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ENVIRONMENTAL

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## Xivono Weltevreden Coal Mine Project, near Belfast in Mpumalanga

## Social Impact Assessment

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**Project Number:**

MBU5710

**Prepared for:**

Xivono Mining (Pty) Ltd

November 2019

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Digby Wells and Associates (South Africa) (Pty) Ltd  
Co. Reg. No. 2010/008577/07. Turnberry Office Park, 48 Grosvenor Road, Bryanston, 2191. Private Bag  
X10046, Randburg, 2125, South Africa  
Tel: +27 11 789 9495, Fax: +27 11 069 6801, info@digbywells.com, www.digbywells.com

---

Directors: GE Trusler (C.E.O), LF Stevens, J Leaver (Chairman)\*, NA Mehlomaku\*, DJ Otto  
\*Non-Executive

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Janet Mkhabela	Author		November 2019
Jennifer Grant	Technical Review		November 2019
Justin du Piesanie	Senior Review		November 2019

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## DECLARATION OF INDEPENDENCE

### Digby Wells and Associates (South Africa) (Pty) Ltd

#### Contact Person: Janet Mkhabela

Digby Wells House                      Tel:    011 789 9495  
48 Grosvenor Road                      Fax:    011 789 9498  
Turnberry Office Park,                      E-mail:    janet.mkhabela@digbywells.com  
Bryanston  
2191

I, Janet Mkhabela as duly authorised representative of Digby Wells and Associates (South Africa) (Pty) Ltd., hereby confirm my independence (as well as that of Digby Wells and Associates (South Africa) (Pty) Ltd.) and declare that neither I nor Digby Wells and Associates (South Africa) (Pty) Ltd. have any interest, be it business, financial, personal or other, in any proposed activity, application or appeal in respect of Xivono Mining (Pty) Ltd, other than fair remuneration for work performed for the proposed Weltevreden Mine in the Mpumalanga Province.



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<b>Full Name:</b>	Janet Mkhabela
<b>Title/ Position:</b>	Social and Stakeholder Engagement Consultant
<b>Qualification(s):</b>	MSocSc (Policy and Development Studies)
<b>Experience (Years):</b>	12
<b>Registration(s):</b>	N/A

## EXECUTIVE SUMMARY

### Project Description

A Socio-Economic Impact Assessment (SIA) was prepared for Xivono Mining (Pty) Ltd (hereafter Xivono) for the proposed Weltevreden Coal Mine. Digby Wells Environmental (hereinafter Digby Wells) has been appointed by Xivono to aid in the Mining Right Application and National Environmental Management Act, 1998 (Act No. 107 of 1998) (NEMA) Application Process for the proposed Weltevreden Coal Mine situated approximately 8 km from the town of Emakhazeni (Belfast) in Mpumalanga, South Africa.

Xivono has applied for a Mining Right in terms of the Minerals and Petroleum Resources Development Act, 2002 (Act 28 of 2002) (MPRDA), reference number MP 30/5/1/2/2/10250 MR.

The SIA considers the potential socio-economic impacts for the Construction, Operational and Phase activities that will be undertaken for the Project.

### Methodology

The study was designed to comply with the relevant national legislative requirements, such as those stipulated in the NEMA and the MPRDA, as well as international best-practice standards (e.g. International Finance Corporation Performance Standards, IFC PS).

The activities undertaken as part of the study included the definition of study areas and the collection of primary and secondary data.

Three study areas were defined: The primary study area, the secondary study area and the regional study area. The primary study area was defined as the properties that fall within the Mining Right boundary (Figure 3-1). The secondary study area was defined as Wards 1, 3 and 8 of Emakhazeni Local Municipality, Nkangala District Municipality, which encompasses the primary study area (Figure 3-2). The regional study area was defined as the local municipalities of the Nkangala District, followed by the Mpumalanga Province, which encompass both the primary and secondary study areas (Figure 3-3).

The primary data collection entailed focus group discussions and interviews with members of affected households<sup>1</sup> and communities<sup>2</sup> and other key stakeholders. A socio-economic survey of affected households in the primary study area was not undertaken as part of the study.

The secondary data was derived from a number of sources (Section 3.3). Socio-economic indicators for the households and populations within the primary and secondary study areas,

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<sup>1</sup> A group of people who live together at least four nights a week, eat together and share resources, or a single person who lives alone.

<sup>2</sup> A social group, regardless of size, living in a specific locality and sharing a common cultural and / or historical heritage.

located within Wards 1, 3 and 8 of the Emakhazeni Local Municipality, were derived from official Statistics South Africa (StatsSA) data sources. These sources included the Census 2011 and Community Survey 2016 statistics, accessed through Wazimap. It is acknowledged that the official statistics cited in the report may not reflect the current socio-economic status of households and populations within these wards.

The assessment of the socio-economic impacts identified for the proposed Project is based on an impact rating process designed to provide a numerical rating of the significance of each impact. The significance rating process follows the established impact / risk assessment formula where significance is a function of the consequence of an event multiplied by the probability of its occurrence.

Several potential socio-economic impacts were identified for each phase of the Project and realistic measures were developed for mitigating, and if possible, avoiding the negative socio-economic impacts, and enhancing the benefits of positive socio-economic impacts.

## **Baseline Socio-Economic Profile**

The baseline socio-economic data presented for the populations and households in Wards 1, 3 and 8 of the Emakhazeni Local Municipality, which encompass the primary and secondary study areas, was derived from official StatsSA data sources. The data collected through focus group discussions, interviews and site visits provided additional information on the socio-economic context of the primary study area.

The predominant ethnolinguistic groups found in Wards 1, 3 and 8 were Black African, although 43% of Ward 8's population was comprised of Whites. The languages most commonly spoken by households were isiZulu, isiNdebele and siSwati in Wards 1 and 3; while Afrikaans (43%), isiZulu and isiNdebele were predominant in Ward 8.

Wards 1 and 3 had an equal gender distribution while Ward 8 had slightly more males than females. Of the wards, Ward 3 had the largest proportion of female headed households (47%) while Ward 8 had the least at 30%.

The population of the wards is predominantly (average of 59%) comprised of people in the economically active age group (18 to 65 years). In terms of employment status, Wards 1 and 8 had a much higher proportion of employed people (47% and 48% respectively) compared with Ward 3 (29%). The proportion of unemployed people was however higher in Ward 1 when compared with the other two wards.

Regarding individual annual income levels, Ward 1 had the highest proportion of individuals with no income (10%) and the highest proportion (34%) of people in the R0 to R20 000 and R20 001.00 to R40 000.00 income brackets (34% and 29%, respectively). The comparative proportions of employed earning annual incomes in the lower brackets of less than R40 001 in Ward 3 and Ward 8 were 55% and 46% respectively.

On average 83% of the households within the wards occupy formal houses, while an average of six percent (6%) reside in shacks. Ward 8 had the largest proportion of households residing in both traditional house structures and other informal houses, including farm dwellings as shown.

The predominant water sources for households (average 87%) is piped water from a regional or local service provider, while an average of seven percent (7%) of households source water from boreholes. Almost all households in Ward 3 had access to piped water compared to the other wards. Some households in Ward 1 sourced water from tankers and springs, while in Ward 8 households accessed water from dams, streams, etc.

Most households across the wards (average 88%) have access to flush / or chemical toilets. The highest percentage of households who used unventilated pit latrines or did not have access to any sanitation facilities was found in Ward 8.

The primary study area is rural in nature with households sparsely located across the area. The fifteen farm dweller households in the primary study live in residential structures made from mud and do not have access to basic services like electricity, tapped water and flush

toilets. Most of these household members are unemployed and engage in subsistence livestock keeping.

### **Potential Socio-Economic Impacts**

A total of 12 socio-economic impacts were identified for the proposed Project, five positive and seven negative impacts.

The positive impacts associated with the proposed Project include employment creation during the Construction Phase, employment creation during the Operational Phases, multiplier effects on the local and regional economy, growth of the local economy, and community development. The successful implementation of the enhancement measures listed for each of these positive impacts in Section 5 will enhance the significance of employment creation and multiplier effects on the local and regional economies from minor positive to moderate positive during the Construction and Operational Phases, while the significance of community development impacts can be enhanced from negligible to minor positive.

The negative impacts associated with the proposed Project include the loss of agricultural and grazing land, displacement of farm dweller households, community health and safety impacts, traffic impacts, disturbance of sense of place, blasting impacts and mine closure impacts. While none of the negative impacts can be avoided if the Project is approved, their intensity, duration and significance can be reduced if the mitigation measures listed for each impact in Section 5 are successfully implemented. With mitigation, the significance of negative impacts related to loss of agricultural and grazing land, displacement of farm dweller households, sense of place, blasting impacts and mine closure can be reduced from moderate negative to minor negative. Similarly, with mitigation, the significance of negative impacts related to community health and safety and traffic impacts can be reduced from minor negative to moderate negative.

A summary of the socio-economic impacts, the recommended mitigation / enhancement measures, and the pre-mitigation and post-mitigation significance is presented in Table A.

**Table A: Potential Socio-Economic Impacts**

Impact	Pre-mitigation	Mitigation / Enhancement Measures	Post-mitigation
<b>Construction Phase</b>			
Employment creation during construction	Minor positive (40)	<ul style="list-style-type: none"> <li>▪ Develop and implement a recruitment policy that stipulates quotas for employment of members of communities, including females and youth, in primary and secondary study areas;</li> <li>▪ Recruitment policies must be clearly defined and publicised in potential labour sending areas, especially in primary and secondary study areas;</li> <li>▪ Clearly communicate the Project's employment requirements in terms of skills, type of employment; and time frames especially for temporary and short-term jobs;</li> <li>▪ Utilise the exist ELM database for job seekers for recruitment purposes;</li> <li>▪ Comply with minimum wage requirements for unskilled labour and all other requirements, including gender equity, of the Employment Equity Act to ensure maximum benefits accrue to workers;</li> <li>▪ Utilise the existing ELM contractor database for the appointment of qualified contractors;</li> <li>▪ All tender documentation of contractors should clearly outline the local labour recruitment requirements in Xivono's recruitment policy;</li> <li>▪ Where possible offer skills development preferably prior to, but at least during the start of the construction phase to members of communities in the primary and secondary study areas to improve their employability;</li> <li>▪ Continuous external monitoring of Xivono and its subcontractors in terms of local employment targets;</li> </ul>	Minor positive (55)

Impact	Pre-mitigation	Mitigation / Enhancement Measures	Post-mitigation
		<ul style="list-style-type: none"> <li>▪ Provide local employees with reference letters for work undertaken and certificates of completion for in-house training; and</li> <li>▪ Implement a structured stakeholder engagement process, as well as direct communication channels to surrounding communities through the appointment of a Community Liaison Officer (CLO).</li> </ul>	
Multiplier effects on the local and regional economy	Minor positive (48)	<ul style="list-style-type: none"> <li>▪ Develop a procurement policy with local procurement targets to ensure maximum use of local SMMEs and BBBEE companies and update SLP accordingly;</li> <li>▪ Include local procurement targets in contractors' Special Conditions of Contract where appropriate;</li> <li>▪ Monitor contractors and sub-contractors on local procurement on an annual basis through external auditors;</li> <li>▪ Compile a database of services or procurement opportunities, which could be delivered by local providers, e.g. provision of foodstuff, security, maintenance;</li> <li>▪ Develop a register of local SMMEs;</li> <li>▪ Establish linkages with skills development / SMME development organizations and other mining operations;</li> <li>▪ Clearly advertise the nature and extent of local procurement opportunities during the various project phases; and</li> <li>▪ Establish appropriate communication mechanisms with surrounding communities.</li> </ul>	Moderate positive (90)
Community development	Negligible positive (3)	<ul style="list-style-type: none"> <li>▪ Develop a Community Development Plan (CDP) that outlines processes for identifying, implementing and monitoring community development projects and skills development initiatives;</li> <li>▪ Use CDP to inform community development requirements and commitments in the Xivono SLP;</li> </ul>	Minor positive (48)

Impact	Pre-mitigation	Mitigation / Enhancement Measures	Post-mitigation
		<ul style="list-style-type: none"> <li>▪ Consult with appropriate municipal officials, development agencies and affected communities to identify and plan appropriate development initiatives;</li> <li>▪ Design community development initiatives that will be sustainable beyond the life of the Project and independent of mining operations;</li> <li>▪ Early identification of community members for enrolment in literacy and portable skills training to improve likelihood of employment on the mine;</li> <li>▪ Conduct baseline socio-economic survey of households located within primary study area prior to commencement of community development initiatives to enable accurate identification of eligible LED project and skills training beneficiaries and measure impacts of development initiatives on households;</li> <li>▪ Collaborate with other developmental role players during implementation;</li> <li>▪ Ensure that service providers appointed to plan and implement community development initiatives have the requisite expertise and experience to do so successfully implement these initiatives;</li> <li>▪ Establish an external monitoring programme to monitor and evaluate community development initiatives as well as HRDP and procurement policy implemented by the mine and its contractors on an annual basis;</li> <li>▪ Expand skills development and capacity building programmes to non-employees; and</li> <li>▪ Maintain a record of training courses completed per individual and community. Where training is offered to non-employees, their contact information and qualifications can be shared with other industries.</li> </ul>	
Loss of agricultural and grazing land	Moderate negative (-98)	<ul style="list-style-type: none"> <li>▪ Compensation for loss of land and other assets must be at full replacement cost;</li> </ul>	Minor negative (-70)

