

APPENDIX O: SOCIAL ASSESSMENT

Black Mountain Mining (Pty) Ltd.
Proposed Gamsberg Smelter Project
Social Impact Assessment Report



August 2020

EXECUTIVE SUMMARY

Introduction

Black Mountain Mining (Pty) Ltd. (a subsidiary of Vedanta Zinc International (VZI), is planning to extend the scope of the Gamsberg Zinc Mine by developing a smelter complex (“The Project”) and associated infrastructure at the Gamsberg site to process concentrate from the Gamsberg concentrator and produce refined zinc metal.

In order for the Project to proceed, an Environmental Impact Assessment (EIA) is required, including an application phase, scoping phase, and EIA phase, as well as the compilation of an Environmental Management Programme (EMPr).

SLR Consulting (South Africa) (Pty) Ltd (SLR) has been appointed by Black Mountain Mining (Pty) Ltd to manage the environmental regulatory processes and undertake the EIA process for the proposed smelter project.

Terms of Reference

The abovementioned EIA process will include a suite of specialist studies to assess the potential biophysical, social and economic impacts of the Project. The specialist studies include a Social Impact Assessment (SIA). The Terms of Reference (ToR) requires that the SIA assess the proposed project activities in terms of critical socio-economic considerations and related impacts. The SIA must identify potential socio-economic impacts and benefits that may result from the Project and develop appropriate mitigation measures to reduce and, if possible, avoid negative impacts, as well as to enhance positive impacts.

Study Scope and Methodology

The SIA consisted of two main phases, namely a Scoping Phase and an Impact Assessment Phase. The aim of the Scoping Phase is to gain an understanding of the baseline socio-economic conditions in the Project area, identify the potential socio-economic impacts that could result from the Project and develop a socio-economic baseline profile of the receiving social environment.

The objectives of the Impact Assessment Phase are to assess the project activities in terms of key socio-economic considerations and related impacts. Subsequently, develop appropriate mitigation measures to reduce and, if possible, avoid negative impacts, as well as to enhance positive impacts.

The tasks undertaken during the Impact Assessment Phase were as follows:

- Refine the Project’s Area of Influence and scope of the SIA, if necessary;
- Update the socio-economic baseline description based on the findings of site visits and stakeholder engagement exercises (primary data collection);

- Address issues that have been raised during the Scoping Phase;
- Address and assess alternatives to the proposed activity;
- Identify, describe and assess positive, negative and cumulative impacts (pre- and post-mitigation);
- Formulate impact enhancement, avoidance, management and mitigation measures for incorporation into the management plan;
- Provide a management and monitoring framework for the management of social impacts.

Definition of Study Areas

For purposes of the socio-economic baseline description, the study areas correspond with the project footprint, as well as existing administrative boundaries.

- The site-specific study area – the geographical area likely to experience the socio-economic impacts associated with the **physical intrusion** of project infrastructure and activities;
- The local study area – described as the area likely to experience social impacts related to the **economic pull** exerted by the Project; and
- The regional study area – the area that may experience **the indirect or induced social impacts** of the Project.

Assessment Methodology

All anticipated socio-economic impacts have been identified for the construction, operation and decommissioning phases of the Project. Following the incorporation of all feasible mitigation, the residual impact significance has been reassessed. The social impacts have been assessed using a 5-tier assessment matrix as described in Section 4.5.

Project Description

Black Mountain Mining (Pty) Ltd is planning to extend the scope of the Gamsberg Zinc Mine by developing a smelter complex (electrolytic zinc refinery) at the Gamsberg site to process the concentrate from the Gamsberg concentrator and produce refined zinc metal (Special High Grade (SHG) Zinc). The zinc concentrate has a high manganese content, which necessitates the construction of a refinery specifically designed to handle the manganese. The refinery process will be downstream of the concentrator and will receive the concentrated material by truck.

The Project is located in the Khâi-Ma Local Municipality of the Namakwa District Municipality (NDM) of the Northern Cape Province. The Gamsberg Zinc Mine is located at the Gamsberg Inselberg, approximately 14 km east of the town of Aggeneys and 120 km east of Springbok along the N14. Other settlements include Pofadder (57 km), Pella (60 km).

The proposed smelter complex will be located within the current Gamsberg mining right area (MRA). Population density in the project area is very low and there are no settlements located

within 13 km from the project site. Mine employees are mainly accommodated in Aggeneys. However, the proposed smelter will be located in the ecologically sensitive Succulent Karoo Biome.

The pre-feasibility study for the Gamsberg Smelter Project has identified several alternatives for the smelter site and the preferred seaport for the export of final products. The current proposed site has the important advantage that no additional land will have to be acquired to undertake project activities.

The smelter will have numerous processes to produce a final product of zinc ingots. These include roasting, leaching, purification, electro-winning and smelting. By-products of the process include sulphuric acid, jarosite and manganese oxide. The sulphuric acid will be trucked offsite using approximately 30 trucks per day. Jarosite will be mixed with lime and cement to create a more inert waste product (Jarofix). A waste disposal facility (Secure Landfill Facility – SLF) to the west of the smelter is proposed for the storage of Jarofix, purification cake and Effluent Treatment Plant (ETP) cake. The final product, zinc ingots, will be taken from the Project by road to the Saldanha Port located approximately 610 km from Gamsberg. This will require a further 30 trucks per day.

Both water and electricity are required for the operation of the smelter. The infrastructure design will be optimized by utilising existing facilities to the maximum extent for power and water sourcing. The need for increased water supply to the smelter will require augmenting the existing water supply facilities at the Orange River abstraction point (the Pella drift intake system). A replacement 39 km bulk water pipeline (as well as upgrading of the existing Pella Water Works) will be required and will be undertaken as a separate Basic Assessment application. Under this same Basic Assessment application the existing ESKOM transmission line and substation, which provide power to the pipeline booster-pump station, would be upgraded.

For the smelter complex, the current power line will be upgraded to a 132 kV power line, which will be run from the Aggeneys substation located approximately 20 km from Gamsberg at the ESKOM substation. This power line will follow an existing servitude.

Adequate land is available for locating the smelter complex (22 ha), SLF (21 ha) and associated infrastructure at the Gamsberg Zinc Mine within the MRA. Plant service facilities (e.g., workshop, laboratory, fire station facilities, as well as first aid), can be shared with the existing concentrator. Additional houses will have to be built in nearby Aggeneys to accommodate the smelter's permanent workforce. However, this will not form part of current Project. The construction workforce will be accommodated in existing pre-fab houses near the smelter. Services and facilities for the town will be available from existing facilities with minimum augmentation.

An obligation for all Business Partners working on Gamsberg is to recruit, in the first instance, from local communities such as Pella, Pofadder and Onseepkans, and then from the Namakwa District and the rest of the Northern Cape. The smelter project will create potentially 6 000 jobs during the construction phase.

During operation, the Project will potentially create 1 200 permanent jobs during the life of the smelter (15 years according to current planning). Permanent workers will largely be accommodated in Aggeneys, which will require the construction of new houses. However, this does not form part of the Gamsberg Smelter Project.

Legal and Policy Framework

Section 6 of this report describes the various pieces of national and local legislation and development plans that are relevant to the SIA for the proposed Project. The SIA Assessment Phase also considered Vedanta Zinc International (VZI's) corporate policies, social responsibility and community programmes, as well as its Social and Labour Plan (SLP).

Socio-economic Baseline Description

The baseline profile of the receiving socio-economic environment is presented in Section 7. The profile includes a high-level description of the socio-economic characteristics within the regional, local and site-specific study areas.

The regional study area is broadly defined as the Northern Cape Province and the Namakwa District municipal area respectively. It is anticipated that the smelter, in combination with the proposed expansions at Black Mountain Mine and Gamsberg Zinc Mine, will significantly contribute to economic growth and employment creation in these two areas.

The Project is situated in the Khâi-Ma Local Municipality, which is one of six local municipalities within the Namakwa District Municipality. The Local Municipality is a low capacity municipality (Category B), which is divided into 4 wards. The Project is located in Ward 4 of the Municipality. Pofadder, Pella, Aggeneys, Witbank and Onseepkans are all located within the municipal area.

The Khâi-Ma Municipality had a population of 12 333 people in 2016. Population density is around one person per square kilometre, with the majority of the population living in the rural areas (4 035 people). Aggeneys has a population of 2 053 people (845 households) and Pofadder 2 919 people (733 households).

According to the 2011 Census, Ward 4 had a population of 3,638 people. The median age in Ward 4 was 31, while 66% of the population was between 18 and 64. Around 20% of the households were female-headed households. Employment was around 57%. For almost 80%, Afrikaans is the language spoken most often at home. Less than 4% are living in informal dwellings. 35.7% have completed Matric or higher. Aggeneys is the main town in Ward 4.

The Nama Khoi Local Municipality is briefly discussed as it forms an important labour sending area for Black Mountain Mining (Pty) Ltd mining activities. It is anticipated that the smelter project will also use this local municipality as one of its labour sending areas. The Nama Khoi Local Municipality is a Category B municipality with Springbok as its administrative centre and the most densely populated area. The Local Municipality is the economic hub of Namakwa District with the highest population in the District. It is also the biggest contributor to the District's Gross Domestic Product (GDP) (41%), and made the largest contribution to employment in the District. Mining is the backbone of the economy (2014).

The current land use in the Project area is mining. The Project is surrounded by farms used for grazing (mainly sheep) (excluding farms that form part of the Biodiversity Offset Agreement). A solar farm, two quarries and a guesthouse are located in close proximity to the Project (less than 10 km). Livestock grazing is the main land use in the surrounding rural areas.

Stakeholder Perceptions

During the site visit undertaken for the Scoping and EIA study, several farmers and other stakeholders were visited or contacted via e-mail. Section 8 of this report provides an overview of the stakeholders' perception of the Project.

Assessment of social impacts

There are various potential negative and positive impacts associated with the construction and operation of the Project. These impacts have been assessed during the Impact Assessment Phase of the SIA. The assessment of the social impacts concluded that there are no social impacts that would create a fatal flaw scenario. Furthermore, the significance of negative social impacts can be mitigated, while positive impacts can be enhanced if the proposed measures are implemented.

The following impacts have been identified and assessed:

- **Construction Phase – Positive**
 - Employment creation during construction.
 - Multiplier effect on the local and regional economy.
- **Construction Phase – Negative.**
 - Disruption of daily movement patterns.
 - Project induced population influx.
 - Negative impacts related to the presence of construction workers.
 - Health, safety and security issues.
- **Operational Phase – Positive.**
 - Contribution to the local economy through employment creation and economic stimulus.
 - Skills development and capacity building.
- **Decommissioning Phase – Negative**
 - Dependency on the Project for sustaining the local economy

Management measures

The social management measures proposed in Section 10 of this report aim to ensure that the anticipated negative social impacts of the Project on host communities and workers are

mitigated and managed, and that the potential positive impacts on communities are optimised and enhanced in a sustainable manner.

Monitoring

It is proposed that a monitoring programme be developed and implemented to monitor the implementation of social management actions. Furthermore, it is recommended that this be conducted by a competent monitoring and evaluation (M&E) officer, as the implementation of monitoring tools (surveys, databases, etc.) will require specialised skills.

The Monitoring approach recommended in Section 11 of this report is based on the "inputs-outputs-outcomes-impacts" model, which assesses performance of each level of the "results chain."

Conclusion

The review of available information highlights the struggles of local municipalities to improve the living conditions of their residents. Stimulating and strengthening the economy through various sector development interventions is, therefore, a key priority for these municipalities. Mining in general and the proposed Gamsberg Smelter in particular, would make an important contribution in this regard. The proposed smelter would make a significant contribution to the national and regional economy, while also stimulating local development.

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LIST OF ABBREVIATIONS AND ACRONYMS

AET	Adult Education and Training
AEL	Atmospheric Emission Licence
ABET	Adult Basic Education and Training
AoI	Area of Interest
BBL	Broad-based Livelihood (programme)
BBBEE	Broad-based Black Economic Empowerment
BBM	Black Mountain Mining (Pty) Ltd.
DENC	Department of Environment and Nature Conservation
DM	District Municipality
DMRE	Department of Mineral Resources and Energy
DoL	Department of Labour
EIA	Environmental Impact Assessment
EMPr	Environmental Management Programme
ESKOM	Electricity Supply Commission (South Africa)
ESMS	Environmental and Social Management System
ESOP	Employee Stock Ownership Plan
ESTA	Extension of Security of Tenure Act
ETP	Effluent Treatment Plant
GDP	Gross Domestic Product
Ha	Hectare
HDP	Historically Disadvantaged Person
HSDA	Historically Disadvantaged South African
IDP	Integrated Development Plan
IUCN	International Union for the Conservation of Nature
IWULA	Integrated Water Use Licence Application
km	Kilometre
kTPA	Kilo-Tonnes per annum
km ²	Square Kilometre
kV	Kilovolt
LED	Local Economic Development
m	Meter
MPRDA	Mineral and Petroleum Resources Development Act No. 28 of 2002

MRA	Mining Right Area
mtpa	million tonne per annum
NCMACA	Northern Cape Mining Affected Communities in Action
NDP	National Development Plan
NEM:AQA	National Environmental Management: Air Quality Act No. 39 of 2004
NEM:WA	National Environmental Management: Waste Act No. 59 of 2008
NEMA	National Environmental Management Act No. 107 of 1998
NIP	National Infrastructure Plan
NQF	National Qualifications Framework
mLl	Millilitre
Mtpa	Million tonnes per annum
NGOs	Non-governmental organisations
NSDP	National Spatial Development Plan
NSDF	National Spatial Development Framework
NWA	National Water Act No. 36 of 1998
PGDS	Provincial Growth and Development Strategy
PSDF	Provincial Spatial Development Framework
RIDPs	Regional Integrated Development Plans
RSDF	Regional Spatial Development Framework
SA	South Africa
SAPS	South African Police Service
SDF	Spatial Development Framework
SE	Socio-economic
SEZ	Special Economic Zone
SHG	Special High Grade (zinc)
SIA	Social Impact Assessment
SIPs	Strategic Integrated Projects
SLR	SLR Consulting (South Africa) (Pty) Ltd
SLF	Secure Land Fill Site
SMMEs	Small, medium and micro sized enterprises
SPLUMA	Spatial Planning and Land Use Management Act
Stats SA	Statistics South Africa
STD	Sexually transmitted disease

STG	Steam Turbine Generator
TIA	Traffic Impact Assessment
ToR	Terms of Reference
Tpa	Tonnes per annum
TSF	Tailings Storage Facility
TVET	Technical and Vocational Education and Training
VCT	Voluntary Counselling and Testing
VZI	Vedanta Zinc International

Table 1: Specialist report requirements in terms of Appendix 6 of the EIA Regulations (2014), as amended in 2017

A specialist report prepared in terms of the Environmental Impact Regulations of 2014 (as amended in 2017) must contain:	Relevant section in report
Details of the specialist who prepared the report	3
The expertise of that person to compile a specialist report including a curriculum vitae	3
A declaration that the person is independent in a form as may be specified by the competent authority	3
An indication of the scope of, and the purpose for which, the report was prepared	4
An indication of the quality and age of base data used for the specialist report	7
A description of existing impacts on the site, cumulative impacts of the proposed development and levels of acceptable change	9
The duration, date and season of the site investigation and the relevance of the season to the outcome of the assessment	4; 8
A description of the methodology adopted in preparing the report or carrying out the specialised process inclusive of equipment and modelling used	4
Details of an assessment of the specific identified sensitivity of the site related to the proposed activity or activities and its associated structures and infrastructure, inclusive of a site plan identifying site alternative	5
An identification of any areas to be avoided, including buffers	5
A map superimposing the activity including the associated structures and infrastructure on the environmental sensitivities of the site including areas to be avoided, including buffers	5
A description of any assumptions made and any uncertainties or gaps in knowledge	N/A
A description of the findings and potential implications of such findings on the impact of the proposed activity or activities	9
Any mitigation measures for inclusion in the EMPr	9; 10
Any conditions for inclusion in the environmental authorisation	
Any monitoring requirements for inclusion in the EMPr or environmental authorisation	11
A reasoned opinion as to whether the proposed activity or portions thereof should be authorised	9; 12
Regarding the acceptability of the proposed activity or activities	12
If the opinion is that the proposed activity or portions thereof should be authorised, any avoidance, management and mitigation measures that should be included in the EMPr, and where applicable, the closure plan	9; 10
A description of any consultation process that was undertaken during the course of carrying out the study	8
A summary and copies if any comments that were received during any consultation process	8
Any other information requested by the competent authority	

1 Introduction

Black Mountain Mining (Pty) Ltd, a subsidiary of Vedanta Zinc International (VZI), is operating a 4 million tonne per annum (mtpa) zinc mine and ore beneficiation plant with associated infrastructure at the Gamsberg Zinc Mine in the Northern Cape Province of South Africa. The concentrator plant produces up to 300 000 tons of zinc (metal in concentrate) per annum. The Gamsberg Zinc Mine is operated in terms of an Environmental Authorisation (Ref: NC/EIA/NAM/KHA/AGG/2012), dated 12 August 2013. Black Mountain Mining (Pty) Ltd is planning to extend the scope of the Gamsberg Zinc Mine by developing a smelter complex (“The Project”) and associated infrastructure at the Gamsberg site to process concentrate from the Gamsberg concentrator and produce refined zinc metal.

In order for the Project to proceed, an Environmental Impact Assessment (EIA) is required, including an application phase, scoping phase, and EIA phase, as well as the compilation of an Environmental Management Programme (EMPr). The assessment has to be undertaken in terms of the National Environmental Management Act (Act 107 of 1998) (NEMA) requirements and the associated Regulations (2014). In addition, the Project will require authorisation in terms of the National Water Act, 36 of 1998, the National Environmental Management: Waste Act 59 of 2008 (NEM:WA), as well as the National Environmental Management: Air Quality Act 39 of 2004 (NEM:AQA).

SLR Consulting (South Africa) (Pty) Ltd (SLR) has been appointed by Black Mountain Mining (Pty) Ltd to manage the environmental regulatory processes and undertake the EIA process for the proposed smelter project.

2 Terms of Reference

The abovementioned EIA process includes a suite of specialist studies to assess the potential biophysical, social and economic impacts of the Project. The specialist studies include a Social Impact Assessment (SIA). The Terms of Reference (ToR) requires that the SIA assess the proposed project activities in terms of critical socio-economic considerations and related impacts. The SIA must identify potential socio-economic impacts and benefits that may result from the Project and develop appropriate mitigation measures to reduce and, if possible, avoid negative impacts, as well as to enhance positive impacts.

The SIA consists of two main phases, namely a Scoping Phase and an Impact Assessment Phase. The Scoping Report was submitted in September 2019. The current report presents the findings of the Social Impact Assessment (Gamsberg Smelter Project: SIA report).

3 Details of the Social Specialist

The background of the social specialist who completed the SIA Report, as well as a declaration of independence is presented in this section.

3.1 Nic Boersema

3.1.1 Background

Over the past 30 years, Nic has gained wide-ranging experience in a variety of qualitative and quantitative research methods, as well as socio-economic surveys, stakeholder engagement, social impact assessment, social management plans, and resettlement action plans.

Since 2002, Nic was the project manager on a large number of social impact assessments and resettlement studies in Africa. Social impact assessments include, water projects, roads, power plants, mining development and transmission lines. Resettlement projects include resettlement action plans and resettlement implementation, livelihood restoration plans, influx management and resettlement monitoring.

Nic has participated in several studies undertaken in accordance with the Equator Principles and the International Finance Corporation (IFC) Performance Standards (PS). He has worked in South Africa, Botswana, Lesotho, Mozambique, Democratic Republic of Congo (DRC), Burkina Faso, Tanzania, Nigeria, Liberia, Sierra Leone, Guinea, Zambia, Malawi and Pakistan.

3.1.2 Declaration of Independence

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I, Nicolaas Boersema, confirm my independence and declare that I do not have any interest (be it business, financial, personal or other), in any proposed activity, application and/ or appeal in respect of Vedanta Zinc International or Black Mountain Mining (Pty) Ltd, other than fair remuneration for work performed in connection with the proposed Gamsberg Smelter Project in the Northern Cape Province of South Africa.



Full name: Nicolaas Boersema

Title/Position: Social Consultant

Qualification(s): MA Anthropology

Experience (years): 30 years

4 Study Scope and Methodology

This section provides an overview of the SIA methodology and study tasks. The report was designed to comply with the relevant national legislative requirements.

4.1 Objectives

The objectives of the Scoping Phase were to:

- Gain an understanding of the baseline socio-economic conditions in the project area.
- Identify the potential socio-economic impacts that could result from the Project.

The objectives of the Impact Assessment Phase were to:

- Assess the project activities in terms of key socio-economic considerations and related impacts.
- Develop appropriate mitigation measures to reduce and, if possible, avoid negative impacts, as well as to enhance positive impacts.

4.2 Main Tasks

The tasks undertaken during the Scoping Phase were the following:

- Conduct a desktop review of available documents;
- Gain an understanding of the project area through inspection of available satellite imagery, including a visual inspection of project components;
- Define the Area of Influence (Aoi) and study areas for the SIA based on the anticipated social impacts of the Project; and
- Develop a socio-economic baseline profile of the receiving social environment.

The tasks undertaken during the Impact Assessment Phase were as follows:

- Refine the Project's Aoi and scope of the SIA, if necessary;
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- Provide a management and monitoring framework for the management of social impacts.

4.3 Definition of Study Areas

The study area of SIAs is typically defined as the AoI that is likely to experience impacts arising from, or exerting an influence on, the project/activity being assessed. This task is complicated by the fact that many socio-economic impacts are 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 noise, dust, vibration, as well as changes in the visual characteristics of the landscape, and the disruption/restriction of movement). Such impacts typically extend to land uses and properties within a few kilometre from the edges of a project's footprint.

Impacts related to the **'economic pull'** exerted by the Project (including job creation, influx of workers and job-seekers to the project area, increased pressure on services, concomitant risks of increased social pathologies and community conflict, etc.). Such impacts usually extend to populations residing in close proximity to the project, i.e. surrounding farms/businesses and Aggeneys town, but may extend to the settlements of Pofadder and Pella.

Indirect or induced impacts that are by-products or ripple effects of the impacts in the foregoing two categories, such as multiplier effects on the local economy (e.g. employment creation and project-related expenditure). Generally, the geographical reach of such impacts tends to extend wider and may affect areas elsewhere in the region where the project is to be situated.

