these are discussed in turn below.

5.6.1 Job creation and multiplier effects on the local economy

Just more than 113 people will be employed directly by the mine during the operational phase of the project. Several nearby mining and industrial operations also employ

substantial numbers of people; other mines planned for the area such as Igoda Coal and Xstrata's Trichardtsfontein Operation will also potentially add to the number of people employed in the mining sector. The contribution of mining and coal related industries to job creation will therefore be enhanced through the proposed project.

The proposed project, together with other existing and planned coal mining related operations will result in several economic benefits for local communities through direct and multiplier effects. These effects are usually stimulated by wage bills, local and regional procurement spend, and investment into LED and skills development. The proposed project will add to the existing positive effect of mining on local economic development by applying national principles in terms of local employment and procurement, as well as LED.

5.6.2 Impacts related to population influx

A highly significant cumulative impact relates to the fact that existing and new developments in the broader project area will accelerate population influx to the area with the associated increased pressure on land, resources and services, as well as the potential for informal settlement, encroachment/land grab and ultimately urban sprawl.

The area has already experienced a significant influx of people in search of work at nearby industrial and coal mining operations. It is likely that this existing impact will be exacerbated once it becomes known that the proposed project has started. Population influx is likely to: exacerbate pressure on existing infrastructure and services and contribute to growth or establishment of informal settlements.

The capacity of service delivery infrastructure is under threat, not only in Kinross but also Secunda, Evander, Trichardt, Embalenhle and the district's rural areas. The expected influx of job-seekers into these areas, combined with the influx already caused by coal mining and related industries will place substantial pressure on local infrastructure such as roads, clinics, schools, sanitation and water access (see Section 4.8 and 5.2.4).

This impact also addresses the availability of housing and schooling in the area. The impact on these services is part of a cumulative one, as the current and planned mining operations might contribute to an increased rate of in-migration and the resultant pressure on housing and schools.

It is recommended that the project, together with the GMLM, relevant government departments and agencies on national and district level, as well as other developers in the area, investigate joint management measures and procedures to encourage sustainable resource management, spatial planning and land use, as well as efficient land administration by local government.

It is emphasised that isolated attempts by the project to ameliorate the above impact will only have limited success. It is essential that the project collaborates with the appropriate local government structures and forums, local economic development programmes, as well as through partnerships with both government and other mining/power generation projects.

5.6.3 HIV/AIDS

The spread of diseases is expected to increase at the local and sub-district level following the introduction of mining projects in the project area. The development of the proposed project may exacerbate conditions such as the spread of HIV/AIDS following population influx and settlement densification. These health impacts must be addressed in any project's efforts towards managing community health and safety. Moreover, the project, together with other projects in the broader project area, should collaborate with national, provincial and local government (e.g. the Department of Health), as well as leading health-based NGOs in order to promote an integrated approach to combating HIV/AIDS in the GMLM.

5.6.4 Dependency on mining to sustain the local economy

As mentioned earlier in this report, economic activities in the area are dominated by coal mining and industrial sector (see Section 4.4), the latter also being dependant on mining. Because mining creates a much larger number of jobs than the services sector, and because mine workers tend to earn better salaries than those employed in most other sectors, it is fair to deduce that the local economy is heavily dependent on the mines or mining related industry.

As emphasised earlier, all mines have a finite lifespan. Inevitably, mining operations in the area will at some point in the future begin to scale down and close, affecting all coal dependant industries (e.g. Sasol Synfuels and nearby coal-fired power stations). Unless significant investment is made into economic diversification, the area is destined for a considerable economic slump once this process commences.

5.6.5 Decrease in land available for residential development

Considerable economic growth and population influx have been triggered by the coal mining sector and related industries in the secondary study area, which has resulted in a considerable demand of housing and housing development. As a result the GMLM is under severe pressure to allocate land for more housing developments, despite the fact that they have limited land options due to the fact that mining activities in the surrounding area have significantly decreased land suitable for residential development as large parcels of land is either undermined or currently affected by mining activities and/or ammonia pollution (GMLM, 2014).

The proposed project is likely to exacerbate the current situation if it restricts or prevents housing development, through sterilising a significant amount of land earmarked for residential development. It should be noted that this impact will be mitigated if it is agreed that the surface will not be sterilised and no restrictions on residential development are imposed.

5.6.6 Human Rights Violations

An assessment of the potential impacts on the human rights of persons and groups - both in the workplace and within the project's host communities, as a result of rapid socio-economic change, working conditions and sensitive mining activities, will require a separate specialist study, and it is proposed that Sasol Mining consider commissioning such a study. At a minimum, Sasol Mining should ensure that appropriate policies and programmes are in place to comply with national laws and international human rights standards (e.g. the right to health, education, food, water, suitable housing, stakeholder participation and grievance redress) (also refer to Section 1.2.3.4.1).