Impact	Pre-mitigation	Mitigation / Enhancement Measures	Post-mitigation
		<ul style="list-style-type: none"> <li>▪ Provide a sufficient transitional period to allow affected landowners to locate and purchase replacement land and relocate and re-establish their operations on the replacement land.</li> <li>▪ Assist farm dwellers to locate suitable alternative grazing land which is secure and affordable; and</li> <li>▪ Ensure that owners and occupants within the primary and secondary study areas are informed that crop cultivation and livestock grazing will not be permitted in the affected area.</li> </ul>	
Displacement of farm dweller households	Moderate negative (-105)	<ul style="list-style-type: none"> <li>▪ Develop and implement a RAP to best practice guidelines;</li> <li>▪ Provide transitional support to displaced farm dweller households to support livelihoods during the transitional period;</li> <li>▪ Establish a consultative structure to comply with the RAP's requirements for informed participation and consultation of affected households and relevant government representatives and departments; and</li> <li>▪ Ensure that RAP implantation is monitored across time to ensure that displaced households' livelihoods are restored or improved and that they have obtained security of tenure at resettlement site.</li> </ul>	Minor negative (-70)
Community health and safety	Minor negative (-70)	<ul style="list-style-type: none"> <li>▪ Enforce the required buffer zones around all Project infrastructure in accordance with national legislation;</li> <li>▪ Control access to all Project elements, including fencing and physical / electronic security where necessary;</li> <li>▪ Sensitise communities and individual landowners in primary and secondary study areas about health and safety risks and mitigation measures prior to commencement of construction activities;</li> <li>▪ Ensure all visitors to the mine undergo health and safety induction and have appropriate PPE;</li> </ul>	Negligible negative (-33)

Impact	Pre-mitigation	Mitigation / Enhancement Measures	Post-mitigation
		<ul style="list-style-type: none"> <li>▪ Undertake blasting modelling and implement resulting mitigation and management measures, including enforcement of a 500 m buffer zone and evacuation of humans and animals within the buffer zone during blasting activities;</li> <li>▪ In consultation with surrounding communities, establish the most appropriate ways to notify communities prior to any blasting activities and ensure that notification of all affected parties is done timeously;</li> <li>▪ Adhere to the prescribed regulation and standards on the storage and disposal of hazardous materials, including explosives;</li> <li>▪ Implement mitigation measures stipulated in the specialist reports undertaken for this EIA to mitigate dust, blasting, and water and air quality impacts; and</li> <li>▪ Implement HIV / AIDS and substance abuse prevention campaigns for the Construction and Operational Phase workforce in collaboration with local authorities and relevant NGOs. These campaigns can be expanded to the broader community at a later stage.</li> </ul>	
Traffic impacts	Minor negative (-65)	<ul style="list-style-type: none"> <li>▪ Develop and implement a Traffic Management Plan based on the recommendations in Traffic Impact Assessment. This plan should also include provisions on how the Project will select and manage its drivers (by means of training, a driver Code of Conduct, spot checks, drug and alcohol use policies, fatigue management, defensive driving training etc.);</li> <li>▪ Implement road maintenance measures to ensure that the quality of the access and haul road constructed by the mine is maintained;</li> <li>▪ Conduct regular road quality inspections;</li> <li>▪ Regulate Heavy Motor Vehicle traffic by implementing safe travelling speeds, restricting traffic to daylight hours;</li> <li>▪ Prevent speeding by installing traffic management and calming measures (e.g. speed humps); and</li> </ul>	Negligible negative (-33)

Impact	Pre-mitigation	Mitigation / Enhancement Measures	Post-mitigation
		<ul style="list-style-type: none"> <li>Sensitise community members, especially children, to potential traffic safety risks through community education.</li> </ul>	
Disturbance of sense of place	Moderate negative (-98)	<ul style="list-style-type: none"> <li>Implement mitigation measures stipulated in specialist studies (Surface and Ground Water Impact Assessment, Noise Impact Assessment, Air Quality Impact Assessment, Blasting and Vibration Impact Assessment and Traffic Impact Assessment) undertaken for this EIA;</li> <li>Optimise mine plan / infrastructure placement to avoid / minimise negative impacts, especially in terms of visual intrusion, air quality and access disruptions;</li> <li>Prioritise local employment and skills training and community development to ensure that affected communities benefit from the Project;</li> <li>Establish a grievance mechanism to record grievances (related to air quality, water quality, traffic safety etc.) from affected communities and individual landowners; and</li> <li>Implement corrective measures promptly.</li> </ul>	Minor negative (-66)
<b>Operational Phase</b>			
Employment creation during operation	Minor positive (48)	<ul style="list-style-type: none"> <li>Continue implementation of employment policy recommended for Construction Phase which stipulates commitments and targets for employment and skills development of members of local communities;</li> <li>Monitor the contractors and sub-contractors on an annual basis through an external auditor to ensure their compliance with employment policy; and</li> <li>Provide focused training to construction phase employees from local communities to increase their chances for employment during operations.</li> </ul>	Moderate positive (84)

Impact	Pre-mitigation	Mitigation / Enhancement Measures	Post-mitigation
Growth of local economy	Minor positive (52)	<ul style="list-style-type: none"> <li>▪ Continue implementation of the measures recommended to enhance local employment, skills development, community development, and multiplier effects on the local economy for the Construction Phase;</li> <li>▪ Set targets to progressively increase local and regional procurement over the life of the Project; and</li> <li>▪ Incorporate SMME capacity development programmes into future iterations of the SLP to enable local suppliers to take maximum advantage of procurement opportunities during the Operational Phase.</li> </ul>	Moderate positive (96)
Blasting impacts	Moderate negative (-78)	<ul style="list-style-type: none"> <li>▪ Implement all management and mitigation measures outlined in the Blasting Impact Assessment (BIA), including a structural survey of surrounding structures;</li> <li>▪ Relocate the households that are located between the two pit areas and consider relocating other households and structures identified as vulnerable to problematic impacts in the BIA;</li> <li>▪ Enforce the required buffer zones around the pits in accordance with national legislation;</li> <li>▪ Sensitise communities and individual landowners in primary and secondary study areas about health and safety risks and mitigation measures prior to commencement of operational activities;</li> <li>▪ Establish a blasting notification protocol in collaboration with surrounding households, landowners. and communities that provides timely notification of schedule of blasting activities;</li> <li>▪ Establish a reporting and response protocol whereby surrounding homesteads and communities can report suspected blast damages and ensure that these reports are responded to quickly and efficiently; and</li> </ul>	Minor negative (-36)

Impact	Pre-mitigation	Mitigation / Enhancement Measures	Post-mitigation
		<ul style="list-style-type: none"> <li>Where structural damages are ascertained to be caused by mine’s blasting activities, ensure that compensation for damages or repair of damages is undertaken as soon as possible after the damages occurred.</li> </ul>	
<b>Decommissioning and Mine Closure</b>			
Dependency on the Project to sustain the local economy	Moderate negative (-84)	<ul style="list-style-type: none"> <li>Develop a detailed Social Closure Plan at least 5 years prior to decommissioning, that includes a retrenchment plan for Project staff as well as a communication strategy that will keep employees and surrounding communities informed about closure timing and management strategies;</li> <li>Develop and implement the required Human Resource systems to provide references for employees;</li> <li>Ensure that employment contracts release employees from non-compete clauses following the closure of the Project;</li> <li>Design community development initiatives that will be sustainable beyond the life of the Project and independent of mining operations;</li> <li>Increase opportunities for ABET, portable skills training, and mining skills-related skills development during the Operational Phase; and</li> <li>Proactively assess and manage the social and economic impacts on individuals, regions and economies where retrenchment and/or closure of the Project are certain.</li> </ul>	Minor negative (-52)

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## **Conclusion and Recommendations**

The proposed Project has the potential to benefit local, regional and national economies. However, from a socio-economic perspective, it is recommended that the proposed Project only be allowed to proceed on condition that the mitigation and enhancement measures listed for each impact, negative and positive be implemented. These include the development of a Resettlement Action Plan (RAP), developed and implemented in accordance with international best practice standards, to mitigate the adverse impacts on the livelihoods and standards of living of the farm dweller households that will be displaced by the Project, the development and implementation of a robust stakeholder engagement plan geared towards promoting active communication between municipal authorities, communities and Xivono, the development of a social management plan and social monitoring plan to manage and monitor the implementation of these measures and recommend corrective measures, where necessary, and the implementation of mitigation measures recommended in other specialist studies.

Moreover, it is essential that the Xivono Social and Labour Plan (SLP) be updated to address the existing gaps in the document related to community development commitments and local employment and procurement targets and commitments. Municipal and affected communities have commented that they have not yet been given the opportunity to view the SLP and have no knowledge of what community development initiatives that Xivono has committed to. The affected communities in the primary and secondary study areas will realistically only experience development benefits from the Project if development initiatives are set out as requirements and commitments in the SLP.

It is recommended that consultation with local communities regarding skills training and employment opportunities as well as community development programmes is essential to informing the SLP and to enhancing positive socio-economic impacts, in terms of prioritizing members of local communities for skills training and employment opportunities, successfully implementing community development programmes and managing expectations around Project benefits.

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Appendix A: Impact Assessment Methodology

## LIST OF ACRONYMS

<b>ABET</b>	<b>Adult Basic Education Training</b>
<b>CSI</b>	<b>Corporate Social Investment</b>
<b>BIA</b>	<b>Blasting Impact Assessment</b>
<b>CPA</b>	<b>Communal Property Association</b>
<b>DMR</b>	<b>Department of Mineral Resources</b>
<b>EIA</b>	<b>Environmental Impact Assessment</b>
<b>ELM</b>	<b>Emakhazeni Local Municipality</b>
<b>GDP</b>	<b>Gross Domestic Product</b>
<b>GVA</b>	<b>Gross Value Add</b>
<b>Ha</b>	<b>Hectare</b>
<b>HIV/AIDS</b>	<b>Human Immunodeficiency Virus / Acquired Immune Deficiency Syndrome</b>
<b>HMV</b>	<b>Heavy Motor Vehicles</b>
<b>HRDP</b>	<b>Human Resources Development Plan</b>
<b>IDP</b>	<b>Integrated Development Plan</b>
<b>IFC PS</b>	<b>International Finance Corporation Performance Standards</b>
<b>km</b>	<b>Kilometre</b>
<b>km<sup>2</sup></b>	<b>Square Kilometre</b>
<b>LED</b>	<b>Local Economic Development</b>
<b>LoM</b>	<b>Life of Mine</b>
<b>MPRDA</b>	<b>Mineral and Petroleum Resources Development Act</b>
<b>MRA</b>	<b>Mining Right Application</b>
<b>MWP</b>	<b>Mining Works Programme</b>
<b>NDM</b>	<b>Nkangala District Municipality</b>
<b>NDP</b>	<b>National Development Plan</b>
<b>NEMA</b>	<b>National Environmental Management Act</b>
<b>NGO</b>	<b>Non-governmental Organisation</b>
<b>PPP</b>	<b>Public Participation Process</b>
<b>PR</b>	<b>Prospecting Right</b>
<b>RoM</b>	<b>Run of Mine</b>

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<b>SIA</b>	<b>Social Impact Assessment</b>
<b>SLP</b>	<b>Social and Labour Plan</b>
<b>SMME</b>	<b>Small, medium and micro enterprises</b>
<b>StatsSA</b>	<b>Statistics South Africa</b>
<b>STI</b>	<b>Sexually Transmitted Infection</b>
<b>ToR</b>	<b>Terms of Reference</b>
<b>ZAR</b>	<b>South African Rand</b>

## 1 Introduction

### 1.1 Project Background

Xivono (Pty) Ltd (hereafter referred to as Xivono) has made an application for a Mining Right in terms of the Minerals and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002) (MPRDA), with reference number MP 30/5/1/2/2/10250 MP for the proposed Weltevreden Mining Project. The Project is located approximately 8 km south of Belfast in the Mpumalanga Province of South Africa. The Prospecting Right includes Portions 28, 29, 30 and 40 of the farm Paardeplaats 380 JT, Portions 2, 3, 10 and a Portion of Portions 4, 7, 9, 11, 12, 14 and the Remaining Extent of the farm Weltevreden 381 JT. Not all of the Prospecting Right area will be mined and therefore the proposed mining activities and associated infrastructure will take place on the Remaining Extent (RE) of Portion 3, Portion 9, and Portion 381 of the Farm Weltevreden 381 JT.