The relevance of this distinction for the definition of the study area stems from the fact that the type and level of socio-economic baseline information required for the prediction of social impacts differs between these categories. Accordingly, three concentric and interdependent study areas were identified. Each study area roughly corresponds to the geographical extent of one of the three categories of impacts defined above. For purposes of the socio-economic baseline description, the study areas correspond with the project footprint, as well as existing administrative boundaries.

- The site-specific study area – the geographical area likely to experience the socio-economic impacts associated with the **physical intrusion** of project infrastructure and activities (up to a few kilometres from the boundaries of the Project's footprint).
- The local study area – described as the area likely to experience social impacts related to the **economic pull** exerted by the Project. This area is estimated as the approximate geographical extent of the local municipal area that encompass and surround the project footprint.
- The regional study area – the area that may experience **the indirect or induced social impacts** of the Project. The reach of such impacts includes the surrounding local and district municipal areas (e.g. the Nama-Khoi municipal area and the Namakwa District Municipal area).

4.4 Data Collection

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

A desktop review of available documents to obtain relevant baseline socio-economic information on the study areas. These include:

- Relevant laws and national development plans;
- Municipal Integrated Development Plans (IDPs), Local Economic Development (LED) Plans, Spatial Development Frameworks (SDFs), etc.;
- Socio-economic and demographic data obtained from Statistics South Africa's (Stats SA) Census 2011;
- Previous studies, reports, planning documents, plans and maps concerning the Project, as well as the Black Mountain Mine and Gamsberg Zinc Mine;
- Information received from other specialist studies; and
- Available documents in the public domain concerning adjacent developments/projects.

A site visit to the Project and its surroundings was undertaken from 9-16 September 2019 to interview the Gamsberg Smelter project team members, obtain stakeholder perceptions of the Project, and identify social impacts of the Project on people's lives and livelihoods.

Based on the information collected through the data collection exercise, a socio-economic baseline profile was compiled for the three study areas.

4.5 Assessment Methodology

All anticipated socio-economic impacts have been identified for the construction, operation and decommissioning phases of the Project. Following the incorporation of all feasible mitigation, the residual impact significance have been reassessed. The social impacts have been assessed using a 5-tier assessment matrix as described below:

Table 2: Impact Assessment Matrix

PART A: DEFINITIONS AND CRITERIA*		
Definition of SIGNIFICANCE		Significance = consequence x probability
Definition of CONSEQUENCE		Consequence is a function of intensity, spatial extent and duration
Criteria for ranking of the INTENSITY of environmental impacts	VH	Severe change, disturbance or degradation. Associated with severe consequences. May result in severe illness, injury or death. Targets, limits and thresholds of concern continually exceeded. Substantial intervention will be required. Vigorous/widespread community mobilization against project can be expected. May result in legal action if impact occurs.
	H	Prominent change, disturbance or degradation. Associated with real and substantial consequences. May result in illness or injury. Targets, limits and thresholds of concern regularly exceeded. Will definitely require intervention. Threats of community action. Regular complaints can be expected when the impact takes place.
	M	Moderate change, disturbance or discomfort. Associated with real but not substantial consequences. Targets, limits and thresholds of concern may occasionally be exceeded. Likely to require some intervention. Occasional complaints can be expected.
	L	Minor (Slight) change, disturbance or nuisance. Associated with minor consequences or deterioration. Targets, limits and thresholds of concern rarely exceeded. Require only minor interventions or clean-up actions. Sporadic complaints could be expected.
	VL	Negligible change, disturbance or nuisance. Associated with minor consequences or deterioration. Targets, limits and thresholds of concern never exceeded. No interventions or clean-up actions required. No complaints anticipated.
	VL+	Negligible change or improvement. Almost no benefits. Change not measurable/will remain in the current range.
	L+	Minor change or improvement. Minor benefits. Change not measurable/will remain in the current range. Few people will experience benefits.
	M+	Moderate change or improvement. Real but not substantial benefits. Will be within or marginally better than the current conditions. Small number of people will experience benefits.
	H+	Prominent change or improvement. Real and substantial benefits. Will be better than current conditions. Many people will experience benefits. General community support.
	VH+	Substantial, large-scale change or improvement. Considerable and widespread benefit. Will be much better than the current conditions. Favourable publicity and/or widespread support expected.
Criteria for ranking the DURATION of impacts	VL	Very short, always less than a year. Quickly reversible
	L	Short-term, occurs for more than 1 but less than 5 years. Reversible over time.
	M	Medium-term, 5 to 10 years.
	H	Long term, between 10 and 20 years. (Likely to cease at the end of the operational life of the activity)
	VH	Very long, permanent, +20 years (Irreversible. Beyond closure)
Criteria for ranking the EXTENT of impacts	VL	A part of the site/property.
	L	Whole site.
	M	Beyond the site boundary, affecting immediate neighbours
	H	Local area, extending far beyond site boundary.
	VH	Regional/National

PART B: DETERMINING CONSEQUENCE							
INTENSITY = VL							
DURATION	Very long	VH	Low	Low	Medium	Medium	High
	Long term	H	Low	Low	Low	Medium	Medium
	Medium term	M	Very Low	Low	Low	Low	Medium
	Short term	L	Very low	Very Low	Low	Low	Low
	Very short	VL	Very low	Very Low	Very Low	Low	Low
INTENSITY = L							
DURATION	Very long	VH	Medium	Medium	Medium	High	High
	Long term	H	Low	Medium	Medium	Medium	High
	Medium term	M	Low	Low	Medium	Medium	Medium
	Short term	L	Low	Low	Low	Medium	Medium
	Very short	VL	Very low	Low	Low	Low	Medium
INTENSITY = M							
DURATION	Very long	VH	Medium	High	High	High	Very High
	Long term	H	Medium	Medium	Medium	High	High
	Medium term	M	Medium	Medium	Medium	High	High
	Short term	L	Low	Medium	Medium	Medium	High
	Very short	VL	Low	Low	Low	Medium	Medium
INTENSITY = H							
DURATION	Very long	VH	High	High	High	Very High	Very High
	Long term	H	Medium	High	High	High	Very High
	Medium term	M	Medium	Medium	High	High	High
	Short term	L	Medium	Medium	Medium	High	High
	Very short	VL	Low	Medium	Medium	Medium	High
INTENSITY = VH							
DURATION	Very long	VH	High	High	Very High	Very High	Very High
	Long term	H	High	High	High	Very High	Very High
	Medium term	M	Medium	High	High	High	Very High
	Short term	L	Medium	Medium	High	High	High
	Very short	VL	Low	Medium	Medium	High	High

		VL	L	M	H	VH	
		A part of the site/ property	Whole site	Beyond the site, affecting neighbours	Extending far beyond site but localised	Regional/ National	
EXTENT							
PART C: DETERMINING SIGNIFICANCE							
PROBABILITY (of exposure to impacts)	Definite/ Continuous	VH	Very Low	Low	Medium	High	Very High
	Probable	H	Very Low	Low	Medium	High	Very High
	Possible/ frequent	M	Very Low	Very Low	Low	Medium	High
	Conceivable	L	Insignificant	Very Low	Low	Medium	High
	Unlikely/ improbable	VL	Insignificant	Insignificant	Very Low	Low	Medium
		VL	L	M	H	VH	
CONSEQUENCE							
PART D: INTERPRETATION OF SIGNIFICANCE							
Significance	Decision guideline						
Very High	Potential fatal flaw unless mitigated to lower significance.						
High	It must have an influence on the decision. Substantial mitigation will be required.						
Medium	It should have an influence on the decision. Mitigation will be required.						
Low	Unlikely that it will have a real influence on the decision. Limited mitigation is likely required.						
Very Low	It will not have an influence on the decision. Does not require any mitigation						
Insignificant	Inconsequential, not requiring any consideration.						

*VH = very high, H = high, M= medium, L= low and VL= very low and + denotes a positive impact.

The findings of the SIA report are based on the following information and activities:

- Information obtained from primary and secondary data gathering;
- Feedback from stakeholders via the stakeholder engagement process;
- Consideration of planned project activities for all project phases;
- Input from other project specialist studies (e.g. noise, visual, air quality, traffic) and the project management team;
- Review of impacts of similar projects; and
- Professional experience/ judgement of the social specialist and the project team.

5 Project Description

A project's impact on the receiving social environment mainly depends on the location and size of its footprint, the nature of the project activities, as well as the project's economic contribution. This section provides an overview of the project activities with a focus on those activities that are pertinent to the SIA.

5.1 Background

As was mentioned, Black Mountain Mining (Pty) Ltd is operating a 4-mtpa Zinc mining and ore beneficiation plant with associated infrastructure at the Gamsberg Zinc Mine in the Northern Cape Province. The Gamsberg Zinc Mine is currently at approximately 90% capacity and is exploiting one of the largest known zinc orebodies in the world. The Mine comprises two open pits (north and south pits), a concentrator plant and Tailings Storage Facility (TSF). The concentrator produces zinc concentrate of approximately 250 kTPA) zinc.

Black Mountain Mining (Pty) Ltd is planning to extend the scope of the Gamsberg Zinc Mine by developing a smelter complex (electrolytic zinc refinery with smelter) at the Gamsberg site to process the concentrate from the Gamsberg concentrator and produce refined zinc metal (Special High Grade (SHG) Zinc). The zinc concentrate has a high manganese content, which necessitates the construction of a refinery specifically designed to handle manganese. The refinery process will be downstream of the concentrator and would receive the concentrated material by truck.

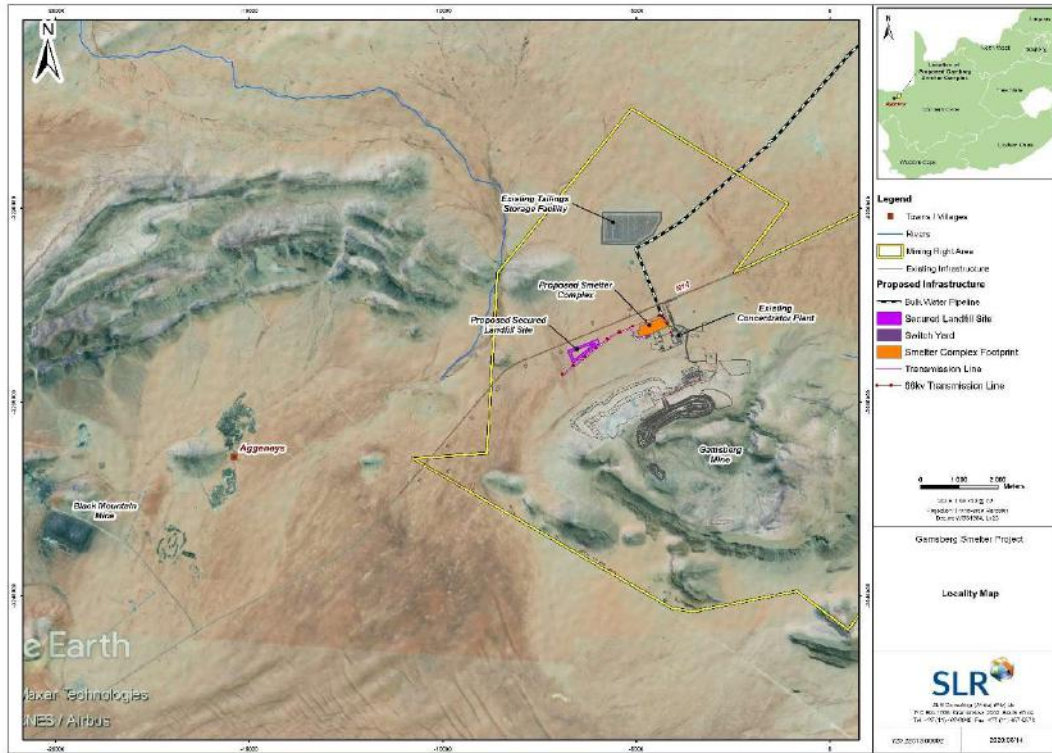
According to current planning, the life of the smelter will be approximately 15 years. However, this may possibly be extended. The Gamsberg Zinc Mine will enter its second phase of development in the near future, expanding the current operation to full-approved production rate, which may provide sufficient concentrate to justify extending the smelter, both in terms of the life of the smelter and expanding the actual smelter complex.

5.2 Project Location

The Project is located within the Khâi-Ma Local Municipality situated in the Namakwa District Municipality of the Northern Cape Province. The Gamsberg Zinc Mine is located at the Gamsberg Inselberg, approximately 14 km east of the town of Aggeneys and 120 km east of Springbok along the N14. Other settlements include Pofadder (57 km) and Pella (60 km).

The proposed smelter complex will be located within the current Gamsberg mining right area (MRA). Population density in the project area is very low and there are no settlements located within 13 km from the project site. Mine employees are mainly accommodated in Aggeneys. The mining licence area is about 9 505.73 ha, comprising the Inselberg and surrounding plains.

The general location of the proposed smelter is shown in



Figure

1

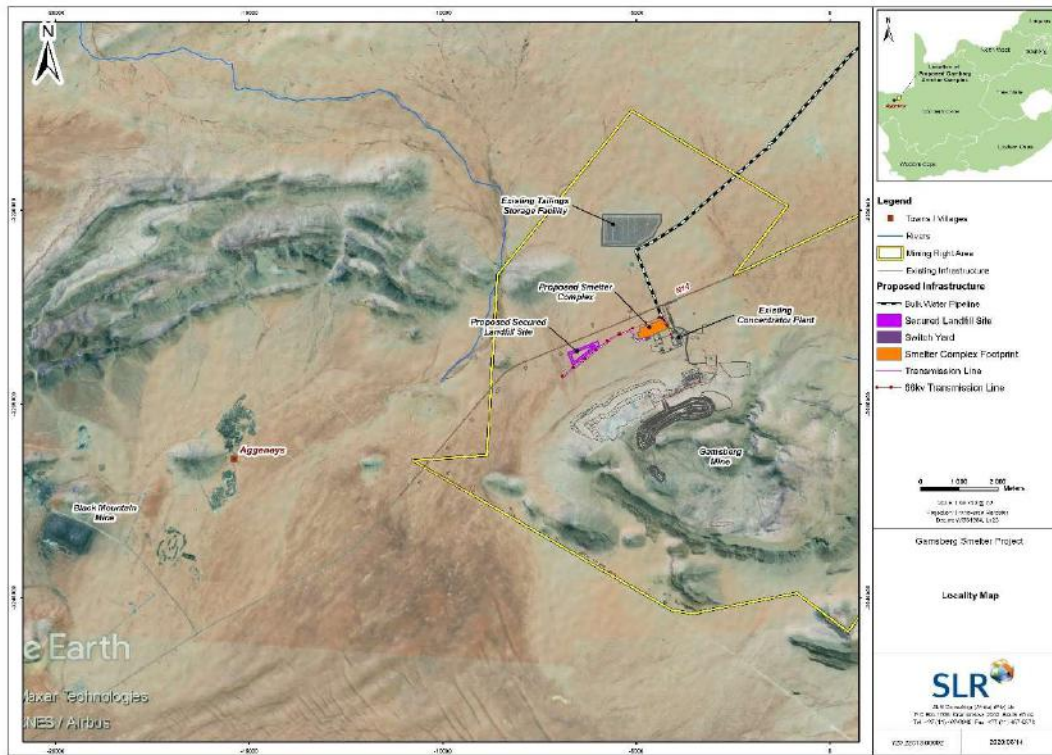


Figure 1 below.

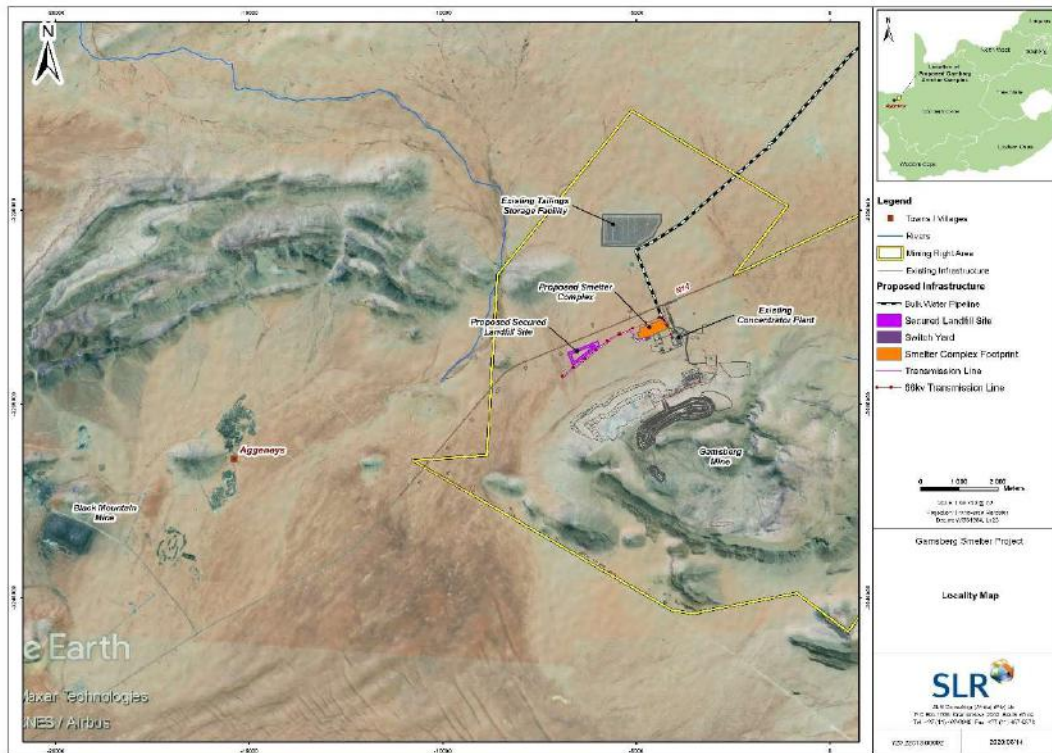


Figure 1: General location of the proposed Gamsberg Smelter

The Gamsberg smelter would be located north-west of the existing Gamsberg concentrator plant and south of the N-14 road (see Figure 2).

The proposed smelter complex would be located within the current Gamsberg Mining Right Area (MRA). Mine employees are mainly accommodated in Aggeneys. However, the proposed smelter would be located in the ecologically sensitive Succulent Karoo Biome, a designated biodiversity hotspot and one of 35 biodiversity hotspots in the world (TATA Consulting Engineers Limited, 2019: p7). For the current Gamsberg Zinc Mine, a Biodiversity Offset Agreement was signed between Black Mountain Mining (Pty) Ltd and the Department of Environment and Nature Conservation (DENC) after extensive engagement with key stakeholders. Black Mountain Mining (Pty) Ltd is also working in close partnership with the IUCN to ensure effective implementation of the agreement.

The MRA of the Gamsberg Zinc Mine includes the following farms **Error! Reference source not found.**:

- Remainder of farm Aroams 57 RE;
- Portion 1 of farm Gams 60; and
- Portion 1 of farm Bloemhoek 61.

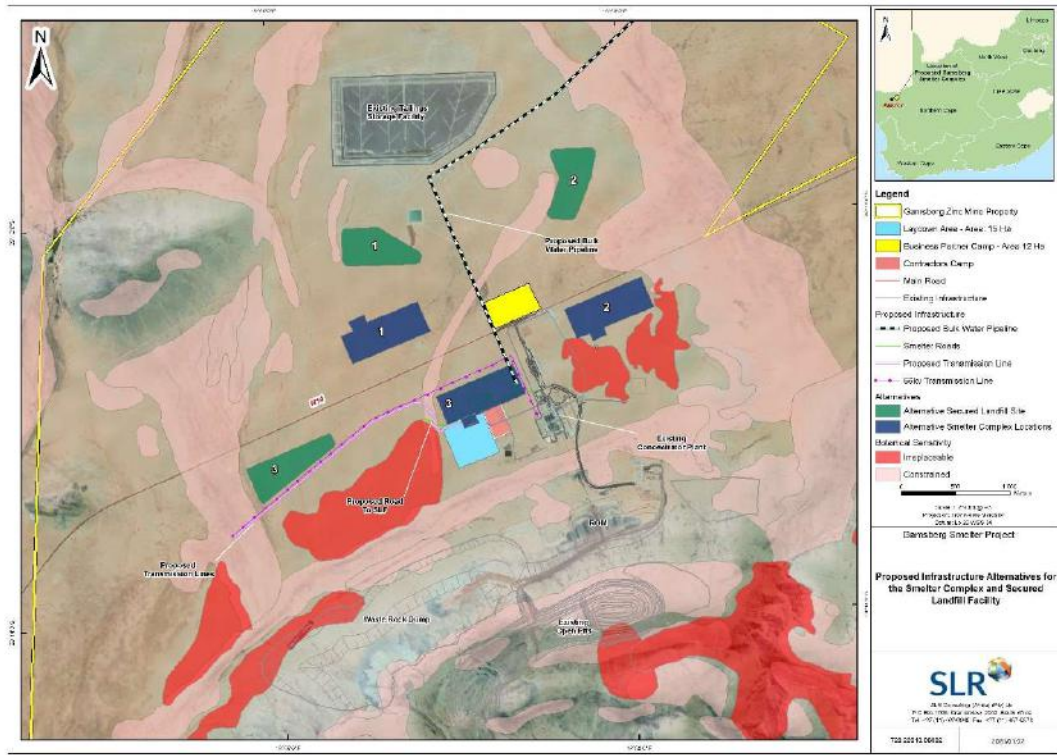


Figure 2: Proposed location of the smelter complex

5.3 Project Alternatives

The pre-feasibility study for the Gamsberg Smelter Project has identified several alternatives for the smelter site and the preferred seaport for the export of final products. The current proposed site has the important advantage that no additional land would have to be acquired to undertake project activities¹. The investigation into project alternatives was ongoing during the writing of this SIA report.

5.4 Estimated Project Cost²

The estimated capital expenditure for the development of the smelter is approximately R13 billion (BMM, 2019).