6 Assessment of alternatives

As mentioned in Section 3.4 it is a requirement in terms of current environmental legislation that practical project alternatives be considered during impact assessment. The most pertinent project alternative in the case of this project is the **no-go alternative**. The approach adopted in the assessment of impacts in this study entailed a comparison between anticipated future socio-economic conditions, with and without the project. Hence the no-go alternative would essentially imply that none of the impacts described in Section 5 would materialise, and that socio-economic conditions in the study area would continue to display the characteristics and trends described in the socio-economic baseline profile (see Section 4).

7 Potential social risks

The objective of this section is to identify any aspects of the receiving socio-economic environment that would represent significant risks to the proposed project. These may constitute constraints that would have to be accommodated in project design, or issues that would require appropriate management and mitigation. Social risk is linked to the actions of a project's stakeholders and can either be a risk to a project as a result of the impact on stakeholders or stakeholders' impact on the project. In most cases a risk can be financial, delay or reputational.

- *Financial:* A financial risk can result in a project being financially unfeasible due to costs associated with project delays.
- *Delay due to community protest or appeals against the project:* could result in major timeframe implications for the project at any stage.
- *Reputational:* Community protest, human right violations and severe social impacts could cause damage to a company's reputation, which could result in delays or have financial implications.

The potential social risks, which the project might be exposed to, are discussed below.

7.1 Community expectations

Community expectations regarding the proposed project are most frequently related to employment, but also to sharing in project benefits through socio-economic development. When such hopes are not met with interventions, or addressed with appropriated communication it may lead to potential stakeholder opposition and public mobilisation against the project.

In a context of high unemployment, local residents will be dissatisfied if access to the finite construction and operational phase jobs and the provision of associated services is perceived to be biased and preferential. In other words employment of locals is a sensitive issue and social mobilisation against the project as a result of perceived unfair practices can be a real threat to mining companies in the area; as is evidenced by past protest action in against Sasol Mining (see Section 4.9).

It is possible that if expectations of the surrounding communities are not carefully managed that social discontent will reach consequential levels. It is essential that communication channels are open between the communities and the proposed project so that stakeholders can lay complaints and discuss concerns with the Project. In this regard it is recommended that a Community Liaison Officers (CLO) could be appointed to allow communities readily accessible communication mechanisms. It is recommended that a grievance mechanism, that is accessible to aggrieved members of the surrounding communities, should be established.

Stakeholder engagement and public participation should be on-going in order to manage expectations, allow for stakeholder input into the project, inform and educate stakeholders about the project, and allow for open discussions. This will assist in anticipating and managing potential social issues, which may be a risk to Sasol Mining and to implement measures to avoid those risks.

It is possible that regardless of Sasol Mining's efforts for free, prior and informed consent, there will still be stakeholders who are dissatisfied with the process. This potential for local instability should be taken into account (possibly through a structured stakeholder engagement process) together with the recent nationwide strikes, particularly in the mining and services sector. When combining these dynamics it can be argued that affected communities might become resistant or hostile towards the proposed project, if not treated in a socially justifiable manner.

7.2 Failure to acquire a social licence to operate

Failure to avoid any of the aforementioned risks might detract from the project proponent's "social licence to operate." A social licence to operate may be defined as the on-going approval and acceptance from a host community and stakeholders for a mine or project to operate. A social licence to operate is intangible and dynamic. It is granted by the communities in which a mine operates and is rooted in stakeholder perceptions and opinions about the project, which could in turn be influenced by NGOs and other community based organisations within an area. A social licence to operate is earned through on-going, transparent communications and mutual trust. It is therefore earned and needs to be maintained as opinions and perceptions can change. A social licence to operate is gained through a.) investment in host communities and b.) free, prior informed consent from local communities and stakeholders. Gaining a social licence to operate for a mine can therefore be a critical factor a project's success and an important component to human rights.

Currently the general attitude towards the proponent is overall positive. Efforts should be directed at maintaining good relations with potentially affected parties, possibly by including them in any SLP programmes, as without a social licence to operate a project may face a reputational risk through publicity and a delay risk if community dissatisfaction and protests that can result in a stop to prospecting or mining.

8 Conclusion and recommendations

The pre- and post-mitigation ratings assigned to the various impacts discussed in Section 5 are summarised in Table 27 and graphically represented in Figure 21 below. In the figure, the entries in the various coloured cells correspond to the codes given for impacts in the first column of Figure 21.