### 1.2 Project Description

Xivono proposes to two pits, OC1 (162 ha footprint) and OC2 (200 ha footprint) to be mined through open pit mining. Xivono plans to utilise containers for the mine offices and workshop infrastructure which will occupy a footprint of approximately 0.03 ha (300 m<sup>2</sup>). Processing of coal will be carried out on-site and auxiliary infrastructure, including a Run of Mine (RoM) pad, overburden dump, stockpiles, pipelines, lined trenches, topsoil dumps and Pollution Control Dams (PCDs), are proposed. The infrastructure is expected to have a footprint of approximately 1 ha. The proposed Life of Mine (LoM) is expected to be 10 to 15 years. According to the Xivono Social and Labour Plan (SLP), Xivono will employ a workforce of 154 persons.

### 1.3 Project Location

The proposed Project area falls within the Nkangala District Municipality (NDM), specifically in Ward 1 of the Emakhazeni Local Municipality (ELM) in the Mpumalanga Province. The nearest large settlements to the site are Emakhazeni (Belfast) town and Siyathuthuka Township. Emakhazeni town is referred to as “Belfast” in this report to differentiate it from the Local Municipality it is situated in. Table 1-1 indicates the Project location details.

**Table 1-1: Project Location Details**

<b>Province</b>	Mpumalanga Province
<b>District Municipality (ies)</b>	Nkangala District Municipality
<b>Local Municipality (ies)</b>	Emakhazeni Local Municipality
<b>Ward(s)</b>	Ward 1
<b>Primary Town</b>	Emakhazeni (Belfast)

<b>Primary Access Routes</b>	R33
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### 1.3.1 Infrastructure and Activities

The proposed Project activities per project phase are indicated in Table 1-2 below.

**Table 1-2: Project Activities per Project Phase**

<b>Project Phase</b>	<b>Project Activity</b>
Construction Phase	Site/vegetation clearance
	Access and haul road construction
	Infrastructure construction
	Linear infrastructure - Power line and water pipelines
	Diesel storage and explosives magazine
	Topsoil stockpiling
Operational Phase	Open pit establishment
	Removal of rock (blasting)
	Stockpiling (rock dumps, soils, discard dump) establishment and operation
	Diesel storage and explosives magazine
	Operation of the underground workings
	Operating processing plant
	Operating sewage treatment plant
	Water use and storage on-site, including a Pollution Control Dam (PCD)
	Storage, handling and treatment of hazardous products (including fuel, explosives and oil) and waste
	Maintenance activities of mine infrastructure
Decommissioning Phase	Demolition and removal of infrastructure
	Rehabilitation
	Post-closure monitoring and rehabilitation

### 1.3.2 Xivono SLP

The amended Xivono SLP was submitted to the Department of Mineral Resources (DMR) for approval on 20 August 2019 as an appendix to the Mining Right Application.

The current Xivono SLP presents the Human Resources Development Programme (HRDP) that encompasses a skills development plan, career progression plan, a mentorship plan, a bursary and learnership plan, and an employment equity plan. The skills development plan will include the development of mining and managerial-related skills, portable skills

development, and Adult Education Training (AET). The HRDP will be mainly focused on the mine workforce.

The Community Development section of the current Xivono SLP does not stipulate specific community development commitments in terms of development projects and local employment and skills training. The SLP states that Xivono plans to collaborate with ELM to establish community development initiatives based on the challenges identified in the IDP of ELM (see Section 4.1.3).

## 1.4 Terms of Reference

The Terms of Reference (ToR) for the Social Impact Assessment (SIA) are to:

- Describe the baseline socio-economic characteristics of the proposed Project site and surrounding area;
- Identify, describe and assess the expected significance of potential socio-economic impacts that may arise as a result of the proposed mining activities; and
- Recommend appropriate mitigation measures and management actions to avoid or minimise potential negative impacts, and to enhance the positive impacts associated with the proposed Project.

## 1.5 Scope of Work

The primary aim of the SIA is to assess the Project and associated activities in terms of critical socio-economic considerations and potential positive and negative impacts as required by Section 24 of the National Environmental Management Act (NEMA) and Section 39 of the MPRDA.

The development of the SIA involved two phases, namely a Scoping Phase and an Impact Assessment (EIA) Phase, with each phase including specific objectives. The objectives of the Scoping Phase were:

- To gain an understanding of the baseline socio-economic conditions in the general project area; and
- On the basis of the above, identify potential socio-economic impacts and benefits that may result from the proposed Project that will require further investigation during the EIA Phase.

The objectives of the impact assessment are to:

- Assess the likely socio-economic impacts of the proposed mining activities; and
- Design appropriate mitigation measures to reduce and, where possible, avoid negative impacts, as well as to enhance positive impacts.

## 1.6 Expertise of the Authors

Table 1-3 presents a summary of the expertise of the specialists involved in the compilation of this report. The full CVs of these specialists can be provided on request.

**Table 1-3: Expertise of the Specialists**

Team Member	Bio Sketch
Janet Mkhabela Social Consultant	Janet Mkhabela has over 10 years of experience working as a social specialist with a focus on Social Impact Assessments, Resettlement Planning, Monitoring and Evaluation, Public Consultation and Disclosure. She has experience in diverse industry sectors across sub-Saharan Africa including mining (coal, iron ore and manganese ore), renewable energy (wind, hydropower and solar), oil and gas, and transport (passenger trains, airports and freight rail). Janet has field experience in South Africa, Angola, Ethiopia, Democratic Republic of Congo, Uganda, Ghana, Tanzania, Zambia, and São Tomé and Príncipe. She is a skilled communicator and fully conversant with the cultural complexities and sensitivities of running effective and inclusive participatory engagement and facilitated processes in rural Africa. Janet has experience in global resettlement practice and in delivery of and reviews of projects against the requirements of the IFC Performance Standards, specifically Performance Standard 5 Land Acquisition and Involuntary Resettlement.
Jennifer Grant Social Consultant	Jennifer is a social scientist with over nine years' experience in the applied research and consultancy fields with regard to community engagement, social development, and land acquisition and resettlement. She has worked as a social consultant on a wide range of projects within the mining, oil and gas, hydropower, and conservation sectors across Africa. Jennifer has participated in the development and implementation of resettlement action plans to IFC, Equator Principles, and World Bank standards for several large-scale resettlement projects in South Africa, Kenya, Mozambique, Tanzania and Zambia. As such, she has expertise in resettlement planning and implementation, community engagement and liaison, social development, social impact assessment, livelihood impact assessment and monitoring and evaluation.

## 1.7 Structure of the Report

The report is structured as follows:

- Section 8 offers an introduction to the report that includes the Project description, the Terms of Reference and Scope of Work for the report, and a summary of the professional expertise of the authors;
- Section 2 identifies the constraints and limitations of the report;
- Section 3 outlines the methodology used to complete the report;
- Section 4 describes the socio-economic environment of the Project area;

- Section 5 presents the results of the impact assessment as well as mitigation or enhancement measures for each impact identified;
- Section 6 presents the potential cumulative impacts that may arise as a result of the Project;
- Section 7 offers a discussion of the impact assessment results;
- Section 8 provides recommendations based on the results of the impact assessment results; and
- Section 9 presents the conclusions of the report.

## 2 Constraints and Limitations

The constraints and limitations to the impact assessment are presented in Table 2-1:

**Table 2-1: Applicable Constraints and Limitations and Their Consequences**

Constraint or Limitation	Consequence
A socio-economic survey not conducted with households located in primary study area. The socio-economic indicators for these households are derived from official census data (2011; 2016).	The socio-economic indicators for the population and households in Ward 11, the secondary study area within which the primary study area is located, are assumed to be indicative for the households residing within the primary study area.
The current Xivono SLP does not commit to any community development projects or mine community employment, skills development and procurement targets.	Mitigation and / or enhancement measures for impacts related to employment, multiplier effects in the local and regional economies, and community development could thus not refer to the implementation and monitoring of the SLP.

## 3 Methodology

The study was designed to comply with the relevant national legislative requirements, such as those stipulated in NEMA and the MPRDA, as well as the international best-practice standards (e.g. International Finance Corporation Performance Standards – IFC PS).

The activities undertaken as part of the study are described below.

### 3.1 Defining Study Areas

The study area for an impact assessment can be defined as the area that is likely to experience impacts arising from, or exert influence on, the project or activity being assessed (IFC, 2012). Three concentric and interdependent study areas were identified for the purposes of this study and correspond, where relevant, to the existing administrative boundaries:

- The **primary study area** – is defined as the extent of the properties that fall within the proposed Mining Right boundary (see Figure 3-1).

- The **secondary study area** – is defined as Wards 1, 3 and 8 within the Emakhazeni Local Municipality, Nkangala District Municipality (see Figure 3-2). Ward 1 encompasses the proposed Project site while Wards 3 and 8 are adjacent to Ward 1.
- The **regional study area** – the area likely to experience the indirect or induced impacts of the proposed Project. This area is defined as the Nkangala District Municipality in its entirety as well as the Mpumalanga Province (see Figure 3-3).

### 3.1.1 Primary Study Area

The primary study area was defined as the properties situated within the proposed Mining Right boundary. The land owners and households residing on the properties in the Mining Right application area are described below.

#### **On the farm Weltevreden 381, Portions 9, 10, 23 and 24**

- Gert Kleinhans (Surface right holder); and
- Eleven graves identified during the Heritage Impact Assessment.

#### **On the farm Weltevreden 381 Portions 3, RE/11 and 12**

- Willie Pretorius (Surface right holder); and
- Fifteen farm dweller households living on Portion 3.

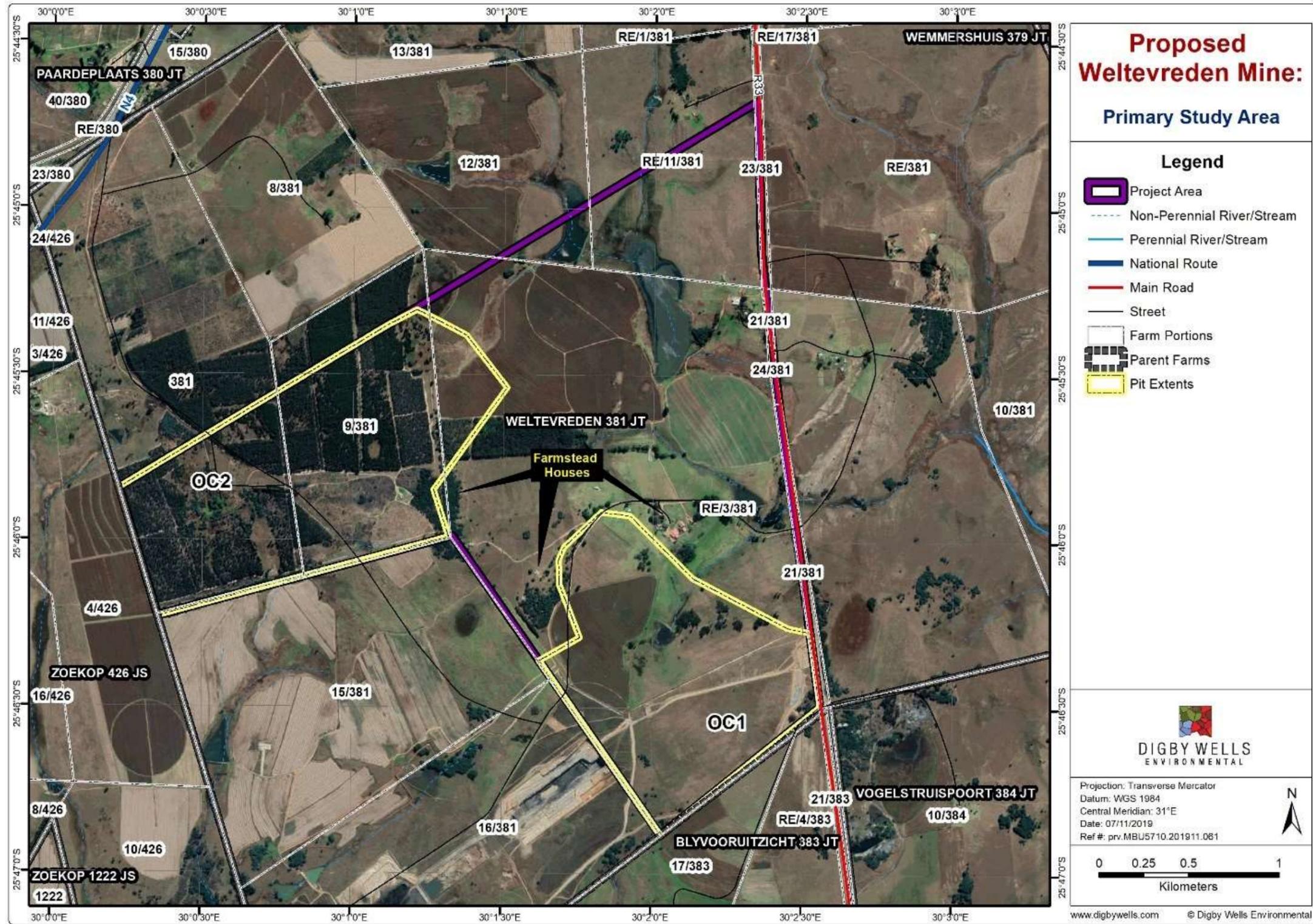


Figure 3-1: Primary Study Area

### 3.1.2 Secondary Study Area

The secondary study area is comprised of Wards 1, 3 and 8 of ELM, NDM. The Project site is located in Ward 1 while the largest settlements in ELM are located in Ward 3 (Siyathuthuka township) and Ward 8 (Belfast town). Figure 3-2 indicates the secondary study.