¹ This excludes the potential requirement to acquire additional land as part of the Biodiversity Agreement

² All figures were provided by Black Mountain Mining (Pty) Ltd (September, 2019)

Table 3: Estimated capital expenditure during construction

Capital expenditure item	Amount (ZAR)
LPE	2,862,000,000
Roaster	2,376,000,000
Project Management	283,500,000
Logistics & Shipping	216,000,000
Site construction	2,970,000,000
Engineering & Project Management	405,000,000
Water package	594,000,000
Power Package	540,000,000
Housing Infra	486,000,000
Impurity Removal/ Palletizer	675,000,000
Others (Pre-Ops, Environment, Acid Logistic Infrastructure)	675,000,000
Project team cost	405,000,000
IDC (D/E 70:30 @ 6%pa)	675,000,000
Total expenditure	13,162,500,000

The estimated operational expenditure (excluding labour) is shown in the table below:

Table 4: Estimated annual operational expenditure ('000)³

Cost category	Year														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Power Cost	-	-		584,909	779,878	779,878	779,878	779,878	779,878	779,878	779,878	779,878	779,878	779,878	779,878
Operating Consumables	-	-		207,309	276,413	276,413	276,413	276,413	276,413	276,413	276,413	276,413	276,413	276,413	276,413
Spares & Maintenance	-	-		472,500	472,500	472,500	472,500	472,500	472,500	472,500	472,500	472,500	472,500	472,500	472,500
Total	-	-		1,264,718	1,528,791	1,528,791	1,528,791	1,528,791	1,528,791	1,528,791	1,528,791	1,528,791	1,528,791	1,528,791	1,528,791

³ Information provided by Black Mountain Mining (Pty) Ltd (September, 2019)

5.5 Project Activities

Black Mountain Mining (Pty) Ltd is proposing to construct a new zinc smelter and associated infrastructure to produce 300 000 tpa special high-grade zinc metal by processing 680 000 tpa of zinc concentrate. As a by-product, 450 000 tpa of pure sulphuric acid would be produced for both export and consumption within South Africa.

The smelter will have numerous processes to produce a final product of zinc ingots (see Figure 3). These include roasting, leaching, purification, electro-winning and smelting. By-products of the process include sulphuric acid, jarosite and manganese oxide. The sulphuric acid would be trucked offsite using approximately 30 trucks per day. Jarosite will be mixed with lime and cement to create a more inert waste product (Jarofix). A waste disposal facility (secure landfill facility – SLF) to the west of the smelter is proposed for the storage of Jarofix, purification cake and Effluent Treatment Plant (ETP) cake. The final product, zinc ingots, would be taken from the mine by road to the Saldanha Port located approximately 610 km from the Gamsberg Zinc Mine which would require a further 30 trucks per day (see Section 5.5.4 below).

Both water and power are required for the operation of the smelter. The infrastructure design will be optimized by utilising existing facilities to the maximum extent for power and water sourcing.



Figure 3: Gamsberg Smelter Process Flow⁴

5.5.1 Land acquisition

Adequate land is available for locating the smelter plant (22 ha), SLF (21 ha) and associated infrastructure within the Gamsberg Zinc Mine MRA. Plant service facilities (e.g. workshop, laboratory, fire station facilities and first aid) can be shared with the existing concentrator plant. Additional houses will likely be built in Aggeneys to accommodate the smelter’s permanent

⁴ Source: TATA Consulting Engineers Limited, 2019: Prefeasibility Study Report. 250 KTPA Zinc Smelter Refinery with Infrastructure at Gamsberg, South Africa.

workforce. The construction workforce will be accommodated in the construction camp located at the Gamsberg Zinc Mine. If required, a new construction camp will be established on site. Services and facilities for the town will be available from existing facilities with minimum augmentation required.

5.5.2 Water supply

The nearest major water source to the Gamsberg Zinc Mine is the Orange River, approximately 33km to the north of the mine. Water is currently transferred to the mine via an existing above ground Sedibeng Water pipeline. The Sedibeng Water currently has a total water allocation from the Orange River of 44 million litres (MI) per day.

The need for increased water supply to the smelter will require augmenting the existing water supply facilities at the Orange River abstraction point (the Pella drift intake system). A replacement 39 km bulk water pipeline, as well as upgrading of the existing Pella Water Works will be required and will be undertaken as a separate Basic Assessment application.

5.5.3 Power supply

For the smelter complex, the existing power line will be upgraded to a 132 kV power line, which will run from the Aggeneys substation located approximately 20 km from Gamsberg at the ESKOM substation. This power line, which provides power to the pipeline booster-pump station, will follow an existing servitude. The substation would be upgraded under the same Smelter ESIA. The power line upgrade will utilise the current pylons and only replace the installed transmission lines.

The proposed power line will enter the smelter plant from the south-west. Power distribution for the plant is proposed at an 11 kV level. Therefore, the 132 kV supply received at the plant substation will be stepped down to 11 kV.

5.5.4 Vehicle Traffic Activities

The following vehicle traffic activities are associated with the Project (see Traffic Impact Assessment (TIA):

- Transport of concentrate from concentrator plant to proposed smelter via truck on internal haul roads;
- Transport of Jarosite via truck from smelter to secured landfill site via truck within the boundaries of the existing Gamsberg Zinc Mine on internal haul roads;
- Transport of zinc ingots, sulphuric acid and manganese dioxide residue via trucks off site to domestic customers and Saldanha Bay;
- Delivery of consumables and mining components; and
- Transport of workers to and from Project via bus, taxi or private transport.

The TIA states that the potential production, staff compliment, timeline and mining phases of the Project was taken into consideration. The TIA concludes that the Project would have a

manageable impact in terms of vehicle traffic on the adjacent road network and intersections potentially affected during all phases of the Project.

Access to the smelter would remain via the N14, as per current operations. Any new roads for internal traffic would be located within the Gamsberg MRA. An in-plant road network of suitable types and widths will be provided for access to all the units of the smelter complex based on the vehicular traffic requirements. The road leading to the proposed landfill site will be paved.

Internal traffic for the smelter would largely consist of the transportation of concentrate from the concentrator plant to the smelter complex, as well as for the associated waste disposal. External traffic for transportation of materials, zinc ingots and sulphuric acid would use the existing road from Gamsberg to the Saldanha port. The distance to Saldanha is approximately 650 km through the N14, N7 and R399 national roads.

5.6 Workforce Requirements

Recruitment of local community members is an obligation for all Business Partners working at the Gamsberg Zinc Mine. Recruitment will first be from the local municipality and communities (Pella, Pofadder, Witbank and Onseepkans), and then from adjacent local municipalities in the Namakwa District and the rest of the Northern Cape. It is anticipated that some high-level technical skills will be filled from elsewhere in South Africa.

According to current planning, the construction phase would last about 36 months (including commissioning), employing approximately 6 000 people. The majority of employees will be accommodated on the Gamsberg site.

Table 5: Construction Workforce

Employment category	Total (%)
Project Management, Engineering and Safety, Health and Environment teams	9
Construction Superintendent, Labour - Skilled, semi-skilled and unskilled	91
Total	100

During operation, the Project could potentially create about 1 200 permanent jobs during the life of the smelter. It is expected that permanent workers will largely be accommodated in Aggeneys.

The skills distribution for the operational workforce is as follows:

Table 6: Skills distribution for the operational phase workforce

Designation	Percentage
Skilled	6,9
Semi-skilled	60,2
Unskilled	32,9
Total	100

The table shows that a limited number of unskilled positions will be available for the local communities during the operational phase.

The estimated total annual wages payable is almost R5 million, as shown below:

Table 7: Estimated annual wages per designation/skills level

Skills level	Annual wages (ZAR)
Top management	2,442,363
Senior management	1,103,116
Middle management, and professionally qualified and specialists	734,068
Skilled technical and academically qualified workers, junior management, supervisors, foreman and superintendents	470,072
Semi-skilled and discretionary decision making	246,098
Total	4,995,717

6 Legal and Policy Framework

This section describes the various pieces of national and local legislation, policies and development plans that are relevant to the SIA for the proposed Project.

6.1 Applicable Legislation

6.1.1 The South African Constitution, 1996

The proposed Project has to comply with South African constitutional and common law by conducting its construction and operational 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 their health and well-being. This provision supersedes all other legislation.

6.1.2 National Environmental Management Act, 1998 (Act No. 107 of 1998) (NEMA) and Associated Regulations (2014)

This Act provides that sustainable developments require the integration of social, economic and environmental factors in the planning, implementation and evaluation of decisions to ensure that development serves present and future generations. The Act requires that the potential social impacts of a proposed project are assessed and mitigated. The Act also sets out the process for public participation. The following NEMA principles are relevant to a socio-economic impact assessment:

- Decisions regarding a proposed activity should not only be based on their environmental impact and economic feasibility, but should also take into account their social sustainability;
- Decisions must take into account the interests, needs and values of all interested and affected parties, and must recognise all forms of knowledge, including traditional and ordinary knowledge;
- The social, economic and environmental impacts of activities, including disadvantages and benefits, must be considered, assessed and evaluated and decisions must be appropriate in the light of such considerations and assessment; and
- Decisions must be taken in an open and transparent manner and access to information must be provided in accordance with the law.

6.1.3 White Paper on an Environmental Management Policy for South Africa (Government Notice 794 of 1998)

The White Paper emphasises that sustainable development should be based on integrated, coordinated environmental management with a focus on people's quality of life, access to land and resources, integration of economics, development, social justice and environmental sustainability and participative governance.

6.1.4 National Water Act, 1998 (Act No. 36 of 1998) (NWA)

The NWA governs all uses of water, which are asserted to be a national resource, of which the State is the custodian, for the benefit of all the people. The NWA sets out central guiding principles in the protection, use, development, conservation, management and control of water resources, primarily by establishing a system of authorising and licencing of various defined water uses. Unless a particular use is exempt from the need for a licence by virtue of one of the provisions of the Act, a user will need to apply for, and be granted, a water use licence before commencing any such use.

6.1.5 National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008) (NEM:WA)

The NEM:WA regulates waste management in South Africa and in terms of Section 20 of the Act, no person may commence, undertake or conduct a waste management activity without a Waste Management Licence issued in respect of that activity, if a licence is required.

6.1.6 National Environmental Management: Air Quality Act 39 of 2004 (NEM:AQA).

The NEM:AQA provides for the protection of citizens' right to a clean and healthy environment. The Act prescribes the methods of measurements for ambient air quality and emissions. An Atmospheric Emission Licence (AEL) will be applied for.

6.1.7 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 (EMPr) in accordance with requirements of the Environmental Impact Assessment Regulations, 2014⁵, (EIA 2014 Regulations) promulgated in terms of NEMA, to mitigate bio-physical and social impacts of the proposed development.

The Mineral and Petroleum Resources Development Act (MPRDA) and NEMA require 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) 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 Project's 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.

6.1.8 South African Mining Charter

The Mining Charter focuses on sustainable transformation of the mining industry. The Mining Charter seeks to achieve the following objectives:

⁵ GN R982 in Government Gazette 38282 of 4 December 2014

- Promote equitable access to the country's mineral resources to all the people of South Africa;
- Substantially and meaningfully expand new 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 HDSAs and to serve the community;
- Promote employment and advance the socio- 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.

6.1.9 The Department of Mineral Resources and Energy (DMRE) Consultation Guidelines

These 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. The EIA 2014 Regulations set out further detail for the consultation process.

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

This Act is mainly administered by the Mine Health and Safety Inspectorate of the Department of Mineral Resources. 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.

6.1.11 Labour Legislation

The following acts will be applicable with regard to employment policies of the Project:

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

6.1.12 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.

6.1.13 Municipal Systems Act, 2000 (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. Section 4 of the Act provides for the rights and duties of municipal councils, including their obligation to contribute to the progressive realisation of constitutional rights, including the right of access to adequate housing.

In accordance with the Act, all municipalities are required to develop and implement a five-year Integrated Development Plan (IDP) and Spatial Development Framework (SDF) for their administrative areas. Section 35 of the Act confirms the statutory status of the municipal IDPs and SDFs. The Act states that, apart from serving as principal strategic planning instruments to guide and inform municipal decisions on land use, the IDP binds the municipality in the exercise of its role and executive authority. However, where there is inconsistency between a municipality's policy and national or provincial legislation, national legislation should prevail.

6.1.14 Municipal Structures Act, 1998 (Act No. 117 of 1998)

This Act states that district and local municipalities should support and co-operate with one another. The division of functions between local and district municipalities may be adjusted according to the Act. This allows local municipalities to take on more responsibilities from district municipalities, such as service provision.

6.1.15 Spatial Planning and Land Use Management Act, 2013 (Act No.16 of 2013) (SPLUMA)

The SPLUMA aims to reform and guide legislation pertaining to spatial planning and land use management. It enables government to formulate policies, plans and strategies for land use and development that addresses existing spatial, economic and environmental challenges. The Act emphasises inclusive, developmental, equitable and efficient spatial planning at different spheres of government. All municipalities are required to develop land use and zoning plans within five years (2018) from when the Act was promulgated.

Section 6 of the Act provides for the application of core development principles, which binds municipalities in matters of spatial planning and land use. Section 12 of the Act requires a municipality to develop a framework that includes previously disadvantaged areas, informal settlements and slums, and that addresses their inclusion and integration in spatial, economic, social and environmental objectives of a relevant sphere.

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

The Act deals with the eviction of lawful occupiers or occupiers of rural or peri-urban land whose occupation was previously lawful, subject to certain conditions. An occupier is defined as a person residing on land which belongs to another person, and who has on 4 February 1997 or thereafter had consent or another right in law to do so. The Act excludes:

- A labour tenant in terms of the Land Reform (Labour Tenants) Act, 1996 (Act No. 3 of 1996);

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- A person using or intending to use the land in question mainly for industrial, mining, commercial or commercial farming purposes, but including a person who works the land himself or herself and does not employ any person who is not a member of his or her family; and
 - A person who has an income in excess of the prescribed amount which is R5 000.00

It is noted that according to a representative of the mine, there are no land claims against the farms comprising the Black Mountain (Deeps/Swartberg) and Gamsberg mining lease areas.

6.1.17 Prevention of Illegal Eviction from and Unlawful Occupation of Land Act, 1998 (Act No. 19 of 1998)

The Act provides procedures for owners to evict illegal occupiers and afford the occupiers some procedural rights in the eviction process. This Act is commonly used in urban areas and on farms when occupiers have no permission to occupy as required by ESTA.

This Act gives effect to Section 26 (3) of the Constitution, which states that “No-one may be evicted from their home, or have their home demolished without an order of court made after considering all the relevant circumstances. No legislation may permit arbitrary evictions.”

The provisions of the Act apply in cases where illegal occupation of land (for example informal settlements on State land or farms) has taken place, and where such land is to be acquired for a project and houses in the settlement will be displaced. It protects the rights of community members who reside on land without the owner’s express permission.

6.1.18 The Housing Act, 1997 (Act No. 107 of 1997)

The Housing Act and Housing Code aim to give effect to the constitutional obligations of the various Organs of State in relation to housing. The Housing Act (as amended) provides for the facilitation of a sustainable housing development process. It aims to define the functions of national, provincial and local governments in respect of housing development.

Section 2 of the Housing Act provides, amongst other things, that national, provincial and local spheres of government must give priority to the needs of the poor in respect of housing development, and that the latter should be based on integrated development planning.

6.1.19 Northern Cape Planning and Development Act, 1998 (Act No. 7 of 1998)

The Act aims to provide for a single system of development, planning and land management in the Province. It contains a set of principles to, amongst other things, promote spatial restructuring and development, sustainable development and land use management.

6.1.20 Other legislation

The EIA process will also have to meet the requirements of the National Environmental Management: Biodiversity Act, 2004 (No. 10 of 2004), and the National Heritage Resources Act, 1999 (No. 25 of 1999).

6.2 Development Policies, Strategies and Plans

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

6.2.1 National Development Plan (NDP)

Development in South Africa is guided by the NDP, which presents a long-term strategic framework within which more detailed development planning can take place to advance the long-term goals adopted in the NDP (National Planning Commission, 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.

6.2.2 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 substantial 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.

6.2.3 National Infrastructure Plan (NIP)

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. These SIPs include social and economic infrastructure development across all provinces, and comprises catalytic projects that should fast-track development and growth.

The Saldanha-Northern Cape development corridor (SIP 5) entails integrated rail and port expansion, back-of-port industrial capacity (including an industrial development zone), strengthening maritime support capacity for oil and gas along the African West Coast, and the expansion of iron ore mining production and beneficiation.

6.2.4 National Spatial Development Plan (NSDP)

In South Africa, spatial development planning is mainly guided by the NSDP. The Spatial Development Frameworks (see below) for provinces and municipal areas are nested within the principles of the NSDP. In short, the principles of the NSDP 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.

6.2.5 National Spatial Development Framework (NSDF)

Chapter 8 of the NDP provides for the development of a National Spatial Development Framework. Section 5 of SPLUMA mandates the Minister to – after consultation with other organs of state and the public at large – compile and publish a National Spatial Development Framework and review it at least once every five years. The NSDF must:

- Give effect to the development principles and norms and standards set out in the Act;
- Give effect to all relevant national policies, priorities, plans and legislation;
- Coordinate and integrate provincial and municipal SDFs;
- Enhance spatial coordination and land use management activities at national level;
- Indicate desired patterns of land use in the country; and
- Take cognisance of any environmental management instrument adopted by the relevant environmental management authority.

6.2.6 The National Department of Human Settlements, Water and Sanitation Guidelines

The Department has developed a manual: *Guidelines for Human Settlement Planning and Design*, also known as the “Red Book.” This manual provides a vision for South African settlement formation, addressing the qualities that must be achieved in human settlements, and providing guidance on how these can be achieved. It addresses planned settlements in both urban and rural settings.

6.2.7 Provincial Growth and Development Strategy (PGDS)

The PGDS, of which there is one for each province, is aligned with the NDP, NSDP, NIP, as well as any provincial policies that have bearing on development. The Northern Cape PGDS of 2011 aims to promote sustainable economic growth and social development. It recognises the leadership role of government in driving integrated, holistic, sustainable and participatory growth and development, as well as in achieving effective delivery of the overall strategic development objectives of the Northern Cape. Mining is viewed as an important economic sector to promote such growth.

The main objectives of the Strategy are to reduce the backlog of basic needs, such as water, sanitation and housing, improve and increase access to health, education and social services, and create opportunities for employment.

6.2.8 Northern Cape Provincial Spatial Development Framework (PSDF).

The Northern Cape PSDF aims to act as an enabling mechanism that responds and complies with, in particular, the NSDF. The latter encourages lower sphere spatial development plans and frameworks (such as the PSDF) to create an environment that promotes a developmental state. The Northern Cape PSDF (2012) aims to serve as a mechanism towards enhancing the future of the Province and its people. Specific aims of the PSDF are to serve as:

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- A spatial land-use directive, which aims to promote environmental, economic, and social sustainability through sustainable development;
 - A guide towards reducing business risk (by providing clarity and certainty on where public infrastructure investment will be targeted) thereby opening-up new economic opportunities in these areas;
 - A guide towards the location and form of public investment in the Northern Cape's urban and rural areas; and
 - Provide a basis for prioritising, aligning and integrating governmental programmes and projects.

The Northern Cape PSDF recognises the importance of the mining sector in the province's economic growth. However, it also aims to manage any direct detrimental impacts of resource use, and promote positive socio-economic conditions once the resource use has reached its productive life cycle.

6.2.9 Namakwa Integrated Development Plan

The District Municipality IDP lists the following main objectives:

- Ensuring the delivery of basic services which include water, sanitation, electricity and waste management;
- Creation of job opportunities through the community public works programme;
- Building municipal capacity to enable municipalities to collect their revenue;
- Ensuring sustainable economic and social transformation in the District;
- Promote a society with a renewed sense of identity and confident in their skills and knowledge; and
- Bridging the digital divide.

6.2.10 Namakwa District Municipality Local Economic Development Strategy

The Namakwa Local Economic Development Strategy (2007) identifies the mining sector, amongst others, as an important sector for economic growth of the District. The Strategy encourages processing and beneficiation of minerals into final product to increase economic development and employment opportunities.

6.2.11 Khâi-Ma Integrated Development Plan (2012-2017)

The Khâi-Ma IDP identifies the Municipality's strategies for addressing the socio-economic development needs of its local communities. It highlights the key development focus areas agreed upon with communities and prominent stakeholders in the Khâi-Ma municipal area. These emphasise employment, housing and basic services delivery, as well as encouraging investment through strengthening local economic development.

6.2.12 Khâi-Ma Rural Spatial Development Framework Plan (2010)

The Khâi-Ma SDF guides and informs land development and management in the municipal area. These include, amongst others, improved living standards, health and safety and local economic development. The mining, agricultural and tourism sectors are also highlighted as important sectors to drive local economic growth in the area. However, the SDF recognises that mining activities could pose a significant threat to local biodiversity in the area.

6.3 International Human Rights Guiding Principles

Human rights are fundamental, inalienable rights and freedoms to which all individuals are entitled. These rights are enshrined in the “Universal Declaration of Human Rights” of 1948, and are further codified in the International Covenant on Civil and Political Rights (1966) and the International Covenant on Economic, Social and Cultural Rights (1966). Together these documents are referred to as the International Bill of Human Rights.

The United Nations has adopted a “Framework for Business and Human Rights,” which is based on the following three pillars:

- The state’s duty to protect against human rights abuses by third parties, including business;
- The corporate responsibility to respect human rights; and
- Greater access by victims to effective remedy – both judicial and non-judicial.

This Framework emphasises the corporate responsibility to protect human rights, address adverse impacts and establish adequate remedial mechanisms for addressing human rights violations. This requires that business should integrate human rights commitments into the company’s decision making, periodically assess actual and potential human rights impacts of company activities and relationships, and monitor and report performance in this regard.

The IFC also accepts the responsibility of business to respect human rights. Its Performance Standards requires that the dignity, human rights and welfare of project-affected people be protected. The IFC’s Policy on “Environmental and Social Sustainability,” as well as its PS 1 requires that companies must avoid infringing on the human rights of others and address the adverse human rights impacts that they may cause or contribute. The IFC, furthermore, requires that credible and effective grievance mechanisms should be part of a framework for companies to address the human rights issues in their operations.

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 applicable to the Project 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 “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.

6.4 Company Policies and Plans

The SIA impact assessment phase has given due consideration to VZI/Black Mountain Mining (Pty) Ltd corporate policies, corporate social responsibility (CSR), community programmes/projects, as well as Gamsberg Zinc Mine’s SLP (2014-18) and new BMC (Deeps/Swartberg & Gamsberg) integrated SLP (2019-2023).