Table 27: Summary of impact ratings

Code	Impact	Pre-mitigation:						Post-mitigation:					
		Duration	Extent	Intensity	Consequence	Probability	Significance	Duration	Extent	Intensity	Consequence	Probability	Significance
JobConstr	Job creation during construction	Short term	Local	Low - positive	Slightly beneficial	Probable	Negligible - positive	Short term	Local	Moderately high - positive	Slightly beneficial	Highly probable	Minor - positive
MutiEcon	Multiplier effects on the local economy	Project Life	Regional	Moderate - positive	Moderately beneficial	Probable	Minor - positive	Project Life	Local	Very high - positive	Highly beneficial	Highly probable	Moderate - positive
Inc Comm disease	Increase in spread of communicable diseases and social pathologies	Beyond project life	Local	Very high - negative	Highly detrimental	Highly probable	Moderate - negative	Beyond project life	Local	Moderate - negative	Moderately detrimental	Probable	Minor - negative
Press Local Serv	Increased pressure on local services/ resources	Project Life	Regional	Moderate - negative	Moderately detrimental	Likely	Minor - negative	Medium term	Local	Low - negative	Slightly detrimental	Probable	Negligible - negative
Grwth Inf Settlements	Establishment and growth of informal settlements	Project Life	Regional	Very high - negative	Highly detrimental	Likely	Moderate - negative	Medium term	Local	Moderate - negative	Slightly detrimental	Probable	Minor - negative
Conflict	Conflict/ competition between newcomers and incumbent population	Medium term	Limited	High - negative	Moderately detrimental	Probable	Minor - negative	Medium term	Limited	Low - negative	Slightly detrimental	Unlikely	Negligible - negative
Construct H&S	Construction-related health and safety impacts	Short term	Limited	High - negative	Slightly detrimental	Probable	Minor - negative	Short term	Very limited	Moderate - negative	Slightly detrimental	Probable	Negligible - negative
Disrp Move	Disruption of daily movement patterns	Medium term	Limited	Moderately high - negative	Slightly detrimental	Probable	Minor - negative	Short term	Limited	Low - negative	Slightly detrimental	Probable	Negligible - negative
Financial imp	Potential financial implication for commercial crop farmers	Project Life	Limited	Very high - negative	Moderately detrimental	Likely	Minor - negative	Project Life	Limited	Low - negative	Slightly detrimental	Unlikely	Negligible - negative
JobOpertn	Job creation during operation through continuance of current employment	Project Life	Local	High - positive	Moderately beneficial	Probable	Minor - positive	Project Life	Local	Very high - positive	Highly beneficial	Highly probable	Moderate - positive
Reg EconDev	Regional economic development	Project Life	Regional	Low - positive	Moderately beneficial	Probable	Minor - positive	Beyond project life	Regional	Moderately high - positive	Highly beneficial	Highly probable	Moderate - positive
ComDev	Community development induced by LED and Skills development	Long term	Local	Low - positive	Slightly beneficial	Probable	Minor - positive	Beyond project life	Local	Moderately high - positive	Moderately beneficial	Highly probable	Moderate - positive
Dependency	Dependency on mine for sustaining local economy	Long term	Local	Very high - negative	Moderately detrimental	Certain	Moderate - negative	Long term	Local	Moderate - negative	Moderately detrimental	Probable	Minor - negative
OperationH&S	Operation-related health and safety impacts	Long term	Local	Very high - negative	Moderately detrimental	Highly probable	Moderate - negative	Long term	Local	Moderately high - negative	Moderately detrimental	Probable	Minor - negative
Subs Impacts	Potential subsidence related impacts	Project Life	Limited	High - negative	Moderately detrimental	Unlikely	Minor - negative	Long term	Limited	Low - negative	Slightly detrimental	Unlikely	Negligible - negative