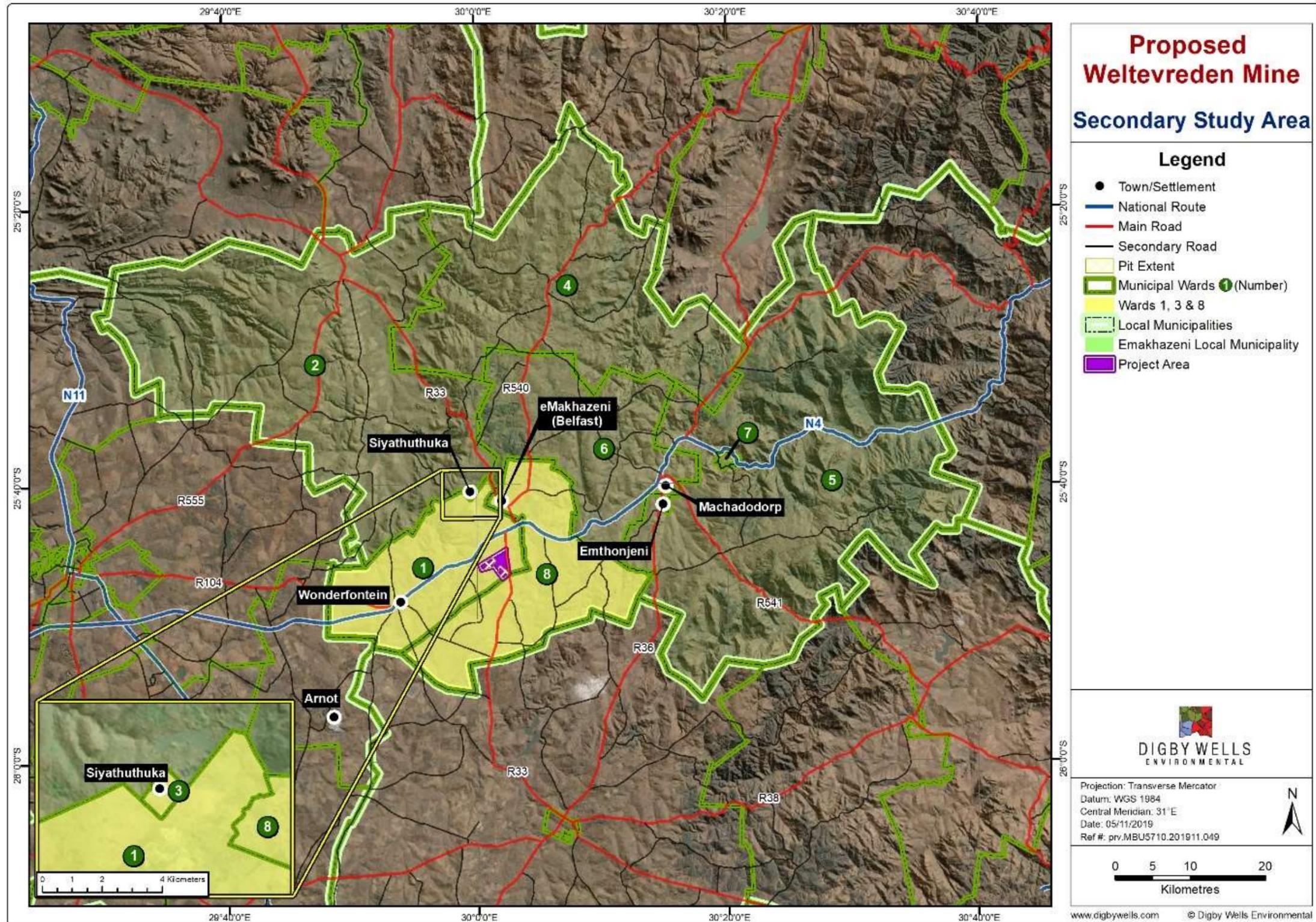


Figure 3-2: Secondary Study Area

### **3.1.3 Regional Study Area**

The regional study area is comprised of the eight local municipalities of the Nkangala District, followed by the Mpumalanga Province (Figure 3-3).

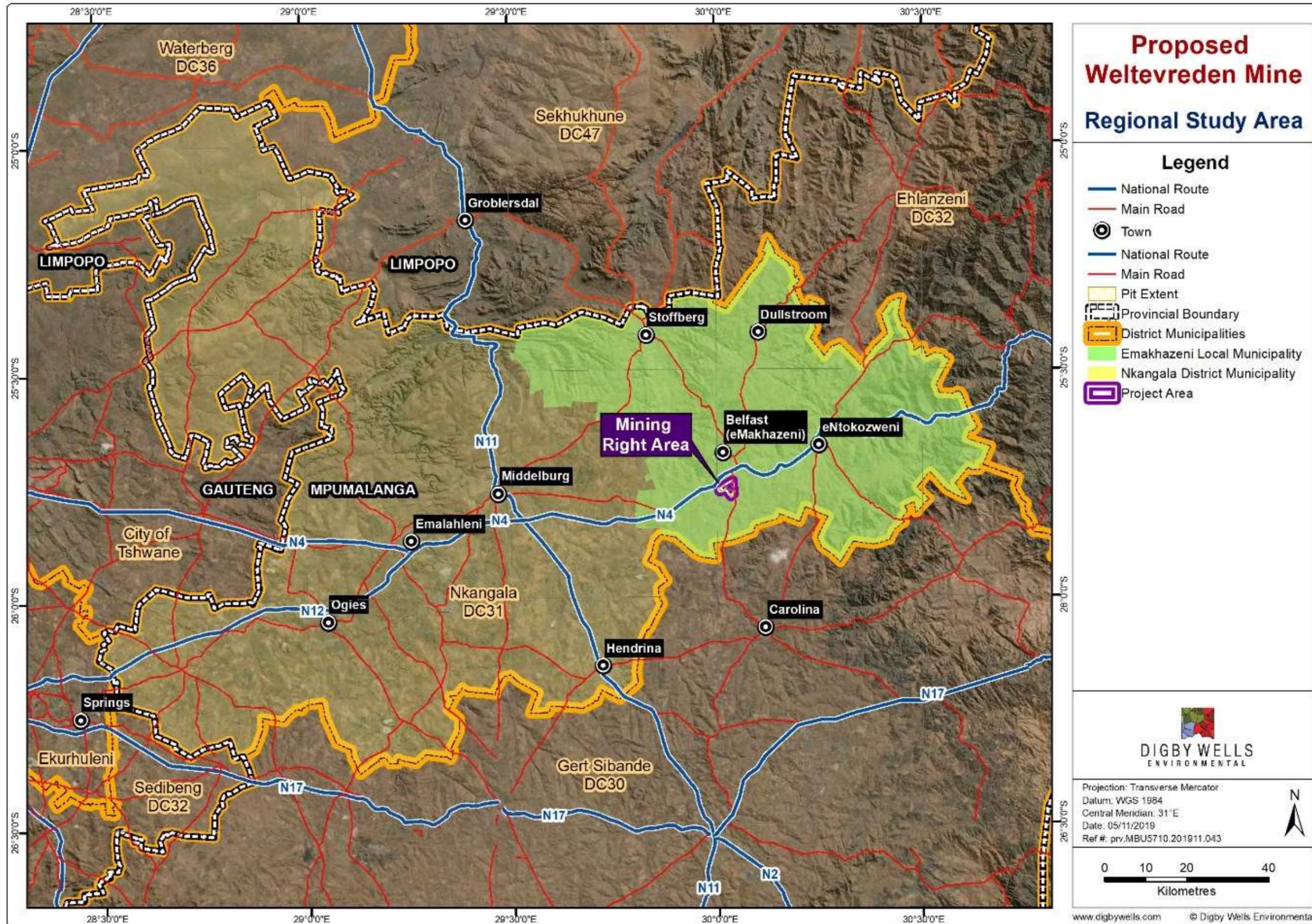


Figure 3-3: Regional Study Area

## 3.2 Data Collection

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

### 3.2.1 Primary Data Collection

This impact assessment was informed by the primary data collected by Digby Wells during site visits for the following:

- Focus group discussions and interviews conducted over two days (September / October 2019) with individual landowners, local municipal authorities and other interested and affected parties, including:
  - Landowners of the properties located with the Mining Boundary;
  - ELM Local Economic Development and Integrated Development Plan Manager;
  - ELM Spatial Development Manager;
  - ELM Environmental Officer;
  - Ward Councillor for Ward 1;
  - ELM Development Agency Director; and
  - Farm dwellers from Paardeplaats<sup>3</sup>.
- Stakeholder meetings conducted with interested and affected parties during the public participation process for the Final Scoping Report (27 August 2019); and
- Consideration of information from the Final Scoping Report documentation produced as part of the Project was reviewed to identify potential bio-physical impacts that might have significant, although indirect, socio-economic implications.

## 3.3 Secondary Data Collection

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

- National legislation and international good practice policies and standards;
- Provincial reports, district and local municipal Integrated Development Plans (IDPs) and Local Economic Development (LED) Plans;
- StatsSA census data from Wazimap (2019)<sup>4</sup> as the primary source of desktop data to prepare the baseline socio-economic profiles of potentially affected areas;

<sup>3</sup> Paardeplaats farm dwellers requested that the specialist present the proposed Project to them as they were not engaged during the Scoping Phase public meetings and were of the opinion that they should have been.

<sup>4</sup> Wazimap data is supported by the South African government, specifically through the Department of Public Service and Administration's (DPSA's) initiative to develop [www.data.gov.za](http://www.data.gov.za) as a central point for accessing

- Previous studies and reports concerning the proposed Project, specifically the Scoping Report and Xivono SLP compiled for the proposed Project; and
- Available maps and satellite imagery.

### 3.4 Compilation of a Socio-Economic Baseline Profile

On the basis of the information collected through the desktop review, engagement with and information from other specialist studies, a socio-economic baseline profile was compiled for the respective study areas defined in Section 3.1. Topics considered as part of this profile include (but are not limited to) the following:

- Demographics, including population size and density as well as population distribution in terms of age and gender;
- Education levels;
- Employment status and income profiles;
- Economic sectors;
- Infrastructure and services (housing, energy, water and sanitation); and
- Community needs and development.

#### 3.4.1 Analysis and Reporting

The assessment of the socio-economic impacts identified for the Project is based on an impact rating process designed to provide a numerical rating of the significance of each impact. The significance rating process follows the established impact / risk assessment formula where significance is a function of the consequence of an event multiplied by the probability of its occurrence. A detailed description of the impact assessment methodology used is presented in Appendix A.

The following steps were undertaken as part of the impact assessment:

- Impact identification and assessment: Based on the anticipated interaction between specific and / or collective project activities and baseline socio-economic conditions, several potential impacts were identified for each phase of the Project;
- Impact mitigation: realistic measures were developed aimed at mitigating, and if possible, avoiding the negative social impacts, and enhancing the benefits of positive social impacts.

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public government data. Wazimap is a featured app on the website (South Africa National Data Portal, 2019) and provides Census 2011 and Community Survey 2016 socio-economic data adjusted to 2016 ward boundaries. <https://wazimap.co.za/>. Retrieved between 2019/08/15 and 2019/09/20.

## 4 Socio-Economic Environment

### 4.1 The Regional Study Area

The Regional Study Area comprises Mpumalanga Province, the Nkangala District Municipality (NDM) and Emakhazeni Local Municipality (ELM).

#### 4.1.1 Mpumalanga Province

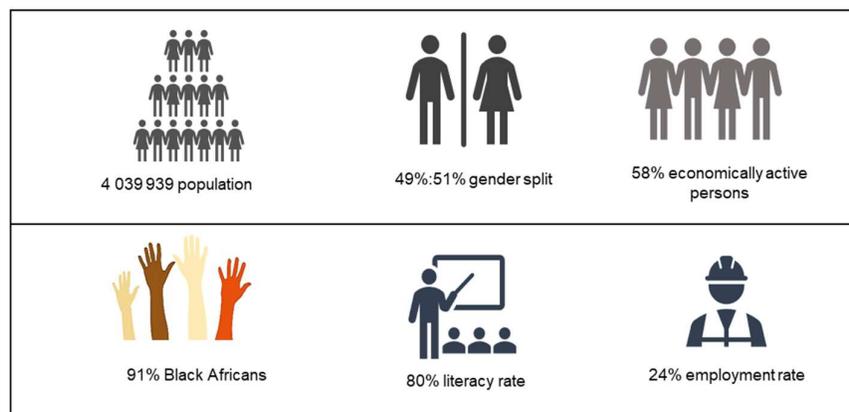
Mpumalanga Province covers an area of 76 495km<sup>2</sup> and has a population of 4 335 963. It is strategically located with access to inland provinces and proximity to Swaziland and Mozambique, including the Maputo harbour.