6.4.1 Employee Share Ownership Plan

Black Mountain Mining (Pty) Ltd employees are encouraged to take part in the “Voorspoed” Employee Share Ownership Plan (ESOP), which holds 6% of the *combined*⁶ Black Mountain Mining (Pty) Ltd ownership. The aim of Voorspoed is to:

- Create value for employees;
- Employee wealth creation as employees share in future growth of the business; and
- Help employees build up investment capital (savings).

All eligible employees own Participation Units in Voorspoed, which represent the vested right of beneficiaries in Black Mountain Mining (Pty) Ltd Shares held by Voorspoed. The current agreement under Voorspoed will run to March 2024.

6.4.2 Health, Safety and the Environment

Black Mountain Mining (Pty) Ltd continuously strive for zero harm to workers and business partners. The following are some of the standards and measures in place to promote zero harm:

- ‘Safety our First Value’;
- Culture of Care and Respect: safety days, family days, wellness programmes;
- Leadership: Visible Felt Leaderships, Safety Summits;
- Competency: Standard Operating Procedures, Personal Task Observation, hazard and risk identification, legal compliance training;
- Business Partner Safety Management: Pre-engagement safety assessments, BP Health, Safety and Environment heat map; and
- Critical Risk Management: Vedanta Critical Control Standards, Cardinal rules, baseline and issued based risk assessments.

⁶ BLACK MOUNTAIN MINING (PTY) LTD, Exxaro BEE ownership and Voorspoed.

With regard to environmental protection, the Company has a policy of Zero Waste and Zero Discharge.

Black Mountain Mining (Pty) Ltd has harvested large numbers of plants and seeds that were donated to the South African National Biodiversity Institute (SANBI) and Karoo Desert Botanical Garden. At the Gamsberg Research and Rehabilitation Centre, plants are grown from collected seeds for rehabilitation.

The Biodiversity Offset Agreement (see Section 5.2) has secured several adjacent farms for the Gamsberg Nature Reserve. The Reserve will be transferred to Northern Cape Provincial Government. Black Mountain Mining (Pty) Ltd is collaborating with the IUCN to undertake Biodiversity assessments, and to review and verify performance.

6.4.3 Corporate Social Responsibility

Black Mountain Mining (Pty) Ltd is involved in several community projects and programmes, and provide support to the:

- Aggeneys Public Clinic (some 600 patients per month);
- Community Skills Development: out-of-school youths training at Okiep and Upington Technical and Vocational Education and Training (TVET) Colleges;
- Leadership Development Programme for school principals and Business Executives;
- The “V-Fi” initiative, which was launched in 2018 and includes 6 free hotspots reaching approximately 7,500 people;
- The Broad-Based Livelihood (BBL) community and economic development programme was launched in January 2019 and focusses on promoting livelihood strategies (food security, organic agriculture, business tools, income creation, etc.); and
- Medical Drive and Pink Drive initiatives to screen patients for cataract surgery and address women’s health issues, such as clinical breast examinations, mammograms, pap smears, etc.

Other community support programmes are:

- Completion of the ICT Centre at the Okiep TVET College;
- Installation of solar water pumps on small-scale farms in Pella, Pofadder, Onseepkans and Witbank;
- Refurbishment of the Witbank Early Childhood Development Centre; and
- Provision of educational equipment to all registered Early Childhood Development Centres in the Khâi-Ma Municipality.

The BBL Programme offers practical skills through the following livelihood streams:

- **MyFood:** Horticultural training in small-scale organic food production for household well-being and income generation. Livestock improvement programme for new and existing farmers.

- **MyFuture:** Personal development, life skills planning, financial literacy and career development for a successful future.
- **MyBusiness 1:** Business Tools Training for immediate application and income generation.
- **MyBusiness 2:** Micro-MBA for greater business growth, profitability and sustainability.

6.4.4 Social and Labour Plan

The proposed SLP expenditure for the first 5-year cycle is provided below. Approximately R136 million has been earmarked for Human Resources Development and R86.5 million for LED.

Table 8: Estimated expenditure on the SLP (first 5 years)

Year of project	Human Resources Development	Local Economic Development	Total
2020	R24,380,000	R7,200,000	R31,580,000
2021	R25,610,000	R28,000,000	R53,610,000
2022	R26,790,000	R29,300,000	R56,090,000
2023	R28,750,000	R15,700,000	R44,450,000
2024	R30,470,000	R6,300,000	R36,770,000
Total	R136,000,000	R86,500,000	R222,500,000

Table 9 provides an overview of the identified SLP programmes and targets in accordance with the legal requirements for SLPs. Note that the table includes activities for the combined Black Mountain Mine and Gamsberg Zinc Mine, and not specifically for the proposed smelter.

Table 9: SLP Programmes and targets

Programmes		Targets and Plans	Budget	Beneficiaries
HUMAN RESOURCE DEVELOPMENT - Focus on women and youth	Skills Development	AET, Core Business Training, Portable Skills, Learnerships, Bursaries, Internships, Bridging programmes, Talent Pool development in the workforce and the pipeline from the community	R 136 000 000	Direct employees (18.1) Indirect employees -core mining contractors (18.2) Community (18.2)
	Employment Equity	Career Progression, Mentorship and Coaching, Hard-to-fill vacancies, Talent Pool development in the workforce and the community		
LOCAL ECONOMIC DEVELOPMENT - Focus on women and youth	Procurement	Preferential procurement to align to Mining Charter III targets, and to develop the local economic capacity of the region to supply future needs of BMC for goods and services where feasible	R 15 000 000 (Commercial budget)	Local economy
	Enterprise and Supplier Development	To enable empowerment and development of HDP and community based businesses		Local communities
	Housing and Living Conditions	HLC plan aligned to HLC standard. Address BMC's housing demand. Programmes to drive home ownership.		
	Nutrition and Health	Improve access to adequate and affordable nutrition and health care for employees (direct and indirect) through provision of subsidised nutrition, subsidised medical care		
	LED Projects	Identification of broad-based (high-impact and inclusive) socio-economic development projects focused on the local communities, based on the Khai-Ma, Nama Khoi and Namakwa District IDPs, the SE Baseline Study and extensive consultation with stakeholders	R 86 500 000	Communities (local, labour sending and district)
DOWNSCALING AND RETRENCHMENT - Focus on Deeps	Future Forum	Engagement forum between employees, organised labour and Management to deal with production & sustainability and downscaling matters of the operations	R 9 710 000	
	Programme to ameliorate negative impacts and provide livelihood alternatives	Reskilling programmes, portable skills training, transition of employees		

Deeps Shaft

7 Socio-Economic Baseline Description

The baseline profile of the receiving socio-economic environment is presented in the sections below. The first two sub-sections focus on the socio-economic characteristics of the regional and local study areas, while the final section describes the site-specific study area.

7.1 Regional Study Area

The regional study area is broadly defined as the Namakwa District municipal area, with some impacts on the provincial level. It is anticipated that the Smelter Project, in combination with proposed expansions at Black Mountain Mine and Gamsberg Zinc Mine, will significantly contribute to economic growth and employment creation in these two areas. An Economic Impact Assessment will be undertaken as part of the smelter EIA process to assess these impacts, in addition to the Smelter Project's economic impacts at the national level and on the South African economy.

7.1.1 Northern Cape Province

7.1.1.1 Population

Notwithstanding its large geographical area (the biggest province by land mass), the Northern Cape Province has the lowest population of all provinces (1.2 million residents), representing about 2% of the national population in 2014/2015. The age category 0-4 years constituted the largest proportion of the population, while the age cohort 70-74 had the lowest population.

The total fertility rate for the Province was 2.85 births per woman between 2011 and 2016. The average life expectancy rate at birth was 59 years for males and 65 years for females.

Population density was 3.26 persons per square km in 2016. Since 2006, the population has marginally increased year to year. The Province had a positive net migration of 3,311 people in the same years. Its urbanisation rate was almost 80% in 2016 (Northern Cape Provincial Treasury, 2018).

7.1.1.2 Economy

In 2016, the Province was the smallest contributor to the national GDP (2.1%). The Namakwa District Municipality, in turn, was the smallest contributor to the provincial GDP (11%). The largest industries were community services (22.5%) and mining (17.5%). The Province's economic growth rate was -2.7% in 2016. This negative economic growth can largely be attributed to contractions in the agriculture, mining, transport and electricity sectors. However, by 2018, the Northern Cape's GDP had expanded by 2.8%, the highest of all provinces. Mining and agriculture were major contributors to the expansion.

In 2014, the economy (represented by agriculture, mining, manufacturing and construction) made up 34% of the Northern Cape's output. The largest economy sector was mining, at 22% of the provincial economy, followed by agriculture (7%), manufacturing (3%), and construction (2%). The Northern Cape contributed 6% of national mining.

7.1.1.3 Employment

Approximately 40% of the working age population was employed in 2015. Sixty-four percent of total employment was in the formal sector, compared to the national average of 69%. In 2014, the median formal wage was R2 600 per month and the median wage for domestic, informal and agricultural workers was R1 400.

Black Mountain Mining (Pty) Ltd is one the largest private sector employers in the Northern Cape, employing approximately 1 692 people at the mine, and 1 171 people at the Gamsberg Zinc Mine (employees and business partner employees). Around 80% of Black Mountain Mining (Pty) Ltd employees are from the Northern Cape, including 60% from the Namaqua District (mainly Khâi-Ma and Nama Khoi municipal areas).

7.1.2 Namakwa District Municipality

As was mentioned, the Project is situated in the Khâi-Ma Local Municipality, which is one of six local municipalities within the Namakwa District Municipality (see Figure 4 below). The District Municipality is one of five district municipalities in the Northern Cape Province in South Africa.

7.1.2.1 Population

The Namakwa District has the lowest population (115 488 in 2016), compared to other districts in the Northern Cape Province (about 10% of the total provincial population). The District's population growth rate was 0.2% in 2014.

The population density for Namakwa District is 0.91 people per square kilometre (2014). The urbanisation rate for the District is approximately 91%. Among all local municipalities within the district, the Nama Khoi Local Municipality had the highest population density (3.08 people per square kilometre, followed by Khâi-Ma Local Municipality (1.4 people per square kilometre).

A breakdown of the population by age group shows a high and increasing number of economically active people in the Nama Khoi, Hantam and Khâi-Ma local municipalities, which underscores the need for job creation. The age cohort with the largest population size is 25-29 years.

The median age in the District Municipality is 31, about 20 percent higher than the figure for the Northern Cape Province. 68% of the population falls in the 15-64 year cohort.

Afrikaans is the dominant language (97%) spoken at home. The district population is dominated by Coloureds, with slightly more females than males. The number of households increased from 33 567 in 2004 to 37 839 in 2014. Approximately 36% of households are female-headed households. The average household size is 3.1 members and the dependency ratio (per 100 of the population between 15 and 64 years) is 47.1.

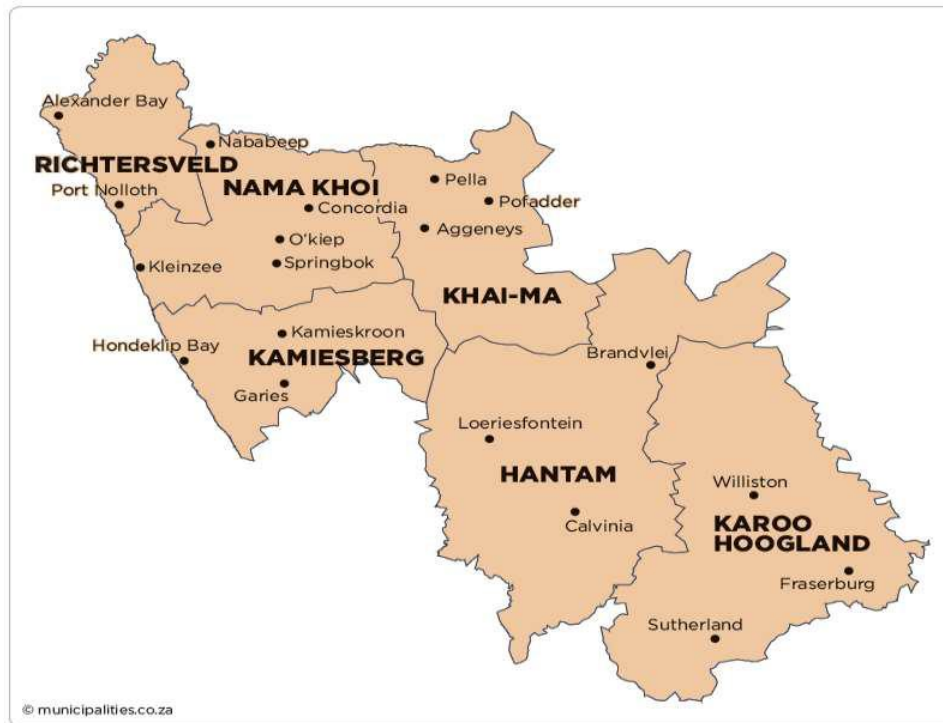


Figure 4: Local municipal districts within the Namakwa District Municipality⁷

7.1.2.2 Education

Poor quality of education is reported as a major concern in the District. About 24% of the population has completed matric and 8% has completed higher education. The remaining group has no education, or have only a few years education (2016).

7.1.2.3 Services provision

The majority of households in the District are housed in formal dwellings. About 2.3% live in informal dwellings. The majority of households have access to piped water (95%) (70.5% inside the dwelling). Access to sanitation has improved since the 2011 census (now at 80%). Refuse removal is around 81.7%. All local municipalities have an average of above 80% connection to electricity, except the Karoo Hoogland Municipality.

7.1.2.4 Economy

The major contributions to the economy from the District are agriculture, community services and mining. The GDP growth rate for the Namakwa District was 3.7% in 2016. The Nama Khoi Municipality was the biggest contributor to the District's GDP (41%) in 2013 while Khâi-Ma municipality contributed 7% (note that this was prior to the establishment of the Gamsberg

⁷ Source: Municipalities of South Africa (<https://municipalities.co.za/map/136/namakwa-district-municipality>).

Zinc Mine). Renewable energy is increasing its contribution to the economy of the District, while tourism is also a relatively large contributor.

In 2014, the mining industry in the Namakwa District was led by the Nama Khoi region (58%), followed by the Richtersveld and Khâi-Ma municipalities respectively.

7.1.2.5 Employment

The District Municipality's labour market is faced with high unemployment, with an official unemployment rate of 21.5% in 2014. The unemployment rate in the Khâi-Ma Local Municipality was 24.5% in the same year, and that of the Nama Khoi Local Municipality, 23.5%. The largest increase in the unemployment rate in the District between 2004 and 2014 was in the Khâi-Ma Local Municipality (7.1%). As was mentioned, around 60% of the Black Mountain Mine and Gamsberg Zinc Mine's workforce are located in the Namakwa District area.

The average annual income in the district was approximately R30 000. However, some 43% earned less than R20 000 per year.

7.1.2.6 Poverty

The District Municipality had a poverty rate of 50.4 per cent in 2004 and 26.2 per cent in 2014.

7.1.2.7 Conclusion

Housing, services delivery and employment creation constitute the primary focus areas of the municipality. In addition, the diversification and development of the economy is regarded as essential, with agriculture and mining as focus areas.

7.2 Local Study Area

A basic socio-economic profile of the population residing in the local study area is presented in the following sections. The information was mainly sourced from the 2011 Census Survey, the 2016 StatsSA Community Survey, the Khâi-Ma IDP review (2019), Media Monitoring Africa (2018) (via Wazimap) and the Municipalities of South Africa website (municipalities.co.za).

It was noted that various sources contain conflicting data, while data sources used ranged from 2001 to 2016. Most of the information in the IDP is outdated. For example, the role of mining and mining-related employment in the Khâi-Ma Local Municipality is largely missing from the local municipal level data. Where possible, the 2016 Community Survey findings were given preference.

7.2.1 Khâi-Ma Local Municipality

7.2.1.1 Administration

The Khâi-Ma Local Municipality is a low capacity municipality (Category B), divided into four wards. The Project is located in Ward 4 of the Municipality. Pofadder, Pella, Aggeneys, Witbank and Onseepkans are all located within the municipal area. Farming settlements include Dwagga, Soutpan, Vrugbaar, Raap-en-Skraap and Klein Pella. The administrative headquarters of the Municipality are located in Pofadder.

The Khâi-Ma Municipality provides basic services to Onseepkans, Blyvooruitsig, Pofadder, Witbank and Pella. Aggeneys is a mining town where mainly the workers of Black Mountain Mine and Gamsberg Zinc Mine reside. Black Mountain Mining (Pty) Ltd provides basic services to the residents of Aggeneys.

7.2.1.2 Population

The Khâi-Ma Municipality had a population of 12 333 people in 2016. Population density is around one person per square kilometre, with the majority of the population living in the rural areas (4 035 people). Aggeneys has a population of 2 053 people (845 households) and Pofadder 2 919 people (733 households).

More than 71% of the population falls within the 15-64 age cohort, while 22.2% are under 15 years old. About 6% of the population is older than 64 years. The population growth rate in 2016 was -0.21% per year. The current growth rate is estimated to be 0.83%. The dependency ratio is 39.6 per 100 people within the 15-64 age cohort. The median age was 28 years in 2011.

There are 4 079 households in the Khâi-Ma municipal area, with an average household size of three persons per household. Almost 34% of households are female-headed households. More than 92% of households live in formal dwellings, while 6.4% live in informal dwellings.

The language most spoken at home is Afrikaans (95%), while 75% of the population is considered "Coloured." The poverty headcount was 5.9% in 2016.

7.2.1.3 Education

The majority of the population has no or limited schooling, 22.2% have Matric and 5.2% have higher education.

7.2.1.4 Services

About 90% of households have piped water and 84% have flush or chemical toilets. Weekly refuse removal is available to 94% of households, and 87.6% have electricity. In 2016, the Khâi-Ma Local Municipality was the local municipality within its district, which had the most access to basic services (Stats SA, 2018). However, the Municipality still has problems in delivering satisfactory services to its communities due to lack of capacity and influx of people. The high levels of water consumption are also a big concern.

7.2.1.5 Economy

The main economic sectors in the Municipality are agriculture, mining, tourism and community services, with renewable energy projects also now coming online.

7.2.1.6 Employment

Close to 55% of the working age population are employed. The average annual income was R29 400 per household in 2011, but 34% earned R20 000 or less. The annual income for individuals was R15 000, with 41% earning between R10 000 and R20 000 per annum.

As was mentioned, around 80% of Black Mountain Mining (Pty) Ltd employees are from the Northern Cape, including 60% from the Namaqua District (mainly Khâi-Ma and Nama Khoi municipal areas).

7.2.1.7 Health care

Provincial hospitals are located in Springbok and Upington. The various towns in the municipal areas have functional government primary health care clinics. Serious cases are referred to the Springbok hospital.

7.2.1.8 Ward 4

According to the 2011 Census, the Ward had a population of 3 638 people. The median age in Ward 4 was 31, while 66% of the population was between 18 and 64. Around 20% of the households were female-headed. Employment was around 57%. For almost 80%, Afrikaans is the language most often spoken at home. Less than 4% are living in informal dwellings. 35.7% have completed Matric or higher. Aggeneys is the main town in Ward 4.

Approximately 85% of the households have access to piped water, 85.2% have refuse removal and 85.9% have flush toilets. More than 90% of households have access to electricity.

7.2.2 Nama Khoi Local Municipality

The Nama Khoi Local Municipality is briefly discussed as it forms an important labour sending area for Black Mountain Mining (Pty) Ltd mining activities. It is anticipated that the smelter project will also use this local municipality as one of its labour sending areas.

The Nama Khoi Local Municipality is a Category B municipality. The town of Springbok is the administrative centre and the most densely populated area. The local municipality is the economic hub of the Namakwa District with the highest population in the District. It is also the biggest contributor to the District's GDP (41%), and it made the largest contribution to employment in the District. Mining was the backbone of the economy in 2016.

Table 10 provides an overview of the demographics of the municipality's population. According to the 2016 Community Survey, the municipality had a population of 46 513 people, with a population density of 2.6 people per square kilometre. For about 97% of the population, Afrikaans is the language most spoken at home.

Table 10: Demographic characteristics of the Nama Khoi population⁸

	2016	2011
Population	46 512	47 041
Age Structure		
Population under 15	21.4%	24.9%
Population 15 to 64	68.1%	66.9%
Population over 65	10.5%	8.2%
Dependency Ratio		
Per 100 (15-64)	46.8	49.4
Sex Ratio		
Males per 100 females	96.4	97.4
Population Growth		
Per annum	-0.26%	n/a
Labour Market		
Unemployment rate (official)	n/a	22.9%
Youth unemployment rate (official) 15-34	n/a	30.1%
Education (aged 20 +)		
No schooling	1.4%	2.2%
Matric	23.6%	20.0%
Higher education	7.6%	7.9%
Household Dynamics		
Households	14 546	13 193
Average household size	3.2	3.4

⁸ Source: Municipalities of South Africa (<https://municipalities.co.za/demographic/1171/nama-khoi-local-municipality>)

	2016	2011
Female headed households	41.0%	39.2%
Formal dwellings	93.5%	94.7%
Housing owned	81.3%	72.5%
Household Services		
Flush toilet connected to sewerage	74.2%	63.5%
Weekly refuse removal	89.2%	89.4%
Piped water inside dwelling	79.8%	74.9%
Electricity for lighting	95.8%	93.7%

7.3 Site-Specific Study Area

The current land use in the Project area is mining. There are no residential areas in the immediate surroundings. The Project is surrounded by farms used for grazing (mainly sheep) (excluding farms that form part of the Black Mountain Mining (Pty) Ltd Biodiversity Offset Agreement). A solar farm, two quarries and a guesthouse are located in close proximity to the Project (less than 10 km). Livestock grazing is the main land use in the surrounding rural area.

The proposed pipeline will traverse rural areas, following an existing servitude. Large sections of the pipeline will run across privately owned farm and community land. The proposed transmission line will use an existing servitude.

8 Stakeholder Perceptions

Several farm owners and occupants were visited during the Scoping Phase. Their opinions and concerns (see below) were taken into consideration in the SIA.

The following farmers were interviewed as they border on the mining licence area:

- Tertius Visser: Kykgat 87;
- Abri van Niekerk: Farmer and owner of guesthouse (Aroams, Portion 57);
- Deon Pieterse: Gams;
- Danie Gerber: farmer (affected by the pipeline) (Aroams, Portion);
- Nols Maass: occupant on farm Bloemhoek (owner is Albertus Roux); and
- Gerard Visser (Vogelstruishoek) who was contacted via telephone and e-mail.