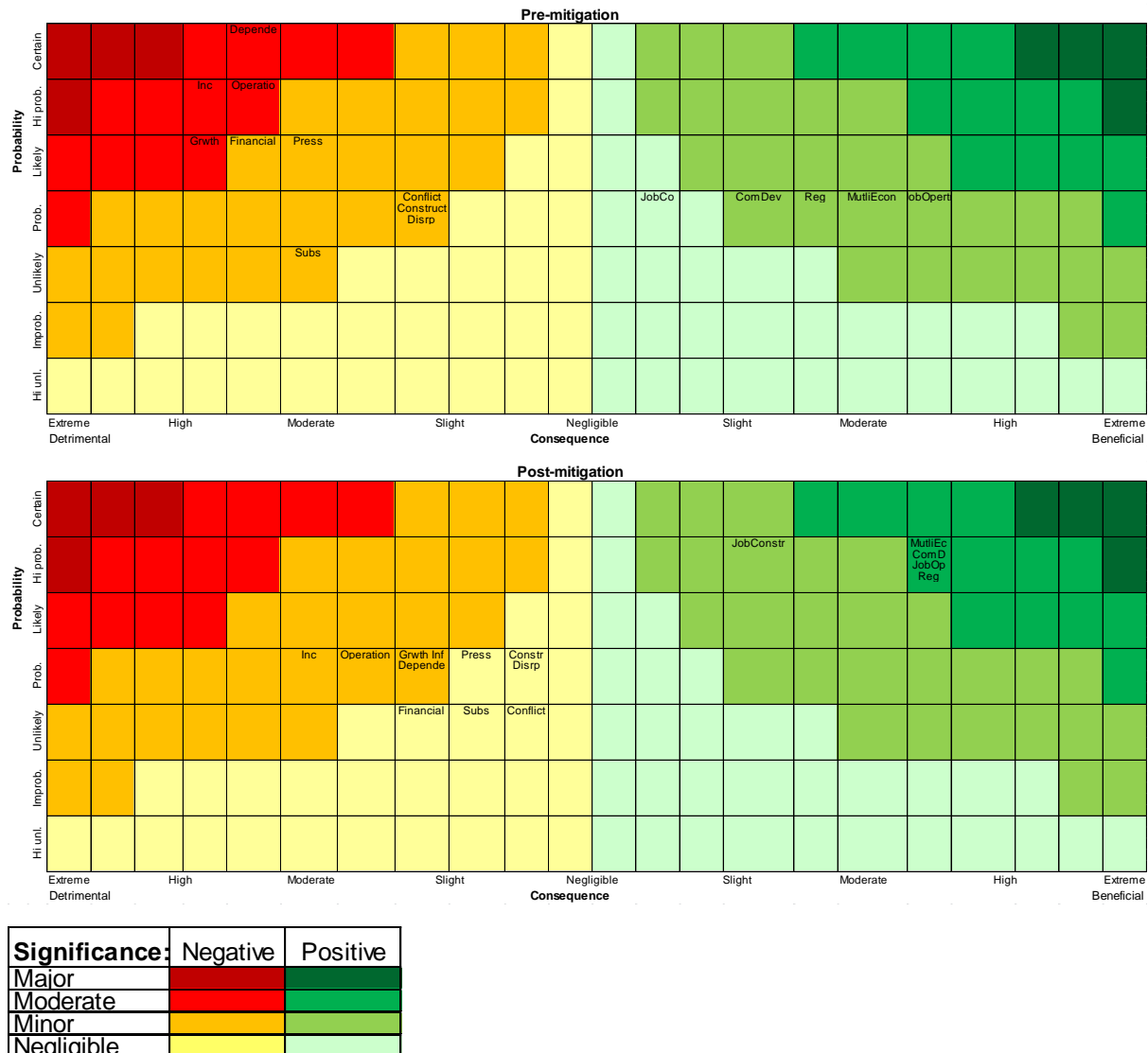


Figure 23: Graphical representation of consequence, probability and significance ratings

The foregoing table and figure show that a total of 15 social impacts were identified for the proposed project. Of these, five are positive, and ten negative. The significance ratings for **negative impacts without any mitigation** range from negligible to moderate:

- Six impacts were rated minor; and
- Four impacts have been given a significance of moderate

Significance ratings of **positive impacts without any mitigation**, on the other hand range from negligible to minor:

- One impact has been rated negligible; and
- Four impacts have been given a significance rating of minor.

If all mitigation measures are implemented according to the recommendations given in Section 5, it is anticipated that the consequence and/or probability of most negative impacts will be reduced. This is reflected in the **residual or post-mitigation significance ratings** assigned to **negative impacts**, which range from minor to negligible:

- Six impacts have been rated as negligible; and
- Four impacts have been given a significance rating of minor.

The **post-mitigation significance ratings of positive impacts** are sometimes higher than their pre-mitigation ratings, ranging from minor to moderate:

- One impact has been rated as minor; and
- Four impacts have been given a significance rating of moderate.

This summary confirms that adequate mitigation measures are expected to reduce the significance of almost all negative impacts albeit not always to acceptable levels, while positive impacts will on average be significantly enhanced to maximise benefits to surrounding communities.

In view of the above, it is recommended that the mitigation measures described in Section 5 be incorporated into the Environmental Management Plan for the proposed project and, where relevant, into the contract conditions to be issued to the subcontractors. Measures must also be put in place to monitor and assess implementation of these mitigation measures and to take corrective action where necessary.