Mpumalanga is rich in coal reserves and home to South Africa’s major coal-fired power stations. The best-performing sectors in the province include mining, manufacturing and services. Tourism and agro-processing are potential growth sectors.

The Mpumalanga Strategy<sup>5</sup> identifies five prioritised economic sectors in the province, namely, agriculture for the promotion of agro-processing, mining for value addition through beneficiation and energy generation, manufacturing, Information Communication Technology, the Green Economy, tourism and cultural industries for job creation, and growth of Small, Medium and Micro Enterprises (SMMEs).

Mpumalanga is divided into three district municipalities, which are further subdivided into 17 local municipalities<sup>6</sup>.

Figure 4-1 presents the key population indicators for Mpumalanga Province.



**Figure 4-1: Key Population Indicators for Mpumalanga Province**

<sup>5</sup> [http://www.dedtmpumalanga.gov.za/sites/default/files/publications/STRAT%20PLAN%202015-2020\\_2.pdf](http://www.dedtmpumalanga.gov.za/sites/default/files/publications/STRAT%20PLAN%202015-2020_2.pdf). Sourced on 2019/09/05.

<sup>6</sup> <https://municipalities.co.za/provinces/view/6/mpumalanga>. Sourced on 2019/09/05.

#### 4.1.2 Nkangala District Municipality

NDM comprises five local municipalities, including ELM. Spatially, NDM is the smallest of the three districts in Mpumalanga Province. NDM's population constitutes 32% of the provincial population, with a population density of 77.4 persons per kilometre square (km<sup>2</sup>).

NDM's economy is dominated by electricity, manufacturing and mining sectors, followed by community services, trade, finance, transport, agriculture and construction. NDM's Gross Domestic Product (GDP) of R 121 billion in 2016 represented a 37% contribution to the Mpumalanga Province GDP of R 328 billion. The NDM's economy is made up of various industries. In 2016, the mining sector was the largest contributor to the district municipality's economy with R 41.1 billion, or 37% of the total Gross Value Added by Region (GVA-R)<sup>7</sup>, followed by the manufacturing sector (12%) and community services sector (11%).

Figure 4-2 presents the key population indicators for NDM.

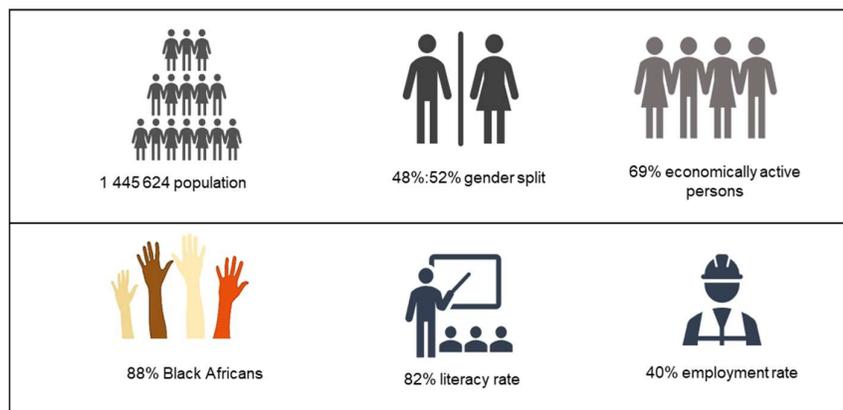


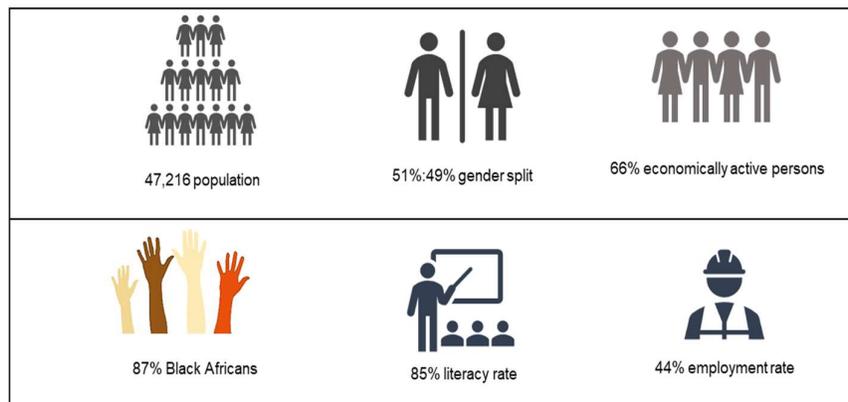
Figure 4-2: Key Population Indicators for NDM

#### 4.1.3 Emakhazeni Local Municipality

The predominant economic activities in ELM, based on the Gross Domestic Product (GDP) contribution, are mining, community services, trade, agriculture, and employment in private households.

Figure 4-3 indicates the key population indicators for ELM.

<sup>7</sup> The GVA-R variable provides a sector breakdown, where each sector is measured in terms of its value added produced in the local economy.



**Figure 4-3: Key Population Indicators for ELM**

To increase employability of the municipal population, ELM has established the Emakhazeni Development Agency, a non-profit organization which is responsible for implementing and managing revenue-generating projects identified in the municipalities LED Strategy, and the Student Development Academy, which assists matriculants with a range of services related to tertiary education.

The LED priorities of ELM are geared towards addressing issues of high unemployment and economic dependency on the mining sector. The municipality has identified the projects that will be funded directly by the government and others to be funded by private sector or through partnerships. Examples of projects are provided below:

- Government Projects:
  - Establishment of bakeries;
  - Establishment of brick making plant; and
  - Establishment of a high-altitude training centre.
- Private/ and Private-Public Partnership Projects:
  - Establishment of a milk processing factory;
  - Development of a business incubation centre; and
  - Resuscitation of Elandskraans Resort and cable car to promote tourism.

In part, the establishment of these will be linked to linked to the newly established Emakhazeni Development Agency.

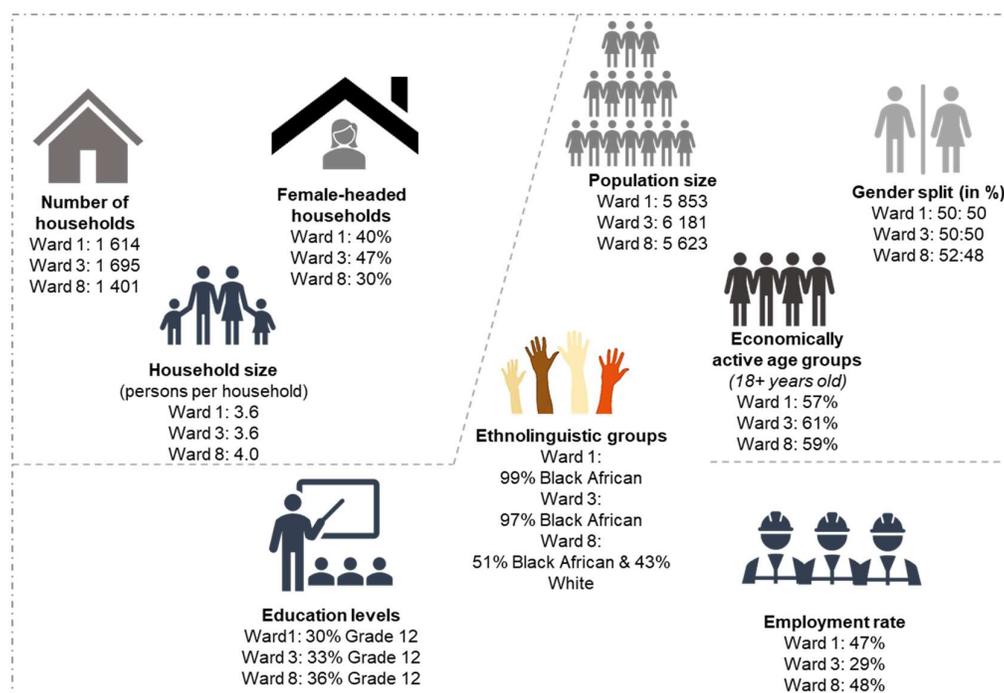
## 4.2 The Secondary Study Area

The secondary study area is comprised of Wards 1, 3 and 8 of the ELM. The section below presents key socio-economic indicators for these wards as derived from StatsSA data (Census 2011; Community Survey 2016) accessed via Wazimap (2019)<sup>8</sup>.

### 4.2.1 Population and Household Characteristics

A summary of the population and household characteristics of wards within the primary study area are depicted in Figure 4-4. Unless indicated otherwise, the data used has been sourced from Wazimap as well as engagements with key stakeholders.

The combined population of the wards is estimated at 17,657 people, with Ward 3 having a marginally higher population than the other two wards. Of the total population of Ward 8, 79% reside in Belfast.



**Figure 4-4: Summary of Key Population Indicators for Secondary Study Area**

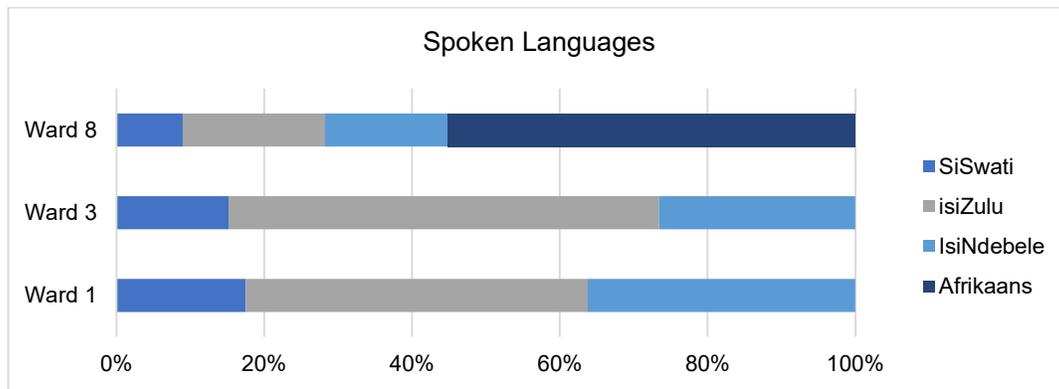
<sup>8</sup> Wazimap data is supported by the South African government, specifically through the Department of Public Service and Administration's (DPASA's) initiative to develop [www.data.gov.za](http://www.data.gov.za) as a central point for accessing public government data. Wazimap is a featured app on the website (South Africa National Data Portal, 2019) and provides Census 2011 and Community Survey 2016 socio-economic data adjusted to 2016 ward boundaries. <https://wazimap.co.za/>. Retrieved between 2019/08/15 and 2019/09/20.

#### **4.2.1.1 Population Groups and Gender**

The predominant ethnolinguistic groups found in the wards were Black African, at an average of 83%, although 43% of Ward 8's population was comprised of Whites. Wards 1 and 3 had an equal gender distribution while Ward 8 had slightly more males than females.

#### **4.2.1.2 Languages**

The languages most commonly spoken by households were isiZulu, isiNdebele and siSwati in Wards 1 and 3; while Afrikaans (43%), isiZulu and isiNdebele were predominant in Ward 8 (Figure 4-5)



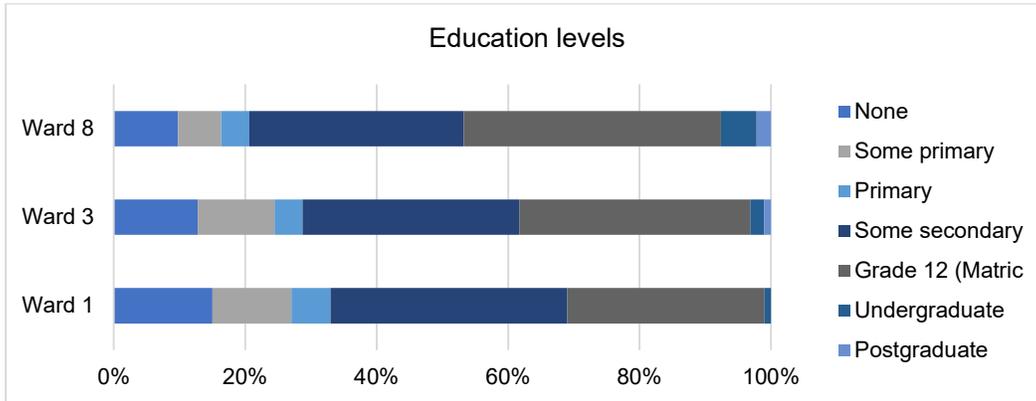
**Figure 4-5: Languages**

#### **4.2.1.3 Women and Child-Headed Households**

Of the wards, Ward 3 had the largest proportion of female headed households (47%) while Ward 8 had the least at 30%. All wards were reported to have households headed by children (all less than one percent), with Ward 3 having the largest proportion of child-headed households at 0.6%.

#### **4.2.1.4 Education Levels**

Most people within the wards have completed Grade 12 / Matric or some secondary schooling. Overall, 12% of the population was reported to have no schooling, while three percent (3%) and one percent (1%) have attained tertiary education, undergraduate and postgraduate degrees, respectively. Notably, people with tertiary education were mostly found in Ward 8 (Belfast) as depicted in Figure 4-6.