In addition to the above persons, other stakeholders visited/contacted were:

- Khâi-Ma Local Municipality: Messrs Boet Baker and Alfredo Green.
- Namakwa District Municipality: Messrs Christiaan Fortuin, Jannie Loubser and Denver Smith.
- Aggeneys SAPS: Officer Pieter Burger.
- Bio-Therm Energy: Aggeneys Solar Project (Arthur Crook).
- Pella NCMACA⁹ and Pella Community Forum (Mses Paula Simboya and Ina Basson)
- Mr Theodor Bezuidenhout: Non-profit Organisation Forum (via e-mail).
- Mr Pieter Mokomele: Chairperson Khâi-Ma Business Development Forum (via e-mail).
- Miss Coba Rohm: 'Partners for Possibility' (via e-mail – no response).
- SPH Kundalila (Quarry) (via e-mail – no response).

No feedback was received from the persons/institutions that were contacted via e-mail.

Table 11: Stakeholder Perceptions

Potential Impact	Comment/Concern
Air Pollution	<ul style="list-style-type: none"> ■ What will the smelter emissions be and will it be harmful to people and/or animals? ■ How will waste products be stored and will there be any emissions? ■ Will the smelter emit cadmium?
Dust pollution	<ul style="list-style-type: none"> ■ Gamsberg Zinc Mine has contributed significantly to dust pollution in the area. This has negatively affected both people (allergies and asthma related reactions) and livestock (pollution of grazing). Also negatively affected income from farming (due to polluted grazing) and overall quality of life. ■ Dust from the smelter and movement of heavy vehicles will negatively affect surrounding farmers due to an increase in dust. ■ Dust pollution also has an impact on the nearby solar project (Bio-Therm Energy).
Influx of people	<ul style="list-style-type: none"> ■ The Gamsberg area is relatively safe and crime free. An influx of people (especially a "foreign" construction workforce) may lead to an increase in crime and social pathologies, and may affect farmers' sense of safety. ■ Influx of people may lead to an increase in poaching and stock theft. ■ The Pella community has experienced an increase in teenage pregnancies and marital problems because of mineworkers visiting the town during weekends. The smelter foreign workforce will exacerbate the situation. ■ Accommodation of the smelter permanent workforce in Aggeneys, may negatively affect people's sense of place. It could lead to increased crime, social pathologies and will put pressure on basic service delivery. ■ Aggeneys is experiencing an increase in cases related to alcohol and drug abuse, as well as contact crime. The Aggeneys SAPS is already understaffed and the presence of the smelter permanent workforce will put pressure on the police services.

⁹ NCMACA =Northern Cape Mining Affected Communities in Action

	<ul style="list-style-type: none"> ▪ An influx of people in search of work opportunities will put additional pressure on local government's ability to provide housing and basic services. Job seekers will bring their families and settle in informal settlements in Pofadder and surrounding areas.
Water resources	<ul style="list-style-type: none"> ▪ The smelter will abstract more water from the Orange River, which is already under strain. This may negatively affect the residents of Pella. ▪ Pella has significant groundwater sources. Black Mountain Mine should investigate if they cannot use groundwater. ▪ The current pipeline frequently has water leakages, which is a serious waste.
Job creation and economic development	<ul style="list-style-type: none"> ▪ The smelter will significantly contribute to job creation, as well as to local and regional economic growth. ▪ Black Mountain Mining (Pty) Ltd should ensure that more workers are sourced from the Khâi-Ma Municipality. It seems that the mine prefers to employ people from the Nama Khoi municipal area. ▪ The Khâi-Ma Municipality is largely grant-driven. Black Mountain Mining (Pty) Ltd should ensure that the municipality benefits from the smelter in terms of improved service delivery, as well as local employment, which will increase the revenue stream of the municipality (rates and taxes). ▪ Black Mountain Mining (Pty) Ltd and government should ensure that the district municipality benefit more from the mine and the proposed smelter. ▪ How will the development of the Special Economic Zone (SEZ) benefit the Namakwa District Municipality? The location of the smelter should be on district land for the District to have direct benefits. ▪ The Local Municipality expressed fear that economic activity could move to Aggeneys, which will affect the growth of Pofadder. ▪ Black Mountain Mining (Pty) Ltd should investigate local beneficiation of sulphuric acid (e.g. agri-business, fertilizer).
Movement of people and animals	<ul style="list-style-type: none"> ▪ The current water supply pipeline has negatively affected the movement of people (farmers and the Pella community) and animals (livestock, game and birds). The new pipeline will worsen the situation.
Increased traffic volumes	<ul style="list-style-type: none"> ▪ Heavy vehicle traffic will contribute to the deteriorating of surrounding roads.
Project closure	<ul style="list-style-type: none"> ▪ Black Mountain Mining (Pty) Ltd should promote local economic development (diversification) to cushion the shock of mine, and smelter closure. ▪ Black Mountain Mining (Pty) Ltd is currently managing Aggeneys and provides the necessary services. What will happen after mine/smelter closure? The Local Municipality does not have the capacity to take ownership of the town. Will the town become a typical mine ghost town? There are many of these in the Northern Cape. ▪ What will happen to Aggeneys if zinc prices plummet? ▪ Spatial development framework should make provision for post-closure planning.

9 Impact Assessment Findings

The identification of social impacts discussed in this section is based on the findings of the Scoping Phase, socio-economic baseline conditions, nature and extent of project activities, discussions with the Gamsberg project team, surrounding landowners and industries, representatives of local and district municipalities, as well as the findings of other specialist studies.

Impacts related to the loss of archaeological sites are addressed in the Heritage Impact Assessment previously undertaken. Similarly, impacts related to air, noise, dust, traffic and water pollution are only briefly referenced in the SIA report as the mitigation of these impacts are addressed in other specialist studies and in the EIA report. The macro-economic impacts of the Project are discussed in the Economic Impact Assessment.

The sections below describe and assess the various impacts that are considered pertinent to the SIA. Impacts have been categorised in terms of the main project phase in which it will originate, recognising that many impacts span over more than one project phase. It should be noted that although some of the social impacts are, to a greater or lesser extent, also relevant for the closure and post-closure phase of the Project, a detailed assessment of these impacts frequently tends to be highly speculative. This aspect (decommissioning phase) has, however, been considered during the Impact Assessment Phase.

The following impacts have been identified and assessed:

- **Construction Phase – Positive**
 - Employment creation during construction.
 - Multiplier effect on the local and regional economy.
- **Construction Phase – Negative.**
 - Disruption of daily movement patterns.
 - Project induced population influx.
 - Negative impacts related to the presence of construction workers.
 - Health, safety and security issues.
- **Operational Phase – Positive.**
 - Contribution to the local economy through employment creation and economic stimulus.
 - Skills development and capacity building.
- **Decommissioning Phase – Negative**
 - Dependency on the Project for sustaining the local economy

9.1 Construction Phase Impacts

The local study area, as well as adjacent local municipalities and towns, are characterised by high unemployment rates and low-income levels and a large proportion of households in local communities face significant socio-economic challenges. It is anticipated that there will be widespread expectations that the Project should provide employment opportunities to local communities and contribute to their socio-economic upliftment. Representatives of the local and district municipalities expressed similar expectations during interviews with the social consultant. The MPRDA also requires that host communities should share in project benefits.

9.1.1 Employment creation during construction

9.1.1.1 Description of the impact

The construction phase of the smelter will last approximately 36 months, during which potentially 6 000 people will be employed. The latter excludes permanent staff but includes skilled, semi-skilled and unskilled positions. Workers will be recruited from surrounding areas and towns in the Khâi-Ma Local Municipality, followed by other municipal areas in the Namakwa District municipal area (for example Nama Khoi Local Municipality) and further afield (Northern Cape Province).

Many construction phase job opportunities will involve semi-skilled, but also some unskilled positions. Whether unemployed and under-employed individuals within the local study area will be able to take up employment depends on their level of education, specific skills and work experience. During construction, many positions will only last for a relatively short period. However, acquisition of new skills could make people more employable in the future. Local employment during construction is therefore regarded as a significant positive impact.

Local employment by the Project during construction could improve livelihoods and income stability of future employees and their families, especially if they originate from vulnerable households. Salary remittances by employees, who do not originate from the local area, could also provide some relief and increased purchasing power outside the local area.

Informal employment opportunities may be created in the secondary economy through a multiplier effect from the Project's activities. Therefore, in addition to creating direct job opportunities, construction activities and project expenditure may also lead to indirect employment creation. This could involve formal employment (with companies who provide services to the Project), or employment in the informal sector (for example, local residents offering transport or other services for the convenience of construction workers when they are off-duty). However, it is questionable if this benefit will be significant, taking into account that many of these services are already in place as part of the Black Mountain Mine and Gamsberg Zinc Mine operations. The same service providers will likely be used for the Smelter Project.

Nevertheless, it is recommended that the Project consider the unbundling of suitable tenders to provide opportunities for local service providers. In addition, adopting labour intensive construction methods, if possible, would contribute to the employment of unskilled workers.

It is noted that some temporary employees and their families may find themselves worse off after the construction phase, as they may cease to be able to uphold the elevated quality of

life to which they became accustomed. However, as was mentioned, the acquisition of new skills could make people more employable in the future.

According to current planning, the development of Phase 2 of the Gamsberg Zinc Mine may partly overlap with the construction of the smelter. Although the two processes will be separate, the presence of a second large construction workforce could cumulatively contribute to the indirect benefits of local employment. It is expected that the influx of jobseekers may increase due to the relatively large number of temporary work opportunities that will become available at the same time. However, many jobseekers will be unsuccessful in obtaining jobs, which could lead to various negative impacts (see Section 0). Black Mountain Mining (Pty) Ltd would also have to supplement the existing accommodation facilities on site for construction workers and the construction of a new camp is therefore under consideration.

A representative of the Khâi-Ma Local Municipality argued that currently, Black Mountain Mining (Pty) Ltd is recruiting a large proportion of its workforce from outside the local municipal area (in particular from the Nama Khoi local municipal area). According to the representative, the Gamsberg project should increase its efforts to recruit workers from the Khâi-Ma municipal area. The representative argued that this could not only benefit the local population and economy, but may also increase these workers' capacity to pay for municipal services.

The availability of job opportunities during construction could result in some farmworkers on farms surrounding the Project, abandoning their jobs to seek work at the smelter. This could inconvenience the farm owners.

9.1.1.2 Mitigation/enhancement measures

It is consistent with national legislation and international best practice standards that local communities and labour sending areas are given special consideration in terms of employment benefits arising from the Project.

It is anticipated that Black Mountain Mining (Pty) Ltd already have the necessary systems and processes in place to undertake the identification and recruitment of construction workers, since they have been in operation for some time. However, in order to enhance the benefits of job creation for local towns and communities in the Khâi-Ma municipal area, it is recommended that the following measures be considered:

- The Project should identify its required core skills (for both construction and operational phases) and extend employee skills audits to investigate the prevalence of required skills in the municipal towns/ communities, and structure its skills development endeavours accordingly.
- Ensure, through a structured stakeholder engagement programme, that communities are aware of local employment requirements and opportunities that are available. Where required, the local resident status of applicants should be verified in consultation with community representatives and municipal structures.
- Clearly advertise the nature and numbers of jobs available during the project phases in surrounding communities, and ensure that communities understand the Project's local

recruitment procedures. Eligibility criteria should be informed by local authorities, or similar, and clearly communicated to any potential beneficiaries.

- Recruitment should be coordinated through local offices of the Department of Labour (if present) or bona fide recruitment agencies. If this is not feasible, locate the recruitment offices at a central point (but not on-site) to control access and movement of jobseekers. A recruitment registry should be created for jobseekers to record relevant qualifications, work experience, and contact details.
- Formalise preferential employment of women and youth in the company recruitment policy. Performance indicators for promoting the employment of women and youth should be developed and implemented by the Project and its Business Partners. The positions reserved for these groups may only be filled with persons outside of these categories when it can be clearly demonstrated that no suitable persons are available. Follow-up compliance monitoring should also be undertaken to ensure that the Project and its Business Partners honour local employment policies and other measures to enhance local employment.
- An up-to-date skills database would greatly facilitate local employment. It is suggested that the Project engage with the relevant municipal departments and/or active non-governmental organisations (NGOs) in developing this database. The database should be in place in advance of the Business Partners being appointed. The database should include documentation verifying the eligibility status of applicants.
- Where possible, labour-based methods of construction (e.g. digging of trenches), should be used to maximise the Project's requirements for unskilled labour. If 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.
- Consider the unbundling of suitable tenders to provide opportunities for local service providers.
- Tender criteria should require the relevant Business Partners to provide training and skills development to the locally recruited workforce. Where possible, training should be aimed at providing skills to employees that might enable them to apply for some permanent positions that become available once construction is complete, or at other construction companies active in the local and regional study areas.
- Provide employees with reference letters that they can submit to gain further employment. Also, provide certificates of completion for on-the-job training.

Based on the abovementioned discussion, the significance of employment creation during the construction phase is likely to be **HIGH positive** without mitigation, increasing to **VERY HIGH positive** with mitigation (see Table 12).

Table 12: Impact Summary - Employment creation during construction

Issue: Employment creation during the construction phase (Positive)		
Phases: Construction phase		
Criteria	Without Mitigation	With Mitigation
Intensity	Prominent change (H+)	Substantial change or improvement (VH+)
Duration	Short-term (L)	Short term (L)
Extent	Local area, extending far beyond the site boundary (H)	Regional (VH)
Consequence	High (H+)	High (H+)
Probability	Probable (H)	Definite (VH)
Significance	High (positive) (H+)	Very High (positive) (VH+)
Nature of cumulative impacts		
	<p>Worker's wages will contribute to increased spending power, which will have a ripple effect on the local economy.</p> <p>The impact could ensure that benefits such as skills development extend beyond the construction phase and that workers can take on other jobs when new projects/developments are established in the region.</p> <p>The presence of a second large construction workforce for Phase 2 of Gamsberg Zinc Mine could have a positive cumulative effect on the local and regional economy and living conditions of successful jobseekers.</p>	
Degree to which impact can be reversed	Not applicable	
Degree to which impact may cause irreplaceable loss of resources	Not applicable	
Degree to which impact can be mitigated/enhanced	Medium	
Residual impacts	Implementation of mitigation measures could further stimulate food security, and enhance skills development at the local and regional level.	

9.1.2 Multiplier effect on the local and regional economy

9.1.2.1 *Description of the impact*

There are legal, and other, requirements for the Project to contribute to the socio-economic development of its host communities. The Project will result in several economic benefits through direct employment and multiplier effects, further stimulated by capital expenditure during construction. Capital expenditure for the development of the smelter is approximately R13 billion. Capital expenditure will also include about R1 billion once off to government in tax revenue (information provided by the Project team in September 2019). The Economic Impact Assessment will investigate the potential multiplier effect on the macro and local economy.

Construction activities could increase the demand for a variety of goods and services (e.g. construction materials, fuel, professional services, consumable items for the workforce, etc.). This may stimulate growth in the local and regional study areas' construction and service sectors. This economic environment may also generate opportunities for small, medium and micro enterprises (SMMEs) in the local study area, provided they are formalised and able to meet the procurement requirements of the Project.

Population influx (see Section 0) is generally associated with negative consequences. However, this influx of people could present improved opportunities for entrepreneurs and could offer other benefits for the economy. Construction workers and jobseekers will require consumable items (food/clothes), various forms of entertainment, etc., while jobseekers will require accommodation – to which local residents may respond by renting out rooms on their properties. Owners of accommodation facilities (e.g. guesthouses) may build additional rooms to accommodate contractors or service providers. These are new opportunities for businesses to emerge and for existing ones to reposition themselves to changing market requirements. This will especially be the case if migrants have higher-level occupations and relatively high disposable incomes. This impact will be driven by construction workers, as well as by workers and their families residing in Aggeneys during the operational phase.

Local and regional procurement spend could enhance the positive economic impacts of the Project, as the revenue accruing to enterprises could produce some beneficial downstream impacts on the local and regional economy. In addition, increases in the number of consumers could increase earnings for retail businesses, traders and other consumer services in the local area.

It is expected that a significant proportion of wages will be spent in the local and regional study areas, including bigger towns such as Springbok, which supplies a wide range of sophisticated goods and services. This could create additional revenue for these businesses, thus acting as a catalyst for economic growth. This impact could extend to other local municipalities following salary remittances to these areas. However, an increase in disposable income may contribute to an increase in social pathologies.

As was mentioned, the development of Phase 2 of the Gamsberg Zinc Mine may overlap with the construction of the Gamsberg Smelter. The influx of jobseekers may be significant due the large number of available work opportunities. This additional influx will likely benefit the local

economy but may also increase informal (and illegal) settlement and increased pressure on the delivery of basic services (see Section 0).

Local municipalities may also benefit from rates and taxes imposed on the Project, as well as, potentially, from an increased tax base. This injection into local municipalities could contribute to development, thereby creating conditions conducive to economic growth.

However, a Khâi-Ma Municipality representative has expressed concern that the further development of Aggeneys (e.g. to accommodate the smelter permanent workforce) may lead to a growth in businesses in Aggeneys to provide goods and services to the increased number of residents in the town. The concentration of businesses in Aggeneys could mean that businesses in other towns will not benefit from this positive impact.

9.1.2.2 Mitigation measures

The recommended measures for maximising local employment will also stimulate the positive impacts of the Project on the local and possibly the regional economy. The following additional measures are recommended to enhance the significance of this impact:

- It is anticipated that procurement opportunities for communities in the local study area will be limited. However, due consideration should therefore be given to identify procurement opportunities and goods/services that could be supplied by local contractors and service providers.
- The Project should give preference to suitable sub-contractors or SMMEs located firstly in the surrounding towns/ settlements, then in Namakwa District and then to contractors located outside the Namakwa District.
- Develop a register of SMMEs and the types of goods and services they provide. Work with local municipalities to develop SMMEs through relevant forums and committees.
- Where feasible, promote procurement from local enterprises above the targets set out in the Mining Charter.
- Include local procurement requirements/ targets in procurement policies and Business Partner agreements. Monitor the procurement practices of Business Partners and enforce requirements. If contracts are awarded to non-local service providers, Business Partners should demonstrate that reasonable action was taken to identify a local service provider.
- Clearly advertise the nature and extent of local procurement opportunities during all project phases. Ensure that local communities understand the procurement procedures. Ensure that local businesses are aware of the procurement needs of the Project and have sufficient information to prepare tenders.
- Develop mechanisms for unbundling contracts to realise the above opportunities. This could enhance economic opportunities in areas such as entrepreneurship development and the development of skills for employment and economic development.
- Empower local businesses in centres such as Pofadder, and possibly Pella, and support development initiatives in the Project's labour sending areas and towns. Where SMMEs

do not exist locally, investigate the possibility of launching a training/ skills development initiative under the auspices of the skills development programme required for the SLP.

- The successful implementation of the aforementioned recommendations requires that the Project establish/ uphold applicable communication mechanisms with district and local government, communities, as well as community engagement forums or similar functions.

Based on the aforementioned discussion, the significance of multiplier effects on the local and regional economy during the construction phase and beyond is anticipated to be **MEDIUM** positive without mitigation, increasing to **HIGH** positive with mitigation (see Table 13).

Table 13: Impact Summary - Multiplier effect on the local and regional economy

Issue: Multiplier effect on the local and regional economy (Positive)		
Phases: Construction phase and beyond		
Criteria	Without Mitigation	With Mitigation
Intensity	Moderate change (M+)	Prominent change or improvement (H+)
Duration	Short-term (L)	Short term (L)
Extent	Local area, extending far beyond the site boundary (H)	Regional (H)
Consequence	Medium	High
Probability	Probable (H)	Definite (H)
Significance	Medium (positive) (H+)	High (positive) (H+)
Nature of cumulative impacts		
	<p>The impact could ensure that local businesses and new entrepreneurs could grow their businesses, improve their income, gain considerable business experience and improve their skills. These benefits may put them in a better position to provide their goods and services to other development projects and beyond the local study area.</p> <p>The economic multiplier effect in general could further boost the growth of SMME's, improve the living conditions of marginal groups and boost service delivery by local governments.</p> <p>The presence of a second large construction workforce for Phase 2 of Gamsberg Zinc Mine could have a cumulative positive effect on the local and regional economy</p>	
Degree to which impact can be reversed	N/A	

Degree to which impact may cause irreplaceable loss of resources	N/A
Degree to which impact can be mitigated/enhanced	Medium
Residual impacts	Implementation of enhancement measures could further stimulate the local/regional economy, which could improve the conditions of the local business sector in particular and the local communities in general.

9.1.3 Disruption of daily movement patterns

9.1.3.1 Description of impact

Disruption of movement patterns will occur because of construction-related traffic on local roads. However, the impact will be particularly noticeable on the public road network. The TIA has assessed this impact in more detail.

Some construction workers may use their private vehicles, which will inflate the number of road users. Given the relevant low traffic volumes in the broader project area, it is unlikely that this will be a significant impact. However, construction and private vehicles will also visit/pass through various towns, which may disrupt movement patterns and increase the risk of road accidents and pedestrian exposure to unsafe conditions.

The above situation will continue during the operational phase of the smelter. Additional traffic (some 30 trucks per day to deliver the zinc product to Saldanha Bay and 30 trucks per day to move the sulphuric acid off-site), in combination with an increase in other road users, could cause further deterioration of the roads, which could add to disruption. In addition, as traffic volumes increase, so does the risk of road accidents and pedestrian exposure to unsafe conditions. Similar to the construction phase, it is anticipated that many of the operational workforce will use their own vehicles.

Disruption of movement patterns may also occur during construction of the new transmission line, although the line will follow an existing servitude. Minor disruption can be expected due to the movement of construction vehicles. However, it is expected that the impact will last for a relatively short duration.

During the construction of the transmission line, contractors may establish new temporary roads to assist with access to work sites. This could contribute to the disruption of movement patterns for those using roads near the construction sites – in addition to potential damage to the biophysical environment.

9.1.3.2 Mitigation measures

The following mitigation measures are recommended to address this impact:

- Implement the mitigation measures recommended in the TIA.