Throughout the SIA process, the specialist identified a number of issues that warrant consideration by the proponent when implementing the proposed project. Firstly the risks identified in Section 7 above require particular attention and close monitoring and management.

Secondly it is recommended that Sasol Mining establish linkages with other institutions (e.g. government, NGOs and other existing or planned mines) involved in local and regional economic development and social upliftment so as to maximise the benefits of its contribution to the welfare of local communities. Opportunities for linkages and synergies include:

- LED projects listed in future IDPs of GMLM or GSDM;
- LED initiatives by existing and planned mines in the area; and
- LED related activities of civil society and non-governmental organisations.

It is recommended that Sasol Mining's CSI arm contact the CSI and socio-economic development departments of these institutions to gauge whether they can align or synergize with any of their efforts to collaborate in some of the development initiatives planned for the area.

9 References

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Appendix A: Curriculum Vitae of specialist

Curriculum Vitae – Nic Boersema

Education

MA (Anthropology), University of Pretoria, 1984

BA Honours (Anthropology), University of Pretoria, 1981 (Cum Laude)

BA (Anthropology), University of Pretoria, 1979 (Cum Laude)

Language Skills

Afrikaans, English, Dutch (basic)

Employment

Digby Wells Environmental	Principal Social Consultant	2010 till date
Environmental Resources Management (ERM)	Principal Consultant	2007 till 2010
Digby Wells Environmental	Senior Social Consultant	2004 till 2006
SRK Consulting	Senior Social Consultant	2000 till 2003
Scott Wilson (SA)	Social Consultant	1995 till 2000
South African Human Sciences Research Council	Researcher	1984 till 1995

Experience

Over the past 30 years Nic Boersema has gained wide-ranging experience in a variety of qualitative and quantitative research methods in the fields of rural development, socio-economic baseline studies, anthropology, community profiles and labour force surveys, public participation and stakeholder engagement, social impact assessment, participatory project evaluation, social development plans and resettlement action plans. Since 2002, Nic has acted as project manager and/or task leader on a number of social impact and resettlement studies in Africa. Social impact studies included both mining development and linear projects. Resettlement projects ranged from resettlement reviews and audits, resettlement action plans and resettlement monitoring.

Nic has participated in various studies undertaken in accordance with IFC Performance Standards. He has worked in South Africa, Botswana, Lesotho, Mozambique, Swaziland, Democratic Republic of Congo, Burkina Faso, Tanzania, Nigeria, Liberia, Sierra Leone, Guinea and Zambia. Nic is currently involved in the development of a resettlement plan for a proposed gold mine in Liberia.

Project experience

Resettlement

Aureus Mining Inc.: Resettlement Action Plan. Develop a comprehensive RAP for proposed New Liberty Gold Mine in Liberia. The RAP needs to meet IFC PS5 requirements (2011, 2012).

Koidu Holdings South Africa: Resettlement Action Plan. Develop a comprehensive RAP for the Koidu Kimberlite Project in Sierra Leone. The RAP needs to meet IFC PS5 requirements (2010).

Houses for Africa Nigeria: Resettlement Action Plan. Develop a comprehensive RAP for Houses for Africa's Housing Development Project in Abuja Nigeria. The RAP needs to meet IFC PS5 requirements (2010).

CIC Energy, Botswana: Resettlement Action Plan: Develop a RAP for the land acquisition and resettlement associated with a proposed mine and power plant in Botswana. The RAP needs to meet IFC PS5 requirements (2007-2010).

Septa Energy, Nigeria, Land Acquisition and Resettlement: Review environmental and social documentation. Initiate the development of a resettlement plan for the Uquo Gas Pipeline to meet international lender requirements (2010).

Wind East Africa, Tanzania, Rapid Resettlement Review: Undertake a rapid review of the resettlement status related to the Singida Wind Farm. Follow-up work will include ongoing support to complete the resettlement process to IFC standards (2009).

Sasol Limited, Mozambique, Resettlement Audit: Social audit of resettlement implementation for the Sasol Natural Gas Project in Mozambique (2003).

Lesotho Highlands Development Authority, Lesotho: Review of Resettlement Implementation. Undertake participatory socio-economic review of resettlement implementation for the Katse Dam (2000).

Chunnett, Fourie & Partners, South Africa: Relocation Action Plan: Develop resettlement plan for the Komati River Basin Development - Driekoppies Dam (1990-1992).

Social Impact Assessment

CIC Energy: Social Impact Assessment. Undertake a Social Impact Assessment for the Mmamabula Optimisation Project (Botswana), which will include five mining complexes (2012).