**Figure 4-6: Education Levels**

#### 4.2.2 Economic Activities

This section describes the economic activities of the population in the wards, focusing on employment and unemployment rates, as well as annual individual and household incomes.

##### 4.2.2.1 Employment and Unemployment Rates

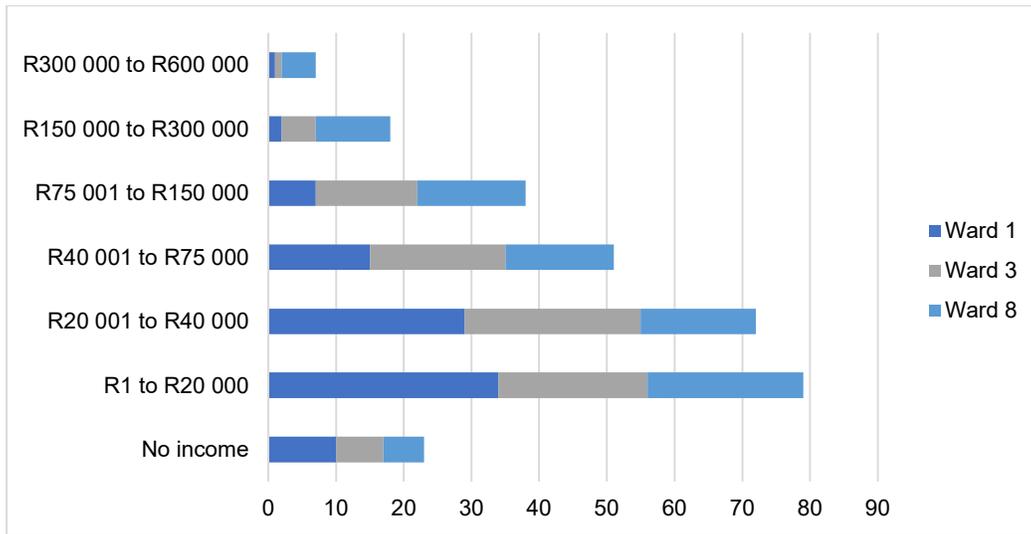
The population of the wards is predominantly (average of 59%) comprised of people of economically active age (18 to 65 years). As indicated in Table 4-1, Wards 1 and 8 had a much higher proportion of employed people (47% and 48% respectively) compared with Ward 3 (29%). The proportion of unemployed people was however higher in Ward 1 when compared with the other two Wards. The proportion of people in this age group who are economically not active, unemployed, discouraged work seekers and in the “not applicable” categories indicates the high level of dependency on employed household members.

**Table 4-1: Employment Status (in %)**

Status	Ward 1	Ward 3	Ward 8
Employed	47	29	48
Unemployed	20	12	11
Discouraged work seekers	4	6	4
Not applicable or not economically active	29	52	37

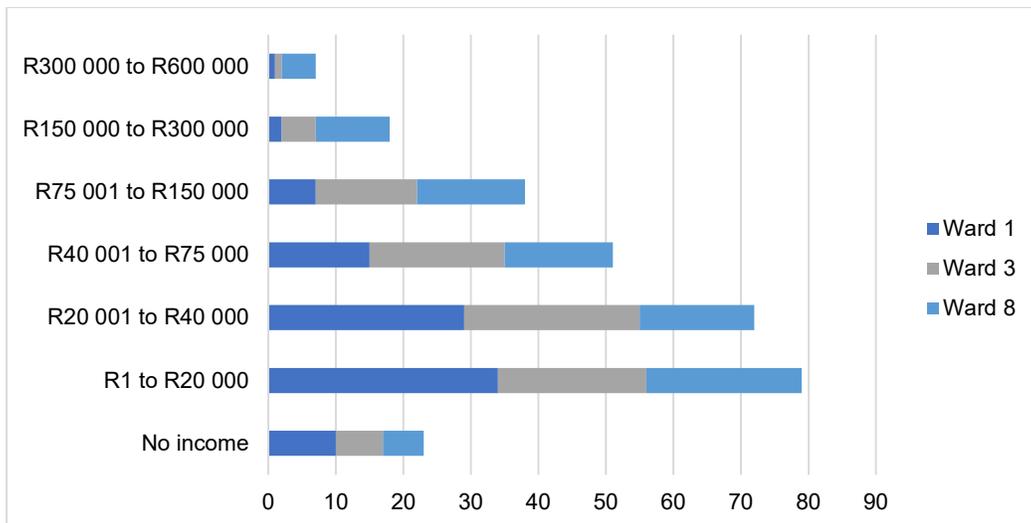
##### 4.2.2.2 Individual and Household Annual Income Levels

The individual annual income levels of persons residing within the wards are presented in Figure 4-7. The data shows that Ward 1 had the highest proportion of individuals with no income (10%) and the highest proportion (34%) of people in the R0 to R20 000.00 and R20 00.001 to R40 000.00 income brackets (34% and 29%, respectively). The comparative proportions of employed earning annual incomes in the lower brackets of less than R40 001.00 in Ward 3 and Ward 8 were 55% and 46% respectively.



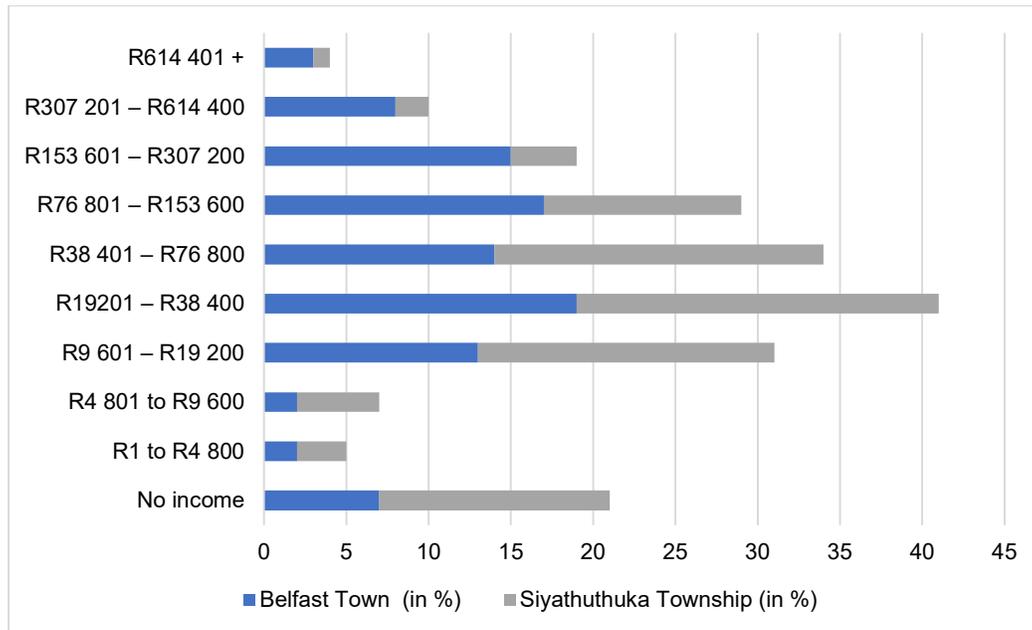
**Figure 4-7: Annual Income of Individuals per Ward**

The greatest proportion of households (18%) with no income was identified in Ward 3, with 24% of households in Ward 3 in the R1 to R20 000.00 income bracket, the highest proportion across the wards (Figure 4-8).



**Figure 4-8: Annual Income Brackets Households**

A breakdown of annual household income by settlements in the wards shows that Siyathuthuka Township had twice the number of households with no annual income, compared to those residing in Belfast. The former also had almost twice the proportion of households (17%) with an annual income of R0 to R4 800.00. Belfast has greater proportions of households in the higher middle-income brackets of R76 801.00 and above. Figure 4-9 refers.



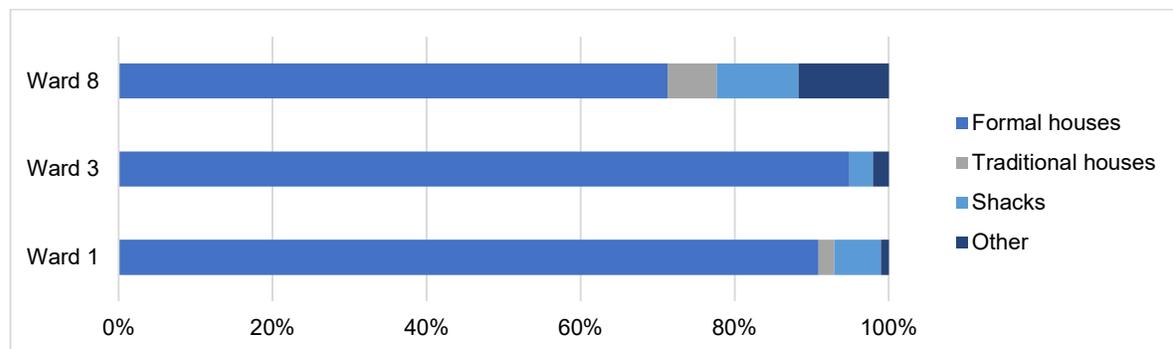
**Figure 4-9: Annual Income Brackets Households in Belfast and Siyathuthuka Township**

### 4.2.3 Service Delivery

This section discusses households' access to social services and infrastructure within Wards 1, 3 and 8.

#### 4.2.3.1 Access to Housing

On average 83% of the households within the wards occupy formal houses, while an average of six percent (6%) reside in shacks. Ward 8 had the largest proportion of households residing in both traditional house structures and other informal houses, including farm dwellings as shown in Figure 4-10.



**Figure 4-10: Household Access to Housing**

#### 4.2.3.2 Households Access and Sources of Water

The predominant water sources for households (average 87%) is piped water from a regional or local service provider, while an average of seven percent (7%) of households source water from boreholes. Almost all households in Ward 3 had access to piped water compared to the other wards. Some households in Ward 1 sourced water from tankers and springs, while in Ward 8 households accessed water from dams, streams, etc. Household water sources per ward are summarised in Figure 4-11.

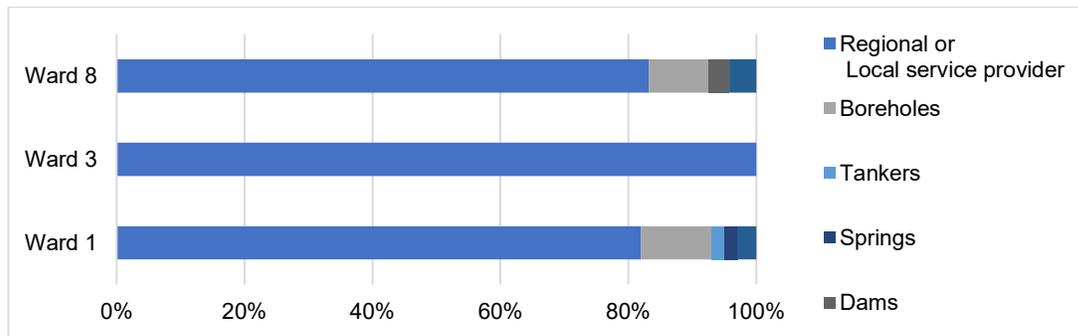


Figure 4-11: Household Access to Water

#### 4.2.3.3 Sanitation and toilet facilities

Most households across the wards (average 88%) have access to flush / or chemical toilets. The highest percentage of households who used unventilated pit latrines or did not have access to any sanitation facilities was found in Ward 8. Figure 4-12 indicates access to sanitation facilities.

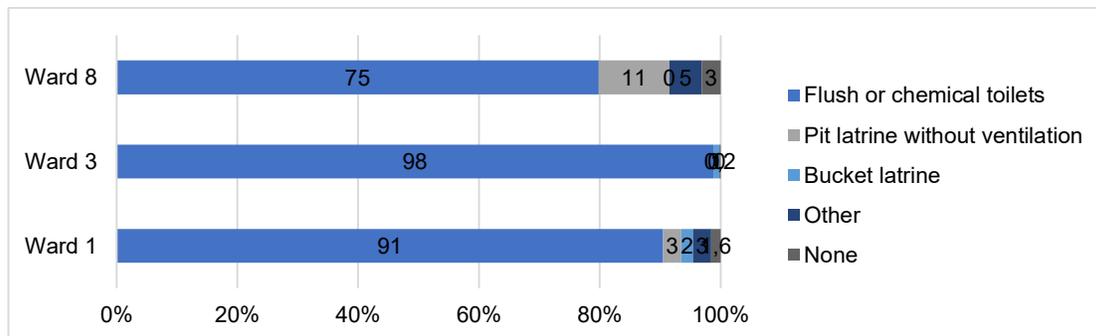


Figure 4-12: Household Access to Sanitation

#### 4.2.3.4 Electricity

Publicly available secondary data sources do not present households access to electricity at a ward level. As such, the data in this section is based on the data for households across ELM. Eighty-one (81%) of households in ELM have access to electricity while 17% do not.

#### 4.2.3.5 Refuse disposal

On average, 83% of households in the wards had their waste collected regularly by a local authority or private company; while an average of four percent (4%) did not benefit from waste collection services. Fourteen percent (14%) reported that they had their own waste collection facilities. A summary of waste collection services of households across the wards is presented in Figure 4-13.