- Implement appropriate technical measures to provide continued access to residences, farms and facilities, and to minimise traffic disruptions.
- Erect suitable traffic and construction signage to control traffic, raise awareness of potential risks/hazards and indicate alternative access routes, if needed.
- Implement suitable consultation procedures to ensure that potentially affected parties are informed about pending construction activities and potential disruptions. Ensure that the affected parties are involved in the formulation of mitigation measures where required.
- Implement suitable grievance procedures and compensation measures for damages caused during construction activities.
- Ensure satisfactory repair and rehabilitation of local affected roads or temporary roads after construction is completed.
- Mechanisms should be established to ensure that any health and safety concerns or incidents should be dealt with promptly by Black Mountain Mining (Pty) Ltd.

Mitigation measures will likely reduce the impact to such a level that those affected will adapt to disruption over time. These measures should be effective in reducing severity of impacts to a limited degree, which together with adaptation will reduce intensity.

Based on the aforementioned discussion, the significance of disruption of movement patterns during construction is anticipated to be **MEDIUM** negative without mitigation, increasing to **LOW** negative with mitigation (see Table 14).

Table 14: Impact Summary - Disruption of movement patterns

Issue: Construction activities: Negative		
Phases: Construction and operational phases		
Criteria	Without Mitigation	With Mitigation
Intensity	Moderate change, disturbance or discomfort (M)	Minor change or disturbance (L)
Duration	Short term (L)	Short term (L)
Extent	Local area, extending far beyond site boundary (H)	Local area, extending far beyond site boundary (H)
Consequence	Medium	Medium
Probability	Definite (VH)	Possible/frequent (M)
Significance	Medium (negative)	Low (negative)

Nature of cumulative impacts	Construction activities at Gamsberg Mine and smelter, as well as traffic from other projects in the area (e.g. quarries and solar plants) will increase the disturbance of movement patterns and deterioration of roads, particularly when additional projects are established in the broader project area
Degree to which impact can be reversed	Low
Degree to which impact may cause irreplaceable loss of resources	Low
Degree to which impact can be mitigated	Medium
Residual impacts	Impact will continue during operation and closure. Some disruption will occur but road users will adapt to changes. Traffic accidents may still occur notwithstanding mitigation measures.

9.1.4 Project-induced population influx

9.1.4.1 Description of impact

As news regarding the proposed Smelter Project spreads, expectations with regard to possible employment opportunities at the smelter (and at the mine) will increase. Consequently, local communities and towns may experience an influx of job seekers. The magnitude of this impact will be influenced by the severity of poverty and unemployment as people will be more inclined to travel longer distances in search of improved livelihoods through employment. The impact could commence prior to construction and continue throughout the operational phase. The construction of Phase 2 of the Gamsberg Zinc Mine would have a cumulative effect on the influx of jobseekers.

The Project's location is relatively isolated, with the nearest town being Aggeneys (20 km). Other towns and communities, such as Pofadder, Pella, Witbank and Onseepkans are located more than 50 km from the Project. It is therefore not expected that population influx will be significant in the site-specific study area, but could have an impact on the abovementioned towns.

Informal settlement and illegal land occupation at Aggeneys town and surroundings areas are stringently prohibited and controlled by the Black Mountain Mine Security and the local police. It is therefore expected that this construction impact will not have a significant effect on this town. However, due to the increased influx, the Project would have to be diligent in patrolling the area on a regular basis and investigate any suspicious activities.

Of concern is the possibility that residents of Aggeneys could provide accommodation to family and friends seeking employment with the Project (both prior to and during the construction

and operational phases of the Project). They could also decide to accommodate tenants, as this would increase their income. This could lead to overcrowding and associated health issues, as well as pressure on local services (e.g. police and clinic), and possibly an increase in social pathologies. According to the Aggeneys SAPS, there is already a disturbing increase in domestic violence and alcohol and substance abuse in the town.

Towns such as Pofadder and Pella already have to deal with increasing informal settlement, which places a burden on both the towns and local authority. An additional influx of jobseekers and, potentially, their families, will put additional pressure on the local authority for providing basic services and collecting rates and taxes. Furthermore, the proportion of the workforce that will be recruited from outside the local municipality will also constitute an additional influx of people.

The presence of a large workforce requires the establishment of sizeable construction camps. Should the construction of the smelter coincide with Phase 2 of mine development, a new construction camp will be established within the MRA.

While circumstances in the construction camp can be monitored to a large degree, it will not be possible to control the interaction between workers and locals. It is expected that the influx of construction workers and jobseekers will have a variety of negative social consequences. These are briefly discussed in the following sections.

9.1.4.1.1 Increased pressure on local services and facilities

It is expected that an increase in population within the local study area will increase pressure on infrastructure and service delivery, especially in areas where service delivery is already lacking. For example, local road networks will experience increased traffic, while the provision of water, sanitation and electricity will be impacted to various degrees depending on the areas experiencing influx. Furthermore, it is expected that newcomers will mostly consist of socio-economically depressed households, which means that there will be an increased demand on public healthcare, schools, and other municipal services and facilities.

Although Aggeneys is a proclaimed town under the Khâi-Ma municipality, it is largely managed by Black Mountain Mining (Pty) Ltd. Some government services are available, such as the SAPS and a government clinic. Should the town have to accommodate a large number of new permanent workers for the smelter, additional houses will have to be constructed. This influx of workers will increase the pressure on basic services and facilities, as well as the overall management and maintenance of the town. This impact will start when the construction of additional houses commences.

9.1.4.1.2 Establishment and growth of informal settlements

The shortage of services in the local study area includes a shortage of affordable housing, which could fuel the establishment and growth of informal settlements. Informal settlements, because of their lack of access to services, tend to be associated with several economic, social and health-related problems, such as increased dependency on local government.

9.1.4.1.3 Increase in social pathologies

The presence of construction activities and influx of jobseekers are usually also associated with an increase in social pathologies, such as substance abuse, prostitution, crime, increased incidence of sexually transmitted diseases and other communicable diseases. Several social pathologies, especially HIV/AIDS, petty crime, drug and alcohol abuse and gender violence, are already a problem within impoverished communities in the local study area. This situation makes impoverished households especially susceptible to this impact.

It is possible that risky behaviour, such as substance abuse and sexual promiscuity, could increase because of irresponsible spending associated with newly available and/or increased disposable income among construction workers in the local study area.

Many jobseekers will be also left unemployed. Hence, the incidence of crime could increase if failed jobseekers stay in the local area and revert to criminal strategies to survive. Even if some criminal activities are not associated with the newcomers, they may still be attributed to them by local communities (see below). In addition, an increase in crime would also negatively affect farmers in the project area, both in terms of their health and safety and their sense of security. According to farmers, the incidence of crime is currently very low on surrounding farms.

9.1.4.1.4 Hostility or conflict between newcomers and incumbent population

Although a proportion of the construction workforce could originate from the Khâi-Ma municipal area, it is expected that a significant number of employees will be sourced from elsewhere in the region/province. It is possible that hostility and conflict will arise between those perceived as foreigners and local residents. One reason for such conflict could be the perception among locals that outsiders are taking up jobs that could have gone to people in the local municipality. Similar conflict could arise if Business Partners recruit non-locals. A representative of the Khâi-Ma Local Municipality has already expressed concern that not enough people are recruited from within the Municipality.

9.1.4.2 Mitigation measures

As mentioned, it is not expected that the Project site specifically would experience population influx due to its remoteness. The Project may, therefore be reluctant to manage population influx in out-of-sight areas (e.g. Pella and Pofadder). Nevertheless, project-induced population influx requires that the Project take some responsibility for mitigating this impact in conjunction with other stakeholders (e.g. district and local municipalities). The following measures are recommended to address the aforementioned impacts:

- Measures to address population influx:
 - Depending on the severity of the impact, the Project could financially assist the municipalities in undertaking a high-level situation analysis and, depending on the findings of this analysis, commission a detailed management plan together with Government role players. The Project may also be in a position to provide technical support.

- Robust regulatory measures must be instated to manage informal settlement, unlawful land occupation at/ near the Project site, as well as unauthorised sub-letting of houses in Aggeneys. Suitable protocols should be instated to identify and manage instances where unlawful occupation and overcrowding of houses occur. Black Mountain Mining (Pty) Ltd already collaborates with the SAPS to manage this impact.
 - The recruitment of employees and Business Partners should be executed as per Section 9.1.1.2 (especially in terms of preferentially employing from the local area), thereby discouraging loitering near the Project site or in Aggeneys.
 - Ensure that recruitment policies are clearly communicated to discourage influx of jobseekers from other areas and to prevent potential community conflict.
 - Involve the local municipality and community structures (e.g. ward councillors) to assist in communicating the intention to give preference to local labour, and to assist in identifying the recruitment stations and protocol.
 - It is strongly recommended that the Project liaise with the local municipality to ensure that housing shortages and expected population influx are taken into account in the SLP and LED programmes.
- Measures to minimise the occurrence of social pathologies:
 - Black Mountain Mining (Pty) Ltd should ensure that the Project and its Business Partners develop and implement an HIV/AIDS awareness and prevention programme amongst its employees, and make this a condition of contract for any suppliers and sub-contractors.
 - The Project should provide an adequate supply of free condoms to workers.
 - Access at the construction sites must be controlled to prevent sex workers and petty traders from visiting and/or loitering near the construction camps.
 - Support suitable government agencies, clinics, schools and NGOs involved in raising community awareness and education on STDs and substance abuse.
- Measures to address crime include:
 - Construction workers should be clearly identifiable by wearing construction uniforms displaying the logo of the construction company. This could prevent opportunistic persons wandering near the sites under the guise of being construction employees.
 - Black Mountain Mining (Pty) Ltd should consult with the SAPS and/ or security firms active in the area to establish standard operating procedures for the control and removal of loiterers at the aforementioned sites.
 - Appropriate liaison structures should be established with local police services to monitor social changes in crime patterns. Liaison should also be established with existing crime control organisations, such as community policing forums.

- Through the abovementioned forums, identify if recorded criminal activities (for example housebreaking) has any connection with the Project workforce. Verify claims of surrounding communities in this regard and take appropriate action.
- Measures to address potential conflict between locals and non-locals:
 - The Project’s recruitment and employment policies should be fair, transparent and readily available.
 - Selection criteria for the recruitment of construction workers should be clearly communicated and carefully explained to all stakeholders. Selection criteria should be applied transparently to prevent speculations regarding corruptive practices in recruitment processes.
 - Establish a grievance procedure and mechanism at a location that is accessible to aggrieved members of the surrounding communities.
 - Develop standby procedures with the local police and private security services to assist with any security incidents.
 - In the event of notable friction/ conflict between locals and non-locals, a conflict management plan may have to be developed and implemented in conjunction with other key stakeholders.

Based on the above discussion, the significance of project-induced population influx during the construction phase is expected to be **HIGH** negative without mitigation, decreasing to **LOW** negative with mitigation. However, experience has shown that both mines/ projects and local municipalities often struggle to mitigate this impact. It is therefore critical that the Project accepts its potential contribution to mitigate this impact (see Table 15).

Table 15: Impact Summary - Project-induced population influx

Issue: Population influx (Negative)		
Phases: Construction phase		
Criteria	Without Mitigation	With Mitigation
Intensity	Prominent change (H)	Moderate change or disturbance (M)
Duration	Short term (L)	Short term (L)
Extent	Local (H)	Local (H)
Consequence	High	Medium
Probability	Probable (H)	Possible/frequent (M)
Significance	High (negative)	Low (negative)

Nature of cumulative impacts	<p>New activities at the Gamsberg Zinc Mine and/or other projects in the area (e.g. solar projects) could increase the number of jobseekers, many of whom will be unsuccessful in securing employment. This situation will intensify the issues addressed under the impact description.</p> <p>The presence of a second large construction workforce for Phase 2 of Gamsberg Zinc Mine would have a cumulative negative effect.</p>
Degree to which impact can be reversed	Low
Degree to which impact may cause irreplaceable loss of resources	Low
Degree to which impact can be mitigated	Medium
Residual impacts	<p>Experience has shown that development projects and their host municipalities often struggle to manage this impact. This means that the impacts described above are often left to district/provincial government to mitigate. It is therefore critical that the Project accepts its potential contribution to mitigate this impact.</p>

9.1.5 Negative impacts related to the presence of construction workers

9.1.5.1 Impact description

There is existing accommodation (construction camp) at the smelter site to accommodate the construction workforce. However, a new construction camp will be established if Phase 2 development of the Gamsberg Zinc Mine overlaps with the construction phase of the smelter.

It has been well documented for other development projects that a construction workforce is often a key concern for local property owners and surrounding communities. They could also pose health and safety related risks, in addition to aspects such as the social pathologies and conflict between locals discussed in Section 0. In addition, the actions of workers could cause environmental damage (e.g. littering and veld fires).

The presence of food stalls near mine/smelter access roads to provide goods to construction workers, may result in a nuisance issue and risks (e.g. safety risks related to the movement of heavy vehicles, as well as health risks related to un-hygienically prepared food). While it is unlikely that this will occur (given the long distances between the Project and surrounding settlements), such activities should be prohibited.

Specific impacts from the presence of a construction workforce could stem from the following:

-
- Negligence with regard to starting fires near the Project construction sites, which could pose a fire hazard.
 - Lack of control over the movement of contract employees in terms of unauthorised access to property.
 - Perceived or actual safety/security risks and increases in crime emanating from the presence of construction workers.
 - Littering and loitering by construction workers.
 - Damage to the biophysical environment.
 - Crime, poaching and stock theft.

A construction workforce often comprises a high proportion of single males, which is generally associated with an increase in social disturbances, such as substance abuse and other negative factors. The Project should exercise a high degree of control over its construction workforce and Business Partners in line with contract agreements and regulations with regard to the management of these partners. However, it is recognised that it would not be possible, or tolerable, to control interaction between workers and local communities.

9.1.5.2 Mitigation measures

The following mitigation measures are recommended to reduce negative impacts associated with the presence of construction workers:

- A Business Partner Management Plan should include requirements with regard to health and safety, as well as conduct and controls for construction workers.
- Workers should be well informed of camp policies and safety requirements and should be educated with regard to their conduct in local communities.
- Appropriate facilities for washing, sanitation, sleeping, cooking, etc. must be provided, based on predetermined standards and location of such facilities. Rules of conduct must be enforced with regard to sanitation, water and waste.
- A fire safety and firefighting plan should be included in the Project's management plans, which should describe actions to be taken in case of a fire starting on site or at the construction camp.
- Construction workers must be trained in the use of firefighting equipment, which should be available on site.
- Refuse on site should be discarded in sealed bins and/or covered refuse containers. Refuse should be removed from the site at regular intervals and disposed of at the approved Black Mountain Mine waste disposal site.
- Security must monitor and control worker movement in terms of environmental, crime and related occurrences.

Based on the above discussion, the significance of the increased presence of workers during construction is anticipated to be **MEDIUM** negative without mitigation, increasing to **VERY LOW** negative with mitigation (see Table 16).

Table 16: Impact Summary - Negative impacts related to the presence of construction workers

Issue: Presence of construction workers (negative)		
Phases: Construction phase		
Criteria	Without Mitigation	With Mitigation
Intensity	Moderate change, disturbance or discomfort (M)	Minor change or disturbance (L)
Duration	Short-term (L)	Short term (L)
Extent	Beyond the site boundary, affecting immediate neighbours (M)	Beyond the site boundary, affecting immediate neighbours (M)
Consequence	Medium	Low
Probability	Definite	Possible, frequent
Significance	Medium (negative)	Very Low (negative)
Nature of cumulative impacts		
	<p>New activities at Black Mountain Mine and Gamsberg Zinc Mine will increase the number of workers and associated need for accommodation. This situation will intensify the issues addressed above under the impact description.</p> <p>The presence of a second large construction workforce for Phase 2 of Gamsberg Zinc Mine would have a cumulative negative effect.</p>	
Degree to which impact can be reversed	Low	
Degree to which impact may cause irreplaceable loss of resources	Medium	
Degree to which impact can be mitigated	Medium	
Residual impacts	<p>With mitigation, this impact can be managed at the construction site level. However, since the Project has little control over the construction workers' activities and behaviour off-site, some negative social consequences will remain.</p>	

9.1.6 Health, safety and security

9.1.6.1 *Impact description*

The potential impact of project activities on the health, safety, and security on both the smelter workforce and the local population is discussed in this section. The latter include nearby farms (people and animals), as well as adjacent enterprises, such as the guesthouse, solar farm and quarries. The impact will be present during the construction, operational and decommissioning phases of the Project. Health issues due to the smelter emissions and associated air pollution are discussed in the Air Quality Impact Assessment.

Environmental legislation and the South African Constitution provide that the quality of the environment is preserved and protected for the health, well-being and benefit of present and future generations. Therefore, a project's social and environmental assessment process must assess the impacts associated with the project and develop mitigation measures to avoid, reduce or minimise the negative impacts on the environment, public health and property.

The construction of the Project will result in a number of aspects that could negatively affect the health and safety of workers and host communities. These impacts relate to the following aspects:

- Exposure to industry-related health impacts (e.g. contaminated waste disposal).
- Air, dust and noise pollution due to construction activities.
- Safety risks during construction of project infrastructure, as well as during operational and decommissioning phases.
- Increased traffic volumes (as discussed earlier).
- Effects on people's quality of life and psychological health due to, stress of actual and perceived negative impacts and feelings of insecurity.
- Increase in the spread of communicable diseases and social pathologies, because of population influx (as discussed earlier).

The development and operation of the Project could contribute to air, noise and dust pollution, especially during construction. This could negatively affect the health of workers and local residents. Mitigation measures to reduce air quality, dust and noise impacts are included in the relevant specialist studies.

All persons interviewed near the proposed smelter site, intensely complained about the dust pollution reportedly caused by the Gamsberg Zinc Mine. They emphasised the negative impact of dust pollution on their lives and living conditions, as well as on their livestock (dust-polluted grazing/vegetation). Aspects such as respiratory conditions (e.g. asthma) were mentioned, although this was not highlighted as a main concern. Some respondents were concerned that the Project will negatively contribute to these impacts.

Some respondents also referred to the economic loss they could suffer/have suffered due to the polluted grazing. Dust-polluted grazing has a negative impact on the quality of livestock meat, which could result in buyers not accepting their meat supplies due to low quality meat.

However, it was acknowledged that the severe drought in the project area is also contributing to dust pollution in the absence of rain.

It is anticipated that the smelter operation, in isolation, will not significantly contribute to dust pollution. Current dust monitoring at the mine indicates that dust settlement is localised and does not affect the neighbouring properties. However, the cumulative effect of dust pollution by the mine, the construction of the smelter, as well as during the concurrent construction of Phase 2 of Gamsberg Zinc Mine should be investigated and managed by the polluters.

As was mentioned, project activities would cause an increase in traffic volumes and increased number of road users. This could lead to increased risk for road accidents and endanger the lives of road users and pedestrians, especially children.

The influx of construction workers and jobseekers to the broader area could increase the incidence of communicable diseases (such as STDs and HIV/AIDS) and social pathologies.

9.1.6.2 Mitigation measures

An in-depth assessment of health and safety impacts associated with the Project falls outside the scope of this SIA. In addition to the relevant mitigation measures recommended in the previous sections and in the relevant specialist studies, it is proposed that the Project develop and implement a project-specific Health, Safety and Security Plan (if not already in existence) which should include measures to mitigate impacts at construction camps and on adjacent farms. In addition, the Project should:

- Implement the mitigation measures recommended in the relevant specialist studies, especially the Air Quality and Noise Impact Assessments.
- Evaluate the risks and impacts to the health and safety of both workers and occupants of surrounding farms and businesses during the design, construction and operation of the Project.
- Establish preventive measures to address risks in a manner commensurate with the identified risks/impacts. These measures should favour the prevention or avoidance of risks and impacts over minimisation and reduction.
- Where the Project poses risks to the health and safety of local residents, this should be disclosed, together with an explanation of mitigation measures to be implemented to the locals and the relevant government agencies, so that they understand the risks and impacts.
- Implement awareness programmes focusing on the dangers of STDs for employees.
- Establish efficient communication strategies or stakeholder engagement programme and provide affected communities with the opportunity/mechanisms to lodge concerns and/or grievances.

Based on the aforementioned discussion the significance of health, safety and security issues during the construction and operational phases is anticipated to be **MEDIUM** negative without mitigation, increasing to **LOW** negative with mitigation (see Table 17).

Table 17: Impact Summary - Health, safety and security impacts

Issue: Health, safety and security (negative)		
Phases: Construction phase, operational phase, decommissioning phase		
Criteria	Without Mitigation	With Mitigation
Intensity	Moderate change, disturbance or discomfort (M)	Minor change, disturbance or discomfort (L)
Duration	Long-term (H)	Long-term (H)
Extent	Beyond the site boundary, affecting workers and immediate neighbours (M)	Whole site (L)
Consequence	Medium	Medium
Probability	Probable	Possible, frequent
Significance	Medium (negative)	Low (negative)
Nature of cumulative impacts		
	Without implementation of mitigation measures presented by the specialist studies, incidents and risks could escalate and result in opposition to the Project, as well as actions by relevant government departments to ensure adherence to regulations.	
Degree to which impact can be reversed	Low	
Degree to which impact may cause irreplaceable loss of resources	N/A	
Degree to which impact can be mitigated	Medium	
Residual impacts	Health, safety and security incidents will still occur even after implementation of mitigation measures.	

9.2 Operational phase impacts

This section deals with the social impacts that will be triggered during the operational phase of the Project. The impacts identified in Section 9.1 that will not continue into the operational phase, are construction-related job creation, and the negative impacts related to the presence of construction workers/camps. The remaining impacts will be present during the operational

phase and possibly beyond. Additional impacts expected to arise during the operational phase are discussed below.

9.2.1 Contribution to the local economy through employment creation and economic stimulus

9.2.1.1 Impact description

The Economic Impact Assessment will assess the Project's contribution to the regional and national economy. During operation, the Project will create 1 200 permanent jobs. According to current planning, permanent workers will largely be accommodated in Aggeneys, which will require the construction of new houses (not part of this EIA).

As was mentioned, it is expected that some employment opportunities will be available to local communities, following the completion of the Project's construction. However, the majority of the workforce will be skilled or semi-skilled, which may not be available in the local area. However, employment during the operational phase of the Project could entail a long-term positive impact for successful applicants and their dependents in terms of wages and income security.

Even if only a small number of local people are appointed on the Project during its operational phase, the Project will still have minor indirect benefits for the local economy. These include a degree of indirect job creation – for instance, workers and their families using local people for private maintenance services (such as housekeeping or gardening services). An additional economic benefit would be multiplier effects associated with increased local spending on consumables and other services.