Fourth Element Consulting: Social Impact Assessment. Undertake a Social Impact Assessment for the Roodepoort Strengthening Project, which involves the assessment of 6 potential transmission routes and 5 substation sites (2011/2012).

CIC Energy, Botswana, Social Impact Assessment: Undertake Social Impact Assessment of the coal mine and power plant in Botswana. The assignment included various SIAs for the main project and related ancillary projects (2007-2009).

Ridge Mining, South Africa, Social Impact Assessment: Undertake preliminary impact and risk assessment of the proposed Sheba's Ridge Open Pit Mine (2007).

De Beers, South Africa, Social Impact Assessment: Undertake Social Impact Assessment of the Venetia Diamond Mine host communities (2005).

Knight Piesold, Mozambique, Initial Social Impact Assessment: Undertake Pre-feasibility Social Impact Assessment of the Mepanda Uncua Hydropower Plant (1999-2000).

Water Systems Management, South Africa, Social Impact Assessment: Undertake a Social Impact Assessment of the Olifants-Sand-Mokgalakwena Augmentation Scheme (2000).

Water Systems Management, South Africa, Social Impact Assessment: Undertake a Social Impact Assessment of the Mogalakwena River Dam (2001-2002).

Chunnett, Fourie & Partners, South Africa, Social Impact Assessment: Undertake Social Impact Assessment of the Driekoppies Dam.

Scoping and Socio-Economic Baseline Studies

Anglo Platinum, South Africa, Regional Socio-Economic Assessment: Undertake regional socio-economic assessment for Anglo Platinum's Eastern Limb mining initiatives ((2003).

Anglo Platinum, South Africa, Regional Assessment: Undertake regional socio-economic assessment of the Potgietersrus Platinum and Der Brochen mines' host communities (2002-2003).

Xstrata Coal, South Africa, Socio-Economic Baseline Studies: Undertake socio-economic and labour surveys for Xstrata Coal South Africa operations (2004-2005).

Axmin Limited, Burkina Faso, Pre-Feasibility Social Scan: Undertake social scan for Bouroum Gold Mine (2003).

Cluff Platinum, South Africa, Scoping Study: Undertake social scoping study for the Blue Ridge and Sheba's Ridge Platinum mines (2001).

Mine Waste Solutions: Chemwes Baseline Study and Employee Survey (2005).

Anglo Platinum; Xstrata; Lanxess; Stuart Coal: Social and Labour Plans (2001-2006).

General

Health Systems Development Unit: Undertake a participatory evaluation process with the Athol Women's Group. Project Manager (1993).

Community Resources Optimisation Programme (CROP). Initiate the planning and implementation of CROP in a number of rural South African villages (1992).

Inqolobane Trust: Co-founder of the Obivane Information Centre in a rural South African Village (1990).

Curriculum Vitae – Jurie Erwee

Education

2007	BA (Specialisation is Psychology), University of Pretoria, South Africa
2008	BSoc Sci (Honours) (Psychology) <i>Cum Laude</i> , University of Pretoria, South Africa
2009	MA (Research Psychology 1) <i>Cum Laude</i> , University of Pretoria, South Africa

Employment

2012 – Date	Digby Wells Environmental, Junior Social Scientist
2009 – 2012	Aurecon, Junior Social Scientist
2008 – 2008	AURUM (Health Research Institute), Field researcher
2008 – 2008	University of Pretoria, Project manager

Experience

Jurie Erwee is a social scientist with 5 years of experience ranging over several aspects of social research, including the planning and execution of social surveys, participatory rural appraisal, sustainable livelihoods assessments, data management and statistical analysis, capturing and management of spatial data, stakeholder identification and community facilitation. Most of my work has been in the field of social impact assessment, resettlement planning and stakeholder engagement. I have been involved in projects in South Africa and elsewhere in Africa, including Namibia, Malawi, Liberia, Sierra Leone, and Burkina Faso.

I have attained a BA and honours degree in psychology at the University of Pretoria and I am registered as a student research psychologist at the Health Professions Council of South Africa. I have also completed my first academic year of Master studies in Research Psychology. Currently I am completing my Master's dissertation in the field of Cross-Cultural personality assessment in South Africa.