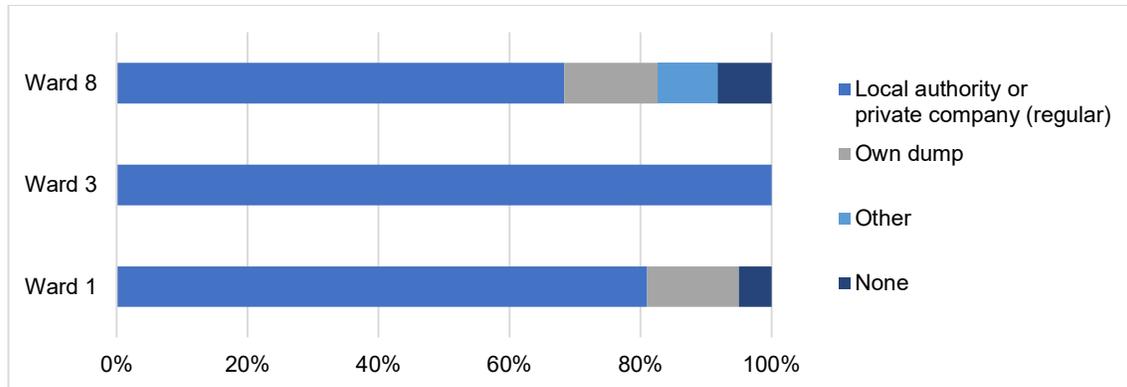


Figure 4-13: Waste collection services

### 4.3 Primary Study Area

The Mining Right boundary affects two farms that are privately owned. These affected properties have been defined as the primary study area.

The farm Weltevreden 381, Portions 9, 10, 23 and 24, is owned by Mr Gert Kleinhans. While Mr Kleinhans and his family live in nearby Belfast town, he undertakes commercial farming on the land, specifically, agro-forestry. He only employs one permanent employee, a woman who used to reside on the farm with her family. Mr Kleinhans recently bought the employee a house in Belfast and she now travels to and from the farm daily to oversee activities on the farm. He employs up to 300 contract workers during harvest. He reported that he is a member of the Forest Stewardship Council (FSC), an international non-profit organisation dedicated to the promotion of responsible forest management. The agro-forestry enterprise sells approximately 2,000 tons of timber per month to Sappi and PG Bison. Existing infrastructure on the farm consists of a single, abandoned residential structure. The Heritage Impact Study conducted for the purposes of the EIA identified the existence of at least eleven graves that were recommended to remain in situ and the layout of Pit OC2 amended prior to the Project commencing.



**Figure 4-14: Agro-Forestry on Kleinhans Farm**

The farm Weltevreden 381 Portions 3, RE/11 and 12 is owned by Mr Willie Pretorius. Mr Pretorius and his family live in Belfast but undertake commercial crop farming, maize and soya beans, and commercial livestock farming on the land. The maize and soya beans are processed on the farm and sold weekly to retailers in Hendriana, Belfast, Carolina and Machadadorp (eNtokozweni) and used as livestock feed for the farmer's livestock. Mr Pretorius currently employs 40 people, 15 of whom reside on the farm. He reported that when he purchases new land with the compensation for the land, he will relocate these 15 employees.

Existing infrastructure on the farm includes residential properties, offices, livestock pens, warehouses, sheds, equipment and machinery, and livestock drinking dams.



**Figure 4-15: Infrastructure on Pretorius Farm**

In addition, there are 15 farm dweller households on Portion 3 of the farm. Mr Pretorius noted that these households were already residing on the farm when he bought it and he did not see the need to ask them to move off the land. Instead, he and the farm dwellers agreed that they would continue to reside on the farm and use a small portion of the land on condition that they not interfere with the farmer's agricultural activities or expect to be employed by the farmer. These farm dweller households will be displaced by the Project, which will render them vulnerable to loss of livelihoods and impoverishment.



**Figure 4-16: Farm Dweller Households on Pretorius Farm**

A household socio-economic survey was not conducted with the farm dweller households located within the primary study area and the socio-economic indicators for the population and households in Ward 1, which encompasses the Mining Right boundary, are therefore taken as indicative for the households residing within the primary study area.

## 4.4 Applicable Stakeholder Comments

The stakeholder comments elicited during the consultation process with Project-affected communities and individuals are presented in Table 4-2.

**Table 4-2: Stakeholder Comments Regarding Socio-Economic Indicators**

Socio-Economic Indicators	Specific Issues	Stakeholder Comments
Human settlement and housing	Housing development	There is currently a backlog RDP in the area and the municipality is trying to strategize on how to overcome the housing crisis.
		There is an increase in housing demand due to an increase in population due to migrants and job seekers from Nelspruit, Witbank, Middleburg and Limpopo Province.
	Improved housing	Project to assist with improvement of housing. Most of the houses located within the primary study area are traditional mud structures and unfenced.
Economy	Employment opportunities	Unemployment is very high and mine must improve employment opportunities. The whole community needs jobs.
		Employment opportunities must only be given to those living within the primary study area. The predominant activities undertaken in the ward is agricultural activities.
	SMMEs	The Project should provide opportunities for SMME development.
	Negative impact on agriculture livestock and households	Loss of agricultural and grazing land due to Project activities.
		Mining activities may cause water pollution.
		The two proposed open pits (up to 30 meters deep) will act as a reservoir for water and thus deprive surrounding properties and catchment areas of water.
	Blasting and associated vibrations will result in structural damage of the houses located within the Project area.	
Profit-sharing	The mine must contribute or share at least 30% of profit with the local community so that they can create job opportunities for the youth.	

Socio-Economic Indicators	Specific Issues	Stakeholder Comments
Education	Skills training	Local community members are disadvantaged in terms of employment opportunities due to lack of relevant skills.
	Skills Development Plan	<p>A skills development plan for the workforce must set out the numbers of workers and their skill levels. It must also provide 'hard to fill vacancies' which are positions the company has been unable to fill over a period of at least 12 months;</p> <p>A career progression plan which is a plan to ensure workers can progress to more senior positions;</p> <p>A mentorship plan where workers are paired with mentors to make sure they can plan for the progress in their careers; and</p> <p>The employment equity statistics of the mine, as well as the mine's plan to ensure that 10% of the people participating in mining are women, and 40% of management positions are occupied by historically disadvantaged South Africans within 5 years from when the mining right is granted.</p>
Infrastructure	Health and education	Poor access to health facilities and the mine to should build a school or clinic for the ward.
	Roads	The roads are not up to standard, the mine must improve road networks in the primary and secondary study areas to ensure safe passage of Project vehicles.
Services	Electricity	Communities living within primary and secondary study areas do not have access to electricity.
	Water	Ward 1 households do not have access to clean water and access water from a borehole, there is no tapped water available to them. The mine must improve their standard of living by providing tapped water.
	Waste disposal	There is no waste site in Ward 1.
Community Development	Xivono SLP	<p>Neither the relevant municipal officials or the affected communities in the primary and secondary study areas have seen the Xivono SLP.</p> <p>Xivono must plan and implement community development projects in consultation with communities because communities know what their most urgent needs are.</p>

## 5 Project Impact Assessment

Impacts are rated prior to mitigation or enhancement and again after consideration of the proposed mitigation or enhancement measures. Mitigation measures are formulated to avoid or mitigate negative impacts and enhancement measures to enhance positive impacts.

The post- mitigation / enhancement rating provides an indication of the significance of residual impacts, while the difference between pre- and post- mitigation / enhancement ratings represents the degree to which the recommended measures are expected to be effective in mitigating or enhancing an impact.

The impacts for each phase of the Project are considered.

### 5.1 Construction Phase

The sections below provide details and the significance of potential socio-economic impacts associated with the construction phase of the Project.

The potential construction related impacts on the socio-economic environment are as follows:

- Employment creation during construction;
- Community health and safety impacts;
- Impacts related to loss of agricultural and grazing land;
- Impacts related to displacement of farm dweller households;
- Multiplier effects on the local and regional economy;
- Benefits from community development initiatives;
- Traffic impacts; and
- Impacts on sense of place.

The potential impacts on the socio-economic environment during the Construction Phase are further discussed in Table 5-1 to Table 5-8.

All the impacts discussed in this section except “Employment created during construction” will continue into the Operational Phase and beyond. They are therefore rated to reflect their duration across project phases.

#### 5.1.1 Employment Creation

The socio-economic profile of the Project area<sup>9</sup> indicates that households and communities are characterised by poverty, underdevelopment, and unemployment. There are widespread expectations that the Project will provide employment opportunities to members of communities in the Project area. Community members consulted expressed the opinion that

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<sup>9</sup> The Project area encompasses both the primary and secondary study areas and the communities, households and individuals residing therein.

mining companies operating within ELM do not employ locals or offer procurement opportunities to locally based businesses. The expectation is that the Project will contribute towards addressing high unemployment and low-income levels in the Project area and contribute to alleviating poverty and hardship.

The proposed Project will require the establishment of surface infrastructure and therefore has the potential to provide direct employment to people within the primary and secondary study areas during the Construction Phase, which is expected to span a period of one year. It is expected that many of these positions will last for a relatively short period and will largely involve unskilled and semi-skilled positions. However, the acquisition of new skills prior to and during the construction period will render individuals more employable for future phases of the Project.

To establish and maintain a Social License to Operate (SLO), Xivono should ensure that local community members benefit from employment and skills training opportunities as far as possible and stipulate these commitments in the Xivono SLP. It is important that Xivono engage with local communities and municipality to communicate these commitments to local employment and skills development to ensure community buy-in of the Project.

In addition to potentially creating job opportunities for construction workers, the Project may also lead to indirect employment creation in the informal sector.

The potential employment impacts and enhancement measures are described in Table 5-1.

**Table 5-1: Potential Impact for Employment Creation During Construction**

<b>Activity and Interaction:</b> Recruitment / Appointment of Construction Workforce			
<b>Impact Description:</b> Employment creation during construction			
<b>Prior to Enhancement</b>			
<b>Dimension</b>	<b>Rating</b>	<b>Motivation</b>	<b>Significance</b>
<b>Duration</b>	Medium term (3)	Construction activities will span 6 to 12 months.	Minor positive (40)
<b>Extent</b>	Regional (5)	While some unskilled and semi-skilled workers will be sourced from ELM, most semi-skilled and most skilled employees will likely originate from elsewhere in the Province and country.	
<b>Intensity</b>	Low positive (2)	Low skill levels within local communities may restrict employment opportunities. Employment offered to people not from local communities will reduce benefits to members of local communities.	
<b>Probability</b>	Probable (4)	Without appropriate enhancement measures (SLP commitments to local skills development and employment) local employment may be limited.	
<b>Nature</b>	Positive		
<b>Enhancement Measures</b>			
<ul style="list-style-type: none"> <li>▪ Develop and implement a recruitment policy that stipulates quotas for employment of members of communities, including females and youth, in primary and secondary study areas prior to the Construction Phase commencing;</li> <li>▪ Recruitment policies must be clearly defined and publicised in potential labour sending areas, especially in primary and secondary study areas;</li> <li>▪ Clearly communicate the Project's employment requirements in terms of skills, type of employment; and time frames especially for temporary and short-term jobs;</li> <li>▪ Utilise the exist ELM database for job seekers for recruitment purposes;</li> <li>• Comply with minimum wage requirements for unskilled labour and all other requirements, including gender equity, of the Employment Equity Act<sup>10</sup> to ensure maximum benefits accrue to workers;</li> <li>▪ Utilise the existing ELM contractor database for the appointment of qualified contractors;</li> </ul>			

<sup>10</sup> The Employment Equity Amendment Act 47 of 2013, Government Gazette, RSA, Volume 583, 16 January 2014, Cape Town.

<b>Activity and Interaction: Recruitment / Appointment of Construction Workforce</b>			
<ul style="list-style-type: none"> <li>▪ All tender documentation of contractors should clearly outline the local labour recruitment requirements in Xivono’s recruitment policy;</li> <li>▪ Where possible offer skills development preferably prior to, but at least during the start of the Construction Phase to members of communities in the primary and secondary study areas to improve their employability;</li> <li>▪ Continuous external monitoring of Xivono and its subcontractors in terms of local employment targets;</li> <li>▪ Provide local employees with reference letters for work undertaken and certificates of completion for in-house training; and</li> <li>▪ Implement a structured stakeholder engagement process, as well as direct communication channels to surrounding communities through the appointment of a Community Liaison Officer (CLO).</li> </ul>			
<b>Post-Enhancement</b>			
<b>Dimension</b>	<b>Rating</b>	<b>Motivation</b>	<b>Significance</b>
<b>Duration</b>	Medium term (3)	Construction activities will span 6 to 12 months.	Minor positive (55)
<b>Extent</b>	Regional (5)	If Xivono develops a procurement policy that commits to providing employment and skills training to members of communities in the primary and secondary study areas, the potential for local employment will be increased.	
<b>Intensity</b>	Moderate positive (3)	Mitigation measures may potentially increase employment from primary and secondary study areas, which will intensify positive change, especially among economically depressed households.	
<b>Probability</b>	Likely (5)	Mitigation will increase probability, through monitoring, that local employment is maximised and benefits optimised.	
<b>Nature</b>	Positive		

### 5.1.2 Community Health and Safety

Traffic impacts, which may affect workers as well as communities, are addressed in Table 5-7. This section deals with other types of potential Project-induced health and safety impacts, focusing specifically on those that may affect surrounding communities.