The construction and operation of the smelter will require the purchase of equipment and will generate large contracts. Many of these will be for highly specialised and technical work, which will be provided by specialist providers of goods and services. However, there could still be potential for local businesses to feed into the supply chain by supplying goods or services to the Project. For those companies that do get the opportunity to be part of this supply chain, there will be significant benefits for the businesses and their employees.

The proposed SLP expenditure for the first 5-year cycle includes approximately R136 million for Human Resources Development and R86.5 million for LED. It is expected that the Project SLP and LED Plan will provide benefits to the local economy by stimulating the growth of small businesses and contributing towards skills development. Local businesses that supply the Project could be able to expand their businesses. If implemented effectively and sustainably, expenditure could represent progress within the local municipality, thereby creating conditions conducive to economic growth.

Thus, in addition to creating direct local employment opportunities, the Project could also lead to indirect employment in the formal and informal sectors following project expenditure in the local area and through the creation or expansion of local businesses to serve the Project and its workforce.

9.2.1.2 Mitigation measures

The following enhancement measures are recommended:

- The Project and its contractors must consider the use of HDSA companies in their procurement practices. To maximise the empowerment of HDSA companies (and sharing in project benefits by disadvantaged communities in general), the Project should attempt to procure from local suppliers throughout the life of the Project.
- Black Mountain Mining (Pty) Ltd, through its CSR initiatives, is investing in local development programmes and is providing sponsorship for community initiatives. It is recommended that the Project participate in activities that would contribute to addressing underlying development issues such education and health (including HIV/AIDS).
- It is recommended that CSR initiatives make provision for including vulnerable groups in these projects. These investments will afford communities the opportunity to improve their living conditions and environment. Host communities must be well organised to receive such benefits.
- Promote establishment and upgrading of services and infrastructure, where feasible, through Black Mountain Mining (Pty) Ltd SLP and LED priorities.
- Identify and invest in projects that meet the criteria of Black Mountain Mining (Pty) Ltd and relevant legislation (e.g. poverty eradication, infrastructure development and welfare creation projects). Projects could include providing financial support to higher education institutions, as well as providing bursaries to qualifying employees.
- Continually assess the projected IDP and LED initiatives of local municipalities to ensure that the SLP commitments remain relevant in terms of the above initiatives.
- Liaise with relevant local and district planning departments responsible for integrated development planning and local economic development to assess if partnership could be created as part of Black Mountain Mining (Pty) Ltd IDP and LED initiatives.

The following measures are proposed to realise the potential benefits of local procurements:

- Include local procurement targets in the Project's procurement policy and Business Partner contract agreements. Monitor procurement practices of Business Partners and enforce requirements.
- Develop procedures for the procurement policy to ensure preferential procurement in accordance with Broad-based Black economic empowerment (BBBEE) and the Mining Charter requirements.
- Develop a Procurement Progression Plan as required in terms of the SLP to benefit local procurement.
- Develop and implement skills development and training targets for local procurement and include these in Business Partner contracts.
- Compile/ update a database of local and district service providers, and issue new contracts to service providers who show an interest to provide specific services. A

business survey could be conducted to inform this database. Where applicable, use databases of surrounding projects and municipalities.

- Update the Project’s existing supplier database to include suppliers that may qualify for procurement opportunities after receiving training/support. Identify procurement opportunities and goods/services that could be supplied by local contractors.
- Develop internal mechanisms for unbundling contracts where possible to realise the above opportunities.
- Ensure that local businesses are aware of the procurement needs of the Project and have sufficient information to prepare tenders.

Based on the aforementioned discussion, the significance of the impact is anticipated to be **HIGH** positive without mitigation, increasing to **VERY HIGH** positive with mitigation (see Table 18).

Table 18: Impact summary - Contribution to the local economy

Issue: Contribution to the local economy (positive)		
Phases: Operational phase		
Criteria	Without Mitigation	With Mitigation
Intensity	Moderate change (M+)	Prominent change (H+)
Duration	Long Term	Long-term (M)
Extent	Local area, extending far beyond site boundary (H)	Regional (VH)
Consequence	High	Very high
Probability	Possible, frequent	Definite
Significance	High (positive)	Very high (positive)
Nature of cumulative impacts		
	<p>New activities at Gamsberg Zinc Mine and/or other projects in the area could increase the number of jobseekers, many of whom will be unsuccessful in securing employment. This situation will intensify the issues addressed above under the impact description.</p> <p>The presence of a second large construction workforce for Phase 2 of Gamsberg Zinc Mine would have a cumulative negative effect.</p>	

Degree to which impact can be reversed	Low
Degree to which impact may cause irreplaceable loss of resources	N/A
Degree to which impact can be mitigated/ enhanced	Medium
Residual impacts	N/A

9.2.2 Skills development and capacity building

9.2.2.1 *Impact description*

The Project's receiving environment is characterised by low education, employment and skills levels, partially because of the socio-economic circumstances in the local areas, combined with insufficient government services.

The Black Mountain Mining (Pty) Ltd SLP commitments will include skills development, basic education (literacy and numeracy) and capacity building of employees. Thus, in addition to having acquired work experience, local employees in permanent positions on the Project will benefit from these SLP commitments, contributing towards improving the skills levels amongst the population in the local study area.

The MPRDA requires that the Black Mountain Mining (Pty) Ltd SLP shall ensure, amongst other things, training and career progression of employees, and in particular HDSAs, as well as participation of women in mining. Similar requirements will be applicable to Business Partners and certain categories of suppliers.

It is expected that temporary employees on the Project will not have the same opportunities as permanent employees to benefit from training programmes. While many construction opportunities will only involve unskilled or semi-skilled positions, the acquisition of new skills during their employment will make these workers more employable in the future.

9.2.2.2 *Mitigation measures*

The following measures are proposed:

- Prepare a detailed skills inventory for the Project. The skills database should be updated with personal training data.
- Establish training programmes based on the skills needs and gaps identified for the Project. Training should preferably be National Qualifications Framework (NQF) accredited and training providers must be registered with the relevant Sector Education and Training Authority.

- Develop and implement an Adult Basic Education and Training (ABET) Programme, for both workers and people from local communities. Such programmes could be incorporated into the SLP. Prioritise inclusion of women and vulnerable people in ABET programmes and other training programmes available to the local community.
- Provide opportunities for those locals who received training to be employed on the Project or are considered for procurement contracts with the Project.
- Identify suitable students from local schools to participate in company bursaries and internships programmes (if any), through extending the SLP Skills Development Plan to include people from the local area.

Based on the aforementioned discussion, the significance of skills development and capacity building during the operational phase is anticipated to be **HIGH** positive without mitigation, increasing to **VERY HIGH** positive with mitigation (see Table 19).

Table 19: Impact Summary - Skills development and capacity building

Issue: Skills development and capacity building (positive)		
Phases: Operational phase		
Criteria	Without Mitigation	With Mitigation
Intensity	Moderate change or improvement (M+)	Prominent change or improvement (H+)
Duration	Long-term (H)	Long-term (H)
Extent	Local area, extending far beyond site boundary (H)	Regional (VH)
Consequence	High	Very High
Probability	Probable	Definite
Significance	High (positive)	Very High (positive)
Nature of cumulative impacts		
	<p>Skills development and capacity building will enable workers to find alternative jobs after project closure and may put them in a position to establish new businesses and income streams.</p> <p>These workers will have a competitive advantage in finding jobs in the local area, should other major projects be developed.</p> <p>Operational expenditure may benefit some local businesses and will stimulate the local and regional economy. This will have a cumulative effect on job creation and multiplier effects.</p>	

Degree to which impact can be reversed	N/A
Degree to which impact may cause irreplaceable loss of resources	N/A
Degree to which impact can be mitigated/enhanced	Medium
Residual impacts	After enhancement, workers and municipalities could build on and expand the benefits from this impact.

9.3 Decommissioning Phase impacts

Assessing decommissioning phase impacts in advance is generally highly speculative. From a social perspective, the main impact, which is inevitable at project closure, is the loss of benefits to the local area and the dependency on the Project, if capacity building and LED projects did not contribute to the diversification of the local economy during the life of mine.

9.3.1 Dependency on the Project for Sustaining the Local Economy

9.3.1.1 Impact Description

Any predictions concerning the characteristics of the receiving socio-economic environment at the time of eventual project decommissioning are subject to a large margin of error, which reduces the accuracy of the impact assessment. However, several socio-economic impacts could arise when operations cease and the Smelter is decommissioned and should therefore form part of the EIA for decommissioning.

Socio-economic issues that should be investigated include:

- Impacts on the workforce – Psychological issues (distraction from normal activities, with a negative impact on performance and safety), and personal and family income issues (e.g. concerns about the effect of reduced income on family life).
- Impact on the workforce residing in Aggeneys – Permanent workers may be required to vacate their houses after retrenchment. It is possible that many residents would not make financial provision for alternative housing post closure. This may leave many workers destitute.
- Impacts on the local community – Economic dependency if no new jobs are created or if remuneration levels are lower than those in the mining sector. This might impact negatively on the local economy, demographic changes (e.g. migration of skilled workforce from the area), as well as dependency on some SLP initiatives (e.g. financial support for development programmes may be withdrawn by the Project).
- Impacts on the wider community - Financing of decommissioning (adequate funds may not have been provided for site rehabilitation), and maintenance of infrastructure (e.g. the Project's assistance with road maintenance).

-
- Impacts on surrounding district and local governments - Municipalities will no longer directly or indirectly (through provincial/national government) receive tax and royalty payments.

The life of the smelter could potentially be extended beyond the cessation of mining activities. The Project's impacts on land use is difficult to know. The potential use of the Project site for other land uses post-closure should be considered in closure planning.

When the smelter is decommissioned, there will be a reduction in the economic stimulus to maintain the current state of the local economy, and for further growth. This impact will be cumulative with regard to job losses, the closing down of businesses, and decrease in local investment and spending resulting in an overall economic slow-down.

It is not known if the Project's workforce will be transferred to other projects when the smelter is decommissioned. However, it is likely that local employment at the Project will be lost at closure. Those locally employed by the smelter 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 jobs once they have been retrenched. If they have accumulated sufficient work experience and have benefitted from training and mentorship, they will 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 are also possible because of external forces that reduce profitability, and/or technical innovation or changes to the Project's strategic business plan. Retrenchments would lead to a loss of income and local expenditure, particularly if other projects in the area also approach the end of their economic life at about the same time, and if no new mines/ projects are developed. Retrenched staff may be unable to maintain their lifestyle and see their level of indebtedness increasing. Inability to find alternative employment could also lead to an increase in social pathologies such as alcohol and drug abuse and crime.

Locally, suppliers could also be affected as the opportunity to sell goods and services to the Project and Aggeneys town will be lost. This will also affect those companies that supply these businesses with goods and services.

It is expected that the Project's LED and CSR initiatives will contribute to the diversification of the local and regional economy and an enabling environment that will foster sustainable community-based development. However, the Project's LED initiatives could increase, rather than reduce dependency of the local economy on the Project if they are not planned and managed in such a way to ensure their sustainability beyond the life of the Project.

A major concern of both Khâi-Ma Local Municipality and Namakwa District Municipality relates to the future of Aggeneys post mining and smelter activities. Currently, the municipalities do not have the resources and capacity to take over the management and maintenance of the town and this situation is expected to continue. The municipalities emphasised the need to plan for this event well in advance.

9.3.1.2 Recommended Mitigation Measures

An important approach to mitigating economic dependency on the Project is to develop alternative and sustainable livelihoods so that local communities and businesses are able to support themselves through other economic sectors at the time of project closure.

The Project, should work through the local municipalities and relevant government agencies to support the diversification of the local economy so that, by the time the Project closes down, non-mining sectors may be able to continue supporting the local economy. Commonly, these mitigation measures would be more effective if implemented in partnership with authorities.

The MPRDA requires that the Project's SLP provide strategies and measures that could prevent job losses 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 Project 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 because of downscaling or closure, alternatives to save jobs/avoid downscaling should be investigated beforehand. These could include developing and implementing turnaround strategies and mechanisms. The Project should, therefore, develop and implement strategies to introduce measures that may prevent job loss in the event of circumstances threatening permanent employment.

In accordance with legislative requirements, a Closure Plan (which includes socio-economic measures), has to be developed at the start of the operation and may include a social impact assessment and stakeholder consultation process. The content of the Closure Plan is prescribed in the NEMA Financial Provisioning Regulations of 2015 (GNR1147). From a SIA perspective, the Closure Plan should include the following:

- Predict the likely socio-economic impact of closure on employee households, local communities and the region, and recommended measures to address these impacts;
- Identify critical issues which could affect the on-going sustainability of employees and communities during closure, by means of a detailed consultation process;
- Identify alternative livelihood and socio-economic development opportunities for employees, as well as community-based projects which may become sustainable over the long term; and
- Provide financial and/ or technical support for the establishment of sustainable community projects.

Black Mountain Mining (Pty) Ltd has prepared a Closure Plan in 2018, which will be reviewed annually. The Closure Plan includes, amongst other things, a socio-economic overview and social residual risks, including risks relating to:

- Impacts on employees and their families;
- Impacts on the local communities; and
- Impacts on labour sending communities;

It is recommended that the Closure Plan provide more detail on how the Project will assess and mitigate/manage the social and economic impacts on individuals, communities and the local economy when retrenchments and closure of the Project are certain. When downscaling and/or retrenchment take place, the Project 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 if they are not of a retirement age.

Specific consultative measures related to closure must be defined in the SLP, including:

- Establishment of a Future Forum for the purposes of:
 - Promoting on-going discussions between employer and employee regarding the future of the Project;
 - Identifying solutions to problems/challenges which could arise and impact on the operation of the Project;
 - Discussing issues concerning retrenchment and downscaling, and identifying turnaround strategies;
 - Developing and implementing prevention and/or redeployment strategies in the management of retrenchments;
 - Coordinating the notification process during retrenchments or closure; and
 - Mobilising the Department of Labour Social Plan Services for technical assistance on job advice, and retrenchment during retrenchment and closure.
- Implementation, in accordance with the MPRDA, of a consultation process in terms of Sections 189 and 189 (A) of the Labour Relations Act. This consultation process will commence when the Project decides to reduce its operations. Project management and members of the Future Forum will administer this consultation process.
- Approaching the Department of Labour for the utilisation of its resources and support services, such as counselling services and placement services offered by its Labour Centres.
- Informing affected areas, such as the local municipality and labour sending areas, of imminent retrenchments. The full impact of such retrenchments will be disclosed to the municipalities and possible solutions discussed.
- As is required by law, the Project should in partnership with the relevant government departments, manage any process of this nature. The integration of the workforce into various LED projects, if required, will be done in collaboration with 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.

- Liaise with institutions (for example the National Productivity Institute)¹⁰ to identify other economic sectors and ventures that could absorb employees. This would involve the development of alternative livelihoods over a number of years to ensure that these livelihoods are well developed by the time the Project is decommissioned.
- Partner with LED programmes of other projects and the local municipalities, as this will strengthen project initiatives, whereas initiatives funded by the Project alone may not be as effective.
- Ensure that employees are trained in alternative skills and link this training to the initiatives described above.
- Provide financial life skills to employees.
- Develop an exit plan for the hand-over of Aggeneys post closure if the smelter will continue to operate after mine closure. In any event (mine/smelter closure), Black Mountain Mining (Pty) Ltd should take responsibility for developing the exit plan. This should be done in conjunction with the Northern Cape government and local authorities. Other large development projects in the area could participate in this process if they would consider taking over some of the accommodation for their staff.

Based on the aforementioned discussion, the significance of the impact is anticipated to be **VERY HIGH** negative without mitigation, and increasing to **HIGH** negative with mitigation (see Table 20).

Table 20: Impact Summary - Dependency on the Project for Sustaining the Local Economy

Issue: Economic dependency on the Project		
Phases: Decommissioning and closure		
Criteria	Without Mitigation	With Mitigation
Intensity	Prominent change, disturbance or degeneration (H)	Moderate change, disturbance or degeneration (M)
Duration	Very long, permanent (VH)	Medium term (M)
Extent	Local area, extending far beyond the site boundary (H)	Local area, extending far beyond the site boundary (H)
Consequence	Very High	High

¹⁰ The National Productivity Institute works towards ensuring that sustainable productivity performance in sectors and organisations is achieved in an inclusive, collaborative manner.

Probability	Probable	Possible/frequent
Significance	Very high (negative)	High (negative)
Nature of cumulative impacts	Job losses, mine closure and discontinuing of operational expenditure will have a cumulative negative effect on workers, businesses, local towns (including Aggeneys) and local municipalities. If mitigation measures are not effective, deterioration of the situation and further dependence on government can be expected	
Degree to which impact can be reversed	Low	
Degree to which impact may cause irreplaceable loss of resources	N/A	
Degree to which impact can be mitigated	Medium	
Residual impacts	Even with mitigation, closure of the smelter will have a negative effect on those who benefitted from the Project.	

10 Management measures

The social management measures proposed in this section aim to ensure that the anticipated negative social impacts of the Project on host communities and workers are mitigated and managed, and that the potential positive impacts are optimised and enhanced in a sustainable manner.

Effective integration of the impact assessment findings and the eventual implementation of management measures are, therefore, critical. It is also important that the social management measures recommended in the SIA be successfully integrated with other plans, as well as employment and procurement policies and the management of Business Partners and suppliers. Management measures should form part of the Project's EMP, SLP and overall Environmental and Social Management System (ESMS).

Table 21 describes the proposed social management measures.

Table 21: Proposed social management measures

Activities	Impact	Size and scale of impact	Phase	Mitigation type/measures	Time period for Implementation	Applicable standard, policy or law
Recruitment and employment	Employment creation during construction (Positive)	Local and regional	Construction	<ul style="list-style-type: none"> ▪ Implement a structured stakeholder engagement process (and grievance procedures), as well as direct communication channels to surrounding communities through the appointment of a Community Liaison Officer or similar function. ▪ Assign preferred employment status to local communities, and especially depressed households. ▪ Promote local and female employment within the employment policy of Black Mountain Mining (Pty) Ltd and Business Partners. ▪ Promote gender diversity as per the Recruitment Policy, ▪ As per the Recruitment Policy, ensure that all vacancies are open to all applicants without discrimination ▪ Continuously monitor Project and appointed Business Partners in terms of local employment targets; ▪ Clearly define and publish Black Mountain Mining (Pty) Ltd recruitment policies in surrounding communities, especially in those areas where the expectation for 	<p>Develop employment strategy prior to recruitment process prior to start of construction and on-going.</p> <p>Implement during recruitment process and maintain throughout construction, as well as operations (where applicable).</p>	<p>Mineral and Petroleum Resources Development Act (Act of 2002)</p> <p>Mining Charter</p> <p>National Environmental Management Act (Act of 1998)</p> <p>Employment Equity Act, 1998 (Act No. 55 of 1998)</p> <p>Basic Conditions of Employment Act, 1997 (Act No. 75 of 1997)</p>

Activities	Impact	Size and scale of impact	Phase	Mitigation type/measures	Time period for Implementation	Applicable standard, policy or law
				<p>employment is likely to be high, as well as where unemployment is high.</p> <ul style="list-style-type: none"> ▪ Ensure that local communities understand the Project's employment requirements in terms of skills and type of employment. ▪ Develop eligibility criteria for local employment and clearly communicate this to potential beneficiary communities, through a structured stakeholder engagement mechanism. ▪ Promote labour-intensive construction methods. ▪ Create a registry, potentially together with the relevant municipal department and/or NGOs active in the broader area, for jobseekers to document relevant qualifications/experience. ▪ Undertake recruitment via a registry of jobseekers and potentially coordinated through the Department of Labour. ▪ Ensure tender criteria include training and skills development of the locally recruited workforce. ▪ Provide local employees with reference letters for work 		<p>Labour Relations Act, 1995 (Act No. 66 of 1995)</p> <p>Skills Development Act (Act No. 97 of 1998 as amended)</p> <p>MPRDA, Mining Charter</p> <p>Company employment policies</p>

Activities	Impact	Size and scale of impact	Phase	Mitigation type/measures	Time period for Implementation	Applicable standard, policy or law
				undertaken and certificates of completion for any in-house training.		
Employment	Multiplier effects on the local economy (Positive)	Local and regional	Construction	<ul style="list-style-type: none"> ▪ As for maximising employment benefits: <ul style="list-style-type: none"> ▪ Give preference first to capable local service providers; ▪ Compile a database of service providers and offer contracts to qualifying service providers, should they be interested. ▪ Formalise local procurement targets in Black Mountain Mining (Pty) Ltd procurement policy, and include in Business Partner agreements. ▪ Monitor of Business Partner adherence to procurement policies; ▪ Clearly advertise the nature and extent of local procurement opportunities during the project phases. ▪ Develop internal mechanisms for unbundling contracts. ▪ Establish appropriate communication mechanisms with surrounding communities. 	<p>At start of construction and on-going.</p> <p>As above, develop strategy during planning phases and implement during recruitment process.</p> <p>Maintain throughout construction and into operation.</p>	<p>Mineral and Petroleum Resources Development Act (Act of 2002)</p> <p>Mining Charter</p> <p>IDPs and SPFs of affected municipalities</p> <p>Company CSI Policy</p> <p>CSR/LED plans</p>

Activities	Impact	Size and scale of impact	Phase	Mitigation type/measures	Time period for Implementation	Applicable standard, policy or law
Construction activities	Disruption of daily movement patterns (Negative)	Local and regional	Construction	<ul style="list-style-type: none"> Consider the establishment of a community forum (or similar structure) to serve as a communication channel with potentially affected residents. Inform affected parties about pending construction activities and potential disruptions. Involve affected parties in the formulation of mitigation measures, where appropriate. Facilitate safe crossing, through traffic calming measures or walkways, for pedestrians at the N14/Gamsberg entrance/access road. Ensure satisfactory repair of local roads affected by construction activities after construction is completed. 	<p>Construction and on-going.</p> <p>Ensure that traffic management and similar plans are approved and in place prior to construction</p> <p>Ensure all contractor agreements take into account relevant requirements.</p> <p>Maintain throughout construction and include monitoring provisions.</p>	<p>Mineral and Petroleum Resources Development Act (Act of 2002)</p> <p>National Environmental Management Act (Act of 1998)</p> <p>ISO requirements</p> <p>Mine Health and Safety Act (Act 29 No. of 1996)</p> <p>Company Policies on Environment (SHEQ)</p>
Construction and smelter activities	Project-induced population influx (in-migration), e.g. increased pressure on local services, establishment	Local	Construction and operation	<ul style="list-style-type: none"> Develop robust site-specific regulations to manage unlawful occupation and sub-letting of housing in Aggeneys and potential other towns where accommodation will be provided. 	<p>Develop plans prior to start of construction. Determine scale of management intervention (situation analysis).</p> <p>Implement prior to construction to ensure any unforeseen settlement is controlled.</p>	<p>Mineral and Petroleum Resources Development Act (Act of 2002)</p>

Activities	Impact	Size and scale of impact	Phase	Mitigation type/measures	Time period for Implementation	Applicable standard, policy or law
	and/or growth of informal settlements, increase in social pathologies, and enmity between newcomers and incumbent population (Negative)			<ul style="list-style-type: none"> ▪ Develop suitable protocols to identify and address cases of unlawful occupation or sub-letting of housing, in this regard basic commitments can be included in agreements issued to project beneficiaries and contracts issued to security Business Partners and administrative structures managing the housing complex. ▪ Clearly communicate (through local government and engagement function) the intention of giving preferential employment to 'legitimate' locals/local communities. ▪ Ensure that Black Mountain Mining (Pty) Ltd takes into account expected population influx in towns where permanent accommodation will be provided. Liaise with local government to ensure housing provision is in line with local infrastructure and spatial development planning. ▪ Implement HIV/ AIDS awareness and general health campaign among employees and sub-contractors to avoid or minimise social pathologies associated with population influx. 	Maintain throughout construction and operation.	<p>National Environmental Management Act (Act of 1998)</p> <p>SPLUMA (Act 16 of 2013)</p> <p>IFC Guidelines on Project-induced in-migration</p> <p>IDPs and SPFs of affected municipalities</p> <p>Company CSI Policy</p> <p>IDPs and SDFs of affected municipalities</p> <p>Land use plans</p>

Activities	Impact	Size and scale of impact	Phase	Mitigation type/measures	Time period for Implementation	Applicable standard, policy or law
				<ul style="list-style-type: none"> ▪ Identify and record criminal activities involving members of the Project’s workforce or project beneficiaries, to verify claims of surrounding communities and to pre-empt project-induced crime becoming a potentially significant problem. ▪ Ensure clear identification of workers and strict controlled access at the construction site and Project. ▪ Ensure that Black Mountain Mining (Pty) Ltd develop robust site-specific measures to monitor access and occupation of housing units in Aggeneys and include these measures in contracts issued to security Business Partners and administrative structures managing the town. ▪ Establish standard operating procedures for the control and/or removal of illegal settlers and loiterers on company-owned / managed property. ▪ Ensure that recruitment and employment policies, as well as beneficiary selection criteria are fair, transparent and readily available. 		