Project Experience

Project Title	Project Location	Date :		Description of the Project	Role of Firm in the Project	Own Role in the Project	Time involved (man months)	Name of Client	Contract Outcomes	Contract Value	Reference
Tshikondeni mine closure	Limpopo Province, South Africa	09/2013	12/2013	Mine closure planning	Socio-economic impact assessment for mine closure	Project manager; Socio-economic impact assessment for mine closure	2	Exxaro Resources	Completed impact assessment report and management plan	R 390 000	Thabo Makehema Snr Project Manager, Technology T + 27 12 307 3074 C +27 83 411 1944 thabo.makhema@exxaro.com
Putu Iron Ore Project	Grand Gedeh County, Liberia	03/2013	Ongoing	Proposed opencast iron ore mine. Project proponent: Severstal	Baseline studies for Environmental and Social Impact Assessment	Implementing an asset and infrastructure survey and agricultural survey	5	Atkins Global	Completed SIA report and RAP	USD 779 000	Jan Perold Department Manager: Social Sciences, Cell:+27 82 717 5663; E-mail:jan.perold@digbywells.com
New Liberty Gold Mine: Social Impact Assessment for Aureus Mine's Daniels Town Road Project	Grand Cape Mount County, Liberia	07/2012	Ongoing	Proposed opencast gold mine	Compilation of Resettlement Action Plan, update of Environmental and Social Impact Assessment, Human Rights Impact Assessment, Stakeholder Engagement Plan, grave relocation process	Compilation of Social Impact Assessment for Aureus Mine's Daniels Town Road Project; Planning and implementing of asset and infrastructure;	3	Aureus Mining Inc.	Human Rights Impact Assessment report, updated ESIA report, stakeholder engagement plan, completed grave relocation process	USD 360 000	Patrys Laubscher, EHS Manager, Aureus Mining Inc. Skype: patrys132 Email: patrys.laubscher@aureus-mining.com
Seguenega Gold Project.	Yatenga Province, Burkina Faso	05/2012	05/2013	Establishment of Seguenega gold mine approx. 25 km from existing Kalsaka operation	Undertaking Environmental and Social Impact Assessment and compilation of Resettlement Action Plan	Compilation of Socio-economic baseline report. Planning and implementing of infrastructure survey and undertaking agricultural survey as part of the Social Impact Assessment	3	Amara PLC	SIA and RAP	SIA R233 000 RAP R480 000	Karien Lotter Unit Manager: Social Survey Unit Cell: +27 846869119

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Project Title	Project Location	Date :		Description of the Project	Role of Firm in the Project	Own Role in the Project	Time involved (man months)	Name of Client	Contract Outcomes	Contract Value	Reference
Platreef Mokopane Project	Limpopo Province, South Africa	04/2012	11/2012	Environmental and social baseline studies	Skill and business survey	Questionnaire development; Advertisement development; enumerator training; managing and implementing the survey; stakeholder contact; data analysis; Compilation of Skills and Business Survey specialist report	8	Platreef Resources (PTY) Ltd.	Survey report and database, completed SLP	R800 000	Orrock Robertson CSR Manager Tel:+27 15 491 0611 Cell:+27 78 460 9882 EMAIL:orrockr@ivanplats.com
Platreef Mokopane Project	Limpopo Province, South Africa	04/2012	11/2012	Environmental and social baseline studies	Accommodation Survey	Project Manager Conduction detailed assessment of availability of accommodation options for the mine workforce; generating an accommodation database and Specialist report discussing the finding of the survey	3	Platreef Resources (PTY) Ltd.	Survey report and database, completed SLP	R800 000	Jan Perold Department Manager: Social Sciences, Cell:+27 82 717 5663; E-mail:jan.perold@digbywells.com
Platreef Mokopane Project	Limpopo Province, South Africa	04/2012	11/2012	Environmental and social impact assessment	Social Impact Assessment	Project Manager - Compiling Socio-economic impact assessment for the proposed mining operation in line with World Bank Best Practice guidelines	2	Platreef Resources (PTY) Ltd.	Survey report and database, completed SLP	R760 000	Jan Perold Department Manager: Social Sciences, Cell:+27 82 717 5663; E-mail:jan.perold@digbywells.com