The most significant health and safety impacts to communities include:

- Dust from Project activities may adversely impact human and animal health and may impact households, crops, grazing land and water;
- Injuries and / or fatalities involving community members entering hazardous, access-restricted areas on the construction or mine site and / or being exposed to hazardous materials related to the Project;
- Pollution of water sources will affect the quality, quantity and availability of freshwater sources which and have adverse impacts on human and animal health;
- Increase in crimes like cattle theft if livestock owners cannot find secured alternative grazing land; and
- Increased incidence of HIV and STIs given the presence of the mine workforce.

The potential health and safety impacts and mitigation measures are described in Table 5-2.

**Table 5-2: Potential Community Health and Safety Impacts**

<b>Activity and Interaction:</b> All Construction and Operational Activities			
<b>Impact Description:</b> Community health and safety impacts			
<b>Prior to Mitigation/Management</b>			
<b>Dimension</b>	<b>Rating</b>	<b>Motivation</b>	<b>Significance</b>
<b>Duration</b>	Beyond project life (6)	Will continue for the duration of the Project, and likely continue during decommissioning when the Mine infrastructure is dismantled.	Minor negative (-70)
<b>Extent</b>	Local (3)	Will affect community members living, working or travelling in the Project area.	
<b>Intensity</b>	High - negative (-5)	Could place the health and lives of community members at risk and lead to reputational damage for Xivono.	
<b>Probability</b>	Likely (5)	The nature of the Project requires the infrastructure and activities described, which entail an inherent risk.	
<b>Nature</b>	Negative		
<b>Mitigation/Management Actions</b>			

<b>Activity and Interaction: All Construction and Operational Activities</b>			
<ul style="list-style-type: none"> <li>▪ Enforce the required buffer zones around all Project infrastructure in accordance with national legislation;</li> <li>▪ Control access to all Project elements, including fencing and physical / electronic security where necessary;</li> <li>▪ Sensitise communities and individual landowners in primary and secondary study areas about health and safety risks and mitigation measures prior to commencement of construction activities;</li> <li>▪ Ensure all visitors to the mine undergo health and safety induction and have appropriate PPE;</li> <li>▪ Adhere to the prescribed regulation and standards on the storage and disposal of hazardous materials, including explosives;</li> <li>▪ Implement mitigation measures stipulated in the specialist reports undertaken for this EIA to mitigate dust, blasting, and water and air quality impacts;</li> <li>▪ Implement HIV / AIDS and substance abuse prevention campaigns for the Construction and Operational Phase workforce in collaboration with local authorities and relevant NGOs. These campaigns can be expanded to the broader community at a later stage.</li> </ul>			
<b>Post-Mitigation</b>			
<b>Dimension</b>	<b>Rating</b>	<b>Motivation</b>	<b>Significance</b>
<b>Duration</b>	Beyond project life (6)	Will continue for the duration of the Project, and likely continue during decommissioning when the Mine infrastructure is dismantled.	Negligible negative (-33)
<b>Extent</b>	Local (3)	Will affect community members living, working or travelling in the immediate vicinity of Project infrastructure.	
<b>Intensity</b>	Low – negative (-2)	Where such impacts still occur, mitigation / management measures are likely to reduce their severity.	
<b>Probability</b>	Unlikely (3)	Mitigation / management will reduce the risk of such impacts occurring.	
<b>Nature</b>	Negative		

### 5.1.3 Loss of Agricultural and Grazing Land

The land that will be acquired for the Project is currently being used for commercial agricultural activities, specifically agro-forestry and crop cultivation, as well livestock grazing for subsistence livestock keeping by the farm dwellers living on the land. While the current landowners, who are engaged in commercial agricultural production, indicated that they will use the compensation received to purchase alternative land for agriculture, this nevertheless constitutes a loss of the forest plantations and crops being cultivated on the land. Moreover, the farm dwellers who currently graze livestock on the land may face challenges in accessing

grazing land of similar capacity and similarly secured, which will impact negatively on their livelihoods.

The potential impacts and mitigation measures related to the loss of grazing land are described in Table 5-3.

**Table 5-3: Potential Impacts Related to Loss of Agricultural and Grazing Land**

<b>Activity and Interaction:</b> Project-related Land Acquisition			
<b>Impact Description:</b> Impacts related to loss of agricultural and grazing land			
<b>Prior to Mitigation/Management</b>			
<b>Dimension</b>	<b>Rating</b>	<b>Motivation</b>	<b>Significance</b>
<b>Duration</b>	Permanent (7)	Affected grazing land will be permanently displaced.	<b>Moderate negative (-98)</b>
<b>Extent</b>	Very limited (1)	Will impact the owners and occupants residing in the primary study area.	
<b>Intensity</b>	Very high negative (-6)	It will no longer be possible to undertake agricultural activities on the land.	
<b>Probability</b>	Certain (7)	Nature and location of the Project will inevitably result in loss of agricultural land.	
<b>Nature</b>	Negative		
<b>Mitigation / Management Measures</b>			
<ul style="list-style-type: none"> <li>▪ Compensation for loss of land and other assets must be at full replacement cost;</li> <li>▪ Provide a sufficient transitional period to allow affected landowners to locate and purchase replacement land and relocate and re-establish their operations on the replacement land;</li> <li>▪ Assist farm dwellers to locate suitable alternative grazing land which is secure and affordable; and</li> <li>▪ Ensure that owners and occupants within the primary and secondary study areas are informed that crop cultivation and livestock grazing will not be permitted in the affected area.</li> </ul>			
<b>Post-Mitigation</b>			
<b>Dimension</b>	<b>Rating</b>	<b>Motivation</b>	<b>Significance</b>
<b>Duration</b>	Permanent (7)	Affected grazing land will be permanently displaced.	<b>Minor negative (-70)</b>
<b>Extent</b>	Very limited (1)	Will impact the owners and occupants residing in the primary study area.	
<b>Intensity</b>	Low negative (-2)	Mitigation will reduce intensity of impact of loss of agricultural land.	

<b>Activity and Interaction:</b> Project-related Land Acquisition			
<b>Probability</b>	Certain (7)	Nature and location of the Project will inevitably result in loss of some grazing land.	
<b>Nature</b>	Negative		

#### 5.1.4 Displacement of Farm Dweller Households

The 15 farm dweller households that are currently residing on Portion 9 of Weltevreden will be displaced when the land is acquired for the Project. While mining infrastructure will not be established on this portion of the Project land, the two open pits will be located in close proximity to the farm dweller households, rendering them directly affected by and vulnerable to the health and safety risks associated with blasting activities during the Operation Phase (see Table 5-11). The displacement and subsequent relocation of households and persons, particularly low-income households with limited financial and social resources, carries significant adverse impacts for such households and persons, including loss of livelihoods, impoverishment, and food insecurity. It is thus essential that the relocation of the farm dweller households be undertaken in accordance with best practice guidelines as well as national legislation, specifically, the Extension of Security of Tenure Act (ESTA).

The development of a Resettlement Action Plan (RAP) which includes provision for improved housing with security of tenure at an appropriate resettlement site, compensation for loss of assets at full replacement cost, informed participation and consultation, and livelihood restoration measures is essential to minimising these risks.

The potential impacts and mitigation measures related to physical displacement of farm dwellers described in Table 5-4.

**Table 5-4: Potential Impacts Related to Displacement of Farm Dweller Households**

<b>Activity and Interaction:</b> Project-related Land Acquisition			
<b>Impact Description:</b> Impacts related to displacement of farm dweller households			
<i>Prior to Mitigation/Management</i>			
<b>Dimension</b>	<b>Rating</b>	<b>Motivation</b>	<b>Significance</b>
<b>Duration</b>	Permanent (7)	Affected households will be permanently displaced.	Moderate negative (-105)
<b>Extent</b>	Very limited (1)	Will impact the farm dweller households residing in the primary study area.	

<b>Activity and Interaction: Project-related Land Acquisition</b>			
<b>Intensity</b>	Extremely high negative (-7)	Without proper mitigation, displacement could have significantly adverse impacts on the livelihoods and standard of living of farm dweller households.	
<b>Probability</b>	Certain (7)	Nature and location of the Project and associated health and safety risks will inevitably result in the displacement of farm dweller households.	
<b>Nature</b>	Negative		
<b>Mitigation / Management Measures</b>			
<ul style="list-style-type: none"> <li>▪ Develop and implement a RAP to best practice guidelines;</li> <li>▪ Provide transitional support to displaced farm dweller households to support livelihoods during the transitional period;</li> <li>▪ Establish a consultative structure to comply with the RAP's requirements for informed participation and consultation of affected households and relevant government representatives and departments;</li> <li>▪ Ensure that RAP implantation is monitored across time to ensure that displaced households' livelihoods are restored or improved and that they have obtained security of tenure at resettlement site.</li> </ul>			
<b>Post-Mitigation</b>			
<b>Dimension</b>	<b>Rating</b>	<b>Motivation</b>	<b>Significance</b>
<b>Duration</b>	Permanent (7)	Affected farm dweller households will be permanently displaced.	Minor negative (-70)
<b>Extent</b>	Very limited (1)	Will impact the farm dweller households residing in the primary study area.	
<b>Intensity</b>	Low negative (-2)	Adequate restoration will significantly reduce adverse effects of displacement.	
<b>Probability</b>	Certain (7)	Nature and location of the Project will inevitably result in loss of some grazing land.	
<b>Nature</b>	Negative		

### 5.1.5 Multiplier Effects on the Local and Regional Economy

The proposed Project could result in several socio-economic benefits through direct and multiplier effects stimulated by capital expenditure on Construction and Operational Phase activities.

Generally, industrial construction activities increase the demand for a wide variety of goods and services, and as a result stimulate and / or sustain growth within the regional manufacturing and service sectors. Both these sectors are already well established within Mpumalanga Province, which has a highly developed coal mining industry. This economic environment has the potential to generate opportunities for SMMEs, provided they are formalised and able to meet the procurement requirements of the proposed mine. If Xivono commits to making maximum use of local SMMEs and BBBEE companies, these benefits will be enhanced. Xivono may need to procure from businesses elsewhere in the province to meet highly technical needs.

Finally, the capital spent on the HRDP for mine employees and community development initiatives could, if implemented effectively and sustainably, represent economic progress within the Project area, thereby also creating conditions conducive to economic growth.

The potential impacts and enhancement measures related to multiplier effects on the local and region economy are described in Table 5-5.

**Table 5-5: Potential Impacts Related to Multiplier Effects on the Local and Regional Economy**

<b>Activity and Interaction:</b> Construction Activities' Impact on the Socio-Economic Environment			
<b>Impact Description:</b> Multiplier effects on the local and regional economy			
<i>Prior to Enhancement</i>			
<b>Dimension</b>	<b>Rating</b>	<b>Motivation</b>	<b>Significance</b>
<b>Duration</b>	Project Life (5)	Will peak during Construction Phase and continue throughout the remainder of the life of the Project.	Minor positive (48)
<b>Extent</b>	Regional (5)	Will include local and regional impacts.	
<b>Intensity</b>	Low positive (2)	Will derive from increased cash flow, stimulation of economic sectors, procurement, economic growth, increased demand in local markets, and community development and HRD initiatives.	

<b>Activity and Interaction: Construction Activities' Impact on the Socio-Economic Environment</b>			
<b>Probability</b>	Probable (4)	Will primarily depend on the proportion of local spending by employees, capacity of local and regional enterprises to supply goods and services, and effectiveness of community development and HRD initiatives.	
<b>Nature</b>	Positive		
<b>Enhancement Measures</b>			
<ul style="list-style-type: none"> <li>▪ Develop a procurement policy with local procurement targets to ensure maximum use of local SMMEs and BBBEE companies;</li> <li>▪ Include local procurement targets in contractors' Special Conditions of Contract where appropriate;</li> <li>▪ Monitor contractors and sub-contractors on local procurement on an annual basis through external auditors;</li> <li>▪ Compile a database of services or procurement opportunities, which could be delivered by local providers, e.g. provision of foodstuff, security, maintenance;</li> <li>▪ Develop a register of local SMMEs;</li> <li>▪ Establish linkages with skills development / SMME development organizations and other mining operations;</li> <li>▪ Clearly advertise the nature and extent of local procurement opportunities during the various project phases; and</li> <li>▪ Establish appropriate communication mechanisms with surrounding communities.</li> </ul>			
<b>Post-Enhancement</b>			
<b>Dimension</b>	<b>Rating</b>	<b>Motivation</b>	<b>Significance</b>
<b>Duration</b>	Project Life (5)	Will peak during Construction Phase and continue throughout the remainder of the life of the Project.	Moderate positive (90)
<b>Extent