Activities	Impact	Size and scale of impact	Phase	Mitigation type/measures	Time period for Implementation	Applicable standard, policy or law
				<ul style="list-style-type: none"> Establish and implement an accessible grievance mechanism, which is regularly monitored. Establish and implement, a conflict management in the event of conflict between the locals and non-locals 		
Construction activities	Impacts related to the presence of construction workforce (Negative)	Local	Construction	<ul style="list-style-type: none"> Include health and safety requirements in Business Partner contracts and inform workers of construction accommodation policies and safety requirements. Ensure proper access control at the proposed construction camp on site and provide adequate facilities, including sanitation cooking, and refuse removal. Sensitise workforce on interaction with cultural norms of local community. Ensure that rules of construction worker conduct is provided in the Project's management plans. 	<p>During project planning, determine need for camp.</p> <p>Strategy to address chosen accommodation decision required several months before construction starts.</p> <p>Management and monitoring throughout construction until camp is demolished and rehabilitated.</p>	
Construction activities	Health, safety and security (Negative)	On site and local	Construction, operation and decommissioning	<ul style="list-style-type: none"> Implement a 'road safety awareness' programme to alert people (including children and project beneficiaries) to the relevant dangers of road usage. Implement standard measures with regard to safe travelling times, speed 	Develop programmes prior to start of construction. Ensure all Business Partner packs/agreements consider such requirements.	Mineral and Petroleum Resources Development Act, (Act of 2002)

Activities	Impact	Size and scale of impact	Phase	Mitigation type/measures	Time period for Implementation	Applicable standard, policy or law
				<p>limits, dust suppression, traffic calming measures, construction signage, safe road diversions and appropriate pedestrian crossing.;</p> <ul style="list-style-type: none"> ▪ Where possible, collaborate with and support local firefighting groups. ▪ Inform potentially affected parties of potential health and safety impacts, through the appointed Community Liaison Officer (CLO). ▪ Ensure health, safety and risk management plans are in place to protect the workforce and undertake HIV/Aids awareness raising for workers 	<p>Maintain throughout construction, particularly during times of increased activity.</p>	<p>Mine Health and Safety Act (Act 29 No. of 1996)</p> <p>National Environmental Management Act (Act of 1998)</p> <p>IFC Performance Standard 4: Community Health, Safety and Security</p> <p>ISO requirements</p> <p>International Human Rights Guiding Principles</p> <p>Company policies on Health and the Environment (SHEQ)</p>

Activities	Impact	Size and scale of impact	Phase	Mitigation type/measures	Time period for Implementation	Applicable standard, policy or law
Recruitment for operational needs	Contribution to the local economy through employment creation and economic stimulus (Positive)	Local	Operation	<ul style="list-style-type: none"> Provide focused training to construction phase employees from the host communities to increase their chances for employment during the operational phase. Implement measures recommended for maximising benefits from local employment, and economic multiplier effects. 	At start of operation and on-going Can be initiated during construction phase.	Mining Charter Mineral and Petroleum Resources Development Act, (Act of 2002)
Training of permanent workforce	Skills development and capacity building (Positive)	Local and regional	Operation	<ul style="list-style-type: none"> Prepare a detailed skills inventory for the Project. Skills database should be updated with personal training data. Establish training programmes based on the skills needs and gaps identified for the Project. Training should preferably be National Qualifications Framework accredited and training providers must be registered with the relevant Sector Education and Training Authority. Continue implementing the SLP Adult Basic Education and Training (ABET) Programme, for both workers and if feasible, to people from local communities. Prioritise inclusion of women and vulnerable people in ABET programmes and other training 	At the start of construction and on-going. Duration until closure phase.	Mining Charter Mineral and Petroleum Resources Development Act, (Act of 2002) SLP and CSR policies

Activities	Impact	Size and scale of impact	Phase	Mitigation type/measures	Time period for Implementation	Applicable standard, policy or law
				<p>programmes available to local communities.</p> <ul style="list-style-type: none"> ▪ Continue to implement the Community Skill Development Programme at applicable TVETs. ▪ Provide opportunities for those locals who received training to be employed on the Project or are considered for procurement contracts with the Project. ▪ Identify suitable students from local schools to participate in company bursaries and internship programmes through extending the SLP Skills Development Plan. ▪ Continue with the School Assistance Programme 		
Project decommissioning and closure phase	Dependency on the Project for sustaining the local economy (Negative)	Local	Closure	<ul style="list-style-type: none"> ▪ Implement the Closure Plan that includes measures to address the social impacts of closure. ▪ Assess the likely socio-economic impact of closure on employee households, local communities and the region. ▪ Identify critical issues, which could affect the on-going sustainability of employees and communities during 	<p>Regularly update closure plan until decommissioning.</p> <p>Implement Aggeneys exit plan as soon as appropriate but well before closure.</p>	<p>Mineral and Petroleum Resources Development Act (Act of 2002)</p> <p>Mining Charter</p> <p>National Environmental</p>

Activities	Impact	Size and scale of impact	Phase	Mitigation type/measures	Time period for Implementation	Applicable standard, policy or law
				<p>closure, by means of a detailed consultation process.</p> <ul style="list-style-type: none"> ▪ Identify alternative livelihood and socio-economic development opportunities for employees, as well as community-based development projects, which may become sustainable over the long term. ▪ Provide financial and/or technical support for the establishment of sustainable community projects. ▪ Establish a Future Forum for the purposes of: <ul style="list-style-type: none"> ▪ Promoting continuing discussions between employers and employees' representatives. ▪ Identifying solutions to problems and challenges, which may arise and affect the operation of the Project. ▪ Discussing issues regarding retrenchment and downscaling, and identifying turnaround strategies (where feasible). ▪ Developing and implementing prevention and redeployment strategies in the management of retrenchments. 		<p>Management Act (Act of 1998)</p> <p>Project Closure Plan</p>

Activities	Impact	Size and scale of impact	Phase	Mitigation type/measures	Time period for Implementation	Applicable standard, policy or law
				<ul style="list-style-type: none"> ▪ Coordinating the notification process during retrenchments or closure; ▪ Mobilising the Department of Labour (DoL) Social Plan Services for technical assistance on job advice, and retrenchment during retrenchment and closure. ▪ Implement a consultation process in accordance with Section 52 (1) of the MPRDA, and Sections 189 and 189(A) of the Labour Relations Act. ▪ Approach the DoL for the utilisation of its resources and support services, such as counselling services and placement services offered by its Labour Centres. ▪ Inform affected areas, such as the local municipality and labour sending areas, of imminent retrenchments. The full impact of such retrenchments must be disclosed to the municipalities and possible solutions discussed. ▪ Liaise with institutions such as the National Productivity Institute to identify other economic sectors and ventures that can absorb employees. 		

Activities	Impact	Size and scale of impact	Phase	Mitigation type/measures	Time period for Implementation	Applicable standard, policy or law
				<ul style="list-style-type: none"> ▪ Partner with LED programmes (or similar) of local municipalities, as this will strengthen project initiatives. ▪ Ensure that local (and other) employees are trained in alternative skills. Link training to the initiatives described above. ▪ Provide financial life skills to employees. ▪ Develop an Aggeneys Exit Plan in conjunction with government. 		

11 Monitoring

It is proposed that a monitoring programme be developed and implemented to monitor the implementation of social management actions. Furthermore, it is recommended that this is conducted by a competent monitoring and evaluation officer (through allocating responsibility to a suitable existing employee, or by appointing a suitable person)) as the implementation of monitoring tools (surveys, databases, etc.) will require specialised skills.

The monitoring and evaluation (M&E) approach recommended in this section is based on the "inputs-outputs-outcomes-impacts" model, which assesses performance of each level of the "results chain." As such, the following four categories of M&E indicators have been defined:

- **Input indicators:** These indicators measure the quantity, quality, and timeliness of resources – human, financial and material, technological and information – provided for an activity/ project/ programme;
- **Output indicators:** These indicators measure the quantity, quality, and timeliness of the products – goods or services – that are the short-term results of an activity/ project/ programme;
- **Outcome indicators:** These indicators measure the intermediate results generated by programme outputs. They often correspond to any change in people's behaviour as a result of the programme; and
- **Impact indicators:** These indicators measure the quality and quantity of long-term results generated by programme outputs (e.g. measurable change in quality of life, reduced incidence of diseases, increased income, reduced mortality, etc.).

Table 22 provides a framework for monitoring the implementation and performance of social management actions. Each indicator is classified in terms of the four categories as defined above. Objective means of verification, optimal frequency of reporting and responsibility for verification are also defined.

Table 22: Monitoring framework

Indicator	Type of indicator				Means of verification	Reporting frequency	Responsible party
	Input	Output	Outcome	Impact			
Employment creation							
Local Employment Policy, which includes SLP and BBBEE requirements and gender diversity.	X				Local Employment Policy on file	Once-off	HR Department
Applicable requirements of the existing Recruitment and Selection Policy are applied when employing locally		X			Recruitment records, checked against policy	Every 6 months	HR Department
Local employment requirements are included in Business Partner management plans		X			Business Partner management plans on file	Monthly	Procurement and Supply Chain Management Department
Labour pool database is developed and kept up-to-date	X				Date of latest revision of database	Every 6 months	Procurement and Supply Chain Management Department
Targets in terms of local recruitment are met by Project and Business Partners			X		Records of employee places of origin	Monthly	HR Department
Percentage of locally-recruited employees increases over a 5-year period				X	Records of employee places of origin	Every 5 years	HR Department
Turnover among locally-recruited employees is below 5%				X	Employee records	Annually	HR Department
Skills development and capacity building							
Detailed skills inventory is prepared for the Project	X				Skills inventory on file	Once-off, reviewed every 5 years	HR Department, with input from technical departments
Appoint qualified Technical Consultant for Skills Survey	X				Consultant appointment contract	Once-off at start of operation	Procurement and Supply Chain Management Department; HR Department and CSR Manager
Skills survey is undertaken in the local communities & local skills database is developed		X			Report & database on skills survey results	Once-off at start of operation, updated every 5 years	Consultant; HR Department and CSR Manager
Qualified Training Consultant is appointed to develop training programmes	X				Consultant appointment contract	Once-off at start of operation	HR, Procurement and Supply Chain

Indicator	Type of indicator				Means of verification	Reporting frequency	Responsible party
	Input	Output	Outcome	Impact			
							Management Department; CSR Manager
Training programme is developed based on the skills gaps identified for the Project		X			Training programme approved by Social Manager & HR Department	Once-off at start of operation, updated every 5 years	Consultant; CSR Manager Consultant; HR Manager, CSR Manager
Training programme is implemented			X		Annual SLP Report and Workplace Skills Plan Report	Annually	CSR Manager, HR Department
Staff skills levels and job performance improvement				X	Staff performance appraisals	Annually	HR Department, with input from line managers
Skills levels in local communities improvement				X	Follow-up skills surveys	Every 2 years	HR Department, with input from line managers
ABET programmes are implemented for both workers and people from local communities			X		Training records on file	Annually	Training Service Provider; CSR Manager
Locals who received training (and qualified) are employed on the Project or receive procurement contracts with the Project				X	Employee and procurement records	Annually	HR Department; Supply chain management
SLP's Skills Development Plan (<i>Skills Development Programmes and Learnership Scheme</i>) expanded to include more people from the local area			X		Targets set out in training & learnership plans	Once-off at start of operation, updated every 5 years	HR Department; CSR Manager
Targets are met in terms of enrolment of local community members in training programmes and learnerships				X	Training and learnership records on file	Annually	Training Service Provider; CSR Manager
Targets are met in terms of participation of suitable people from local communities in company bursaries and internships programmes				X	Records of bursaries and internships provided	Annually	HR Department
Local and regional economic development							
Procurement and Supply Chain Management Department and Committee are established	X				Record of Department and Committee establishment	Once-off at start of operation	HR Department; CSR Manager
Management and operational procedures are developed to ensure preferential procurement in accordance with BBBEE and the Mining Charter	X				Procedures are on file	Once-off at start of operation	Procurement and Supply Chain Management Department

Indicator	Type of indicator				Means of verification	Reporting frequency	Responsible party
	Input	Output	Outcome	Impact			
Procurement Progression Plan is developed as stipulated in the SLP	X				Procurement Progression Plan on file; included in SLP	Once-off at start of operation, updated every 5 years	Procurement and Supply Chain Management Department; HR Department
Skills development and training targets are defined for local procurement, and included in Business Partner management plans		X			Targets included in Procurement Progression Plan and Business Partner management plans	Once-off at start of operation, updated every 5 years	Procurement and Supply Chain Management Department; HR Department
Skills development and training targets for local procurement are met			X		Training records on file	Annually	Training Service Provider; CSR Manager
LED consultant is appointed for local business capacity assessment	X				Consultant appointment contract	Once-off at start of operation	Procurement and Supply Chain Management Department; CSR Manager
Inventory is compiled of local businesses		X			Inventory on file	Once-off at start of operation, updated every 5 years	Consultant; CSR Manager
Capacity assessment is undertaken of local businesses		X			Report on capacity assessment	Once-off at start of operation, updated every 5 years	Consultant; CSR Manager
Existing supplier database is updated regularly to include suppliers that have received training and support, and could qualify for procurement opportunities			X		Date of latest revision of database	Annually	Procurement and Supply Chain Management Department
Procurement opportunities are identified that may be available to local Business Partners		X			Record of identified opportunities	Once-off at start of operation, updated every 5 years	Procurement and Supply Chain Management Department, with input from technical departments
Goods and services are identified that could be supplied by local Business Partners (e.g. through unbundling of contracts)		X			Record of identified opportunities	Once-off at start of operation, updated every 5 years	Procurement and Supply Chain Management Department, with input from technical departments

Indicator	Type of indicator				Means of verification	Reporting frequency	Responsible party
	Input	Output	Outcome	Impact			
Plan is developed for SMME support and partnerships		X			Completed plan on file	Once-off at start of operation, updated every 5 years	Consultant; CSR Manager, Commercial Manager
Local businesses are aware of the procurement needs of the Project and have sufficient information to prepare tenders			X		Record of enquiries/ responses received to advertised tenders	Annually	Procurement and Supply Chain Management Department
Local businesses actively participate in tenders				X	Record of tenders awarded	Annually	Procurement and Supply Chain Management Department
Community Development Forum is established	X				Record of Forum establishment	Once-off at start of operation	CSR Manager
Regular meetings of the Community Development Forum are held		X			Minutes of meetings	Every 3 months	Community Development Forum; CSR Manager
Technical Consultant is appointed to develop LED Plan	X				Consultant appointment contract	Once-off at start of operation	Procurement and Supply Chain Management Department; CSR Manager
SLP LED Plan is reviewed and refined		X			SLP update	Once-off at start of operation, updated every 5 years	HR Department; CSR Manager
SLP LED plan is implemented			X		SLP implementation reports	Annually	HR Department; CSR Manager
LED impact indicators (as defined in SLP) are achieved				X	SLP implementation reports	Annually	HR Department; CSR Manager
CSI Policy and Programme are developed and signed off by senior management	X				Local Employment Policy on file	Once-off	CSR Manager; senior management
Service providers are appointed to assist with/manage CSI & community development projects		X			Service providers' appointment contracts	Once-off at start of operation	Procurement and Supply Chain Management Department; CSR Manager

Indicator	Type of indicator				Means of verification	Reporting frequency	Responsible party
	Input	Output	Outcome	Impact			
CSI & community development projects are implemented			X		Annual CSI implementation reports	Annually	Service provider; CSR Manager
Impact indicators (as defined in CSI Programme) are achieved				X	Annual CSI implementation reports	Annually	HR Department; CSR Manager
Disruption of movement patterns							
Implement mitigation measures of specialist reports	X				Provisions as per specialist reports	Monthly	SHEQ Manager CSR Manager
Measures implemented			X		Reporting as per specialist reports	On-going during construction	SHEQ Manager CSR Manager
Grievance Procedures implemented					Grievance log and outcome reports	Every 3 months	SHEQ Manager CSR Manager
Health Safety and Security							
Develop a Health Safety and Security Plan (HSSP)	X				Consultant appointment contract	Once-off at start of operation	Procurement and Supply Chain Management Department; CSR Manager
HSSP is adopted		X	X		Adoption Plan is signed-off by senior management	Once-off at start of operation	Senior management
HSSP is implemented			X		Quarterly and annual reports submitted and approved	Every 4 months and annually	SHEQ Manager CSR Manager
Relevant mitigation measures in the EMPR are implemented			X		Environmental & social monitoring reports	Annually	SHEQ Manager CSR Manager
Policing Forum is established			X		Forum ToR, Minutes of founding meeting	Once-off at start of operation	CSR Manager
Policing Forum actively participates in addressing community safety and security issues				X	Minutes of forum meetings	Every 3 months	Policing Forum; CSR Manager
HIV/AIDS policy is expanded to include HIV awareness campaigns in communities and provision of Voluntary Counselling and Testing (VCT) for communities	X				HIV/AIDS Policy on file	Once-off	SHEQ Department; senior management

Indicator	Type of indicator				Means of verification	Reporting frequency	Responsible party
	Input	Output	Outcome	Impact			
Service providers appointed to implement HIV awareness campaigns in communities and provide VCT for communities		X			Service providers' appointment contracts	Once-off at start of operation	Procurement and Supply Chain Management Department; CSR Manager, HR Department
HIV awareness campaigns in communities are implemented			X		HIV/AIDS prevention programme implementation reports	Annually	Service provider; CSR Manager
HIV awareness in communities is improved, and VCT services are accessed				X	Sample survey on community knowledge, awareness and practice related to health & safety	Annually	CSR/LED Department
Project-induced population influx							
Investigate partnerships with local authorities	X				Strategic projects have been identified with municipalities	At start of operation	CSR/LED Manager Public Relations Manager Legal Department
Develop partnership agreements		X			Agreements developed and signed	At start of operation	CSR/LED Manager, HR Department, Public Relations Manager
Sign agreements with local authorities on assistance with IDPs and SDFs			X		Sign-off completed and documents on file	On signing of agreements	CSR/LED Manager Public Relations Manager
Include agreements in Project SLP/LED and CSI				X	SLP and CSI programmes adapted accordingly	Reporting as per SLP requirements and annually	CSR/LED Manager Public Relations Manager
Dependency on the Project for sustaining local development (Social Closure)							
Social Closure Plan is developed Aggeney's Exit Plan is developed	X				Plan on file	5 years before closure	Consultant (Exit Plan) CSR Manager, SHEQ Manager Senior management
SLP and LED Plan are regularly updated		X			SLP updated	Every 5 years	HR Department; CSR Manager

Indicator	Type of indicator				Means of verification	Reporting frequency	Responsible party
	Input	Output	Outcome	Impact			
Exit Plan is regularly updated		X			Exit Plan updated	Every 5 years	Consultant
Regular reporting is undertaken on SLP and LED Plan implementation			X		SLP implementation reports	Annually	HR Department; CSR Manager
Objectives as defined in Social Closure Plan and Aggeneys Exit Plan are achieved				X	Closure Plan implementation report	At closure	Senior management HR department CSR manager

12 Conclusion

The review of available information highlights the struggles of local municipalities to improve the living conditions of their residents. Stimulating and strengthening the economy through various sector development interventions is, therefore, a key priority for these municipalities. Mining in general and the proposed Gamsberg Smelter in particular, would make an important contribution in this regard. The proposed smelter would make a significant contribution to the national and regional economy, while also stimulating local development.

There are various potential negative and positive impacts associated with the construction and operation of the Project. These impacts have been assessed during the impact assessment phase of the SIA. In addition to the management measures, a monitoring framework have been provided to manage the potential identified impacts. The assessment of the social impacts concluded that there are no social impacts that would create a fatal flaw scenario. Moreover, the significance of negative social impacts could be mitigated, while positive impacts can be enhanced if the enhancement measures are implemented.

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