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Project Title	Project Location	Date :		Description of the Project	Role of Firm in the Project	Own Role in the Project	Time involved (man months)	Name of Client	Contract Outcomes	Contract Value	Reference
Kibali Gold Project	Oriental Province, Democratic Republic of Congo	02/2012	Ongoing	Environmental and social studies – Kibali Cost of living survey	Environmental and social impact assessment, resettlement action plan compilation and impact/implementation monitoring	Questionnaire development; Advertisement development; enumerator training; managing and implementing the survey; stakeholder contact; data analysis and compiling a specialist report writing	4	Randgold Resources Ltd	Cost of living survey report, social responsibility workshop proceeding, RAP, RAP implementation reports	R1.5 million for social components	Darren Dunne Unit Manager: Social Science Unit Cell:+27 72 219 3526
Baseline Environmental and Socio-Economic Studies for the Proposed Tonguma Project	Kenema District, Sierra Leone	02/2012	08/2012	Proposed diamond mine in the Lower Banbara Chiefdom, Kenema District, Sierra Leone. Concession area covers 143 km ²	Undertaking socio-economic and environmental baseline studies for the project	Selection of sampling areas; Questionnaire development; fieldwork training; managing and implementing the survey; managing GPS data; arranging and conducting rapid appraisal interviews and focus groups; public participation; data analysis and report writing	4	Koidu Holdings	Specialist studies and baseline reports	R2.8 million	Niqui Irle, Principal Environmentalist, Koidu Holdings. Telephone: +27 11 615 1210 Fax: +27 11 615 6210 Nlrle@koiduholdings.com Mobile (South Africa): +27 82 448 4103 Mobile (Sierra Leone): +232 76 133 029
Construction of a coal-fired power station in the Erongo Region of Namibia	Namibia	08/2011	06/2012	Environmental and Social Impact Assessment (ESIA) for the proposed coal-fired power station	Undertaking site selection, ESIA, public participation process and developing Environmental and Social Management Plans	Data Analysis ;Report writing	4	NamPower	Social Impact Assessment (SIA) specialist report	R3.8 million	Jan Perold Department Manager: Social Sciences, Cell:+27 82 717 5663; E-mail:jan.perold@digbywells.com

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Project Title	Project Location	Date :		Description of the Project	Role of Firm in the Project	Own Role in the Project	Time involved (months)	Name of Client	Contract Outcomes	Contract Value	Reference
Environmental Impact Assessment for the Mbewu - Isundu Power Line	KwaZulu-Natal, South Africa	03/2011	02/2012	Environmental Impact Assessment and Environmental Management Plan for the Mbewu - Isundu 2x400kv Power Line Project	Undertaking the Environmental Impact Assessment and developing the Environmental Management Plan	Compilation of a Social baseline report	1	ESKOM Holdings	EIA Report and EMP	R160 000 for social impact assessment	Karien Lotter Unit Manager: Social Survey Unit Cell: +27 846869119
Moatize Mine Expansion and Nacala Corridor & Port Project	Mozambique and Malawi	03/2010	01/2011	Expansion of Moatize Mine, development of rail corridor to Nacala Port for export of coal	Environmental and social impact assessment	Induction training; responsible for managing and implementing socio-demographic survey; fieldwork supervisor and fieldwork training; managing survey, GPS and qualitative data; managing general survey logistics; conduction rapid appraisal interviews and focus groups via interpreters; and stakeholder contact in a foreign environment	2	Vale Mozambique	Socio-economic baseline report, socio-economic impact assessment report	R680 000	Karien Lotter Unit Manager: Social Survey Unit Cell: +27 846869119

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Project Title	Project Location	Date :		Description of the Project	Role of Firm in the Project	Own Role in the Project	Time involved (months)	Name of Client	Contract Outcomes	Contract Value	Reference
Olifants River Water Resources Development Project Phase 2	Limpopo and Mpumalanga Provinces, South Africa	12/2009	Ongoing	Design and construction of two bulk water transfer pipelines to augment water supply to communities and industries in Limpopo and Mpumalanga Provinces	Engineering design, construction monitoring, environmental and social supervision and support to land acquisition	Initiating stakeholder contact; managing the public participation process; planning and implementation of asset and infrastructure surveys; implementation and planning of landowner identification; execution of the photographic survey; and involved with resettlement action planning.	12	Trans-Caledon Tunnel Authority (TCTA)	In progress	R 900 000 for social/land acquisition component	Jan Perold Department Manager: Social Sciences, Cell:+27 82 717 5663; E-mail:jan.perold@digbywells.com

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Project Title	Project Location	Date :		Description of the Project	Role of Firm in the Project	Own Role in the Project	Time involved (months)	Name of Client	Contract Outcomes	Contract Value	Reference
Socio-economic impact assessment survey for the Cradle of Humankind and Dinokeng Projects	Gauteng Province, South Africa	09/2009	12/2010	Socio-economic impact assessment survey for the Cradle of Humankind World Heritage Site and Dinokeng Blue IQ Projects	Undertaking socio-economic impact assessments	Selection of sampling areas and ground trothing; arranging and implementing fieldwork recruitment; fieldwork training; managing and implementing the survey of 2000 households; managing GPS data; arranging and conducting rapid appraisal interviews and focus groups; stakeholder contact; data analysis and report writing; compiling presentations; managing and implementing a tourism survey; and writing a tourism survey report	4	Gauteng Provincial Government	Completed	R 2 000 000	Jan Perold Department Manager: Social Sciences, Cell:+27 82 717 5663; E- mail:jan.perold@ digbywells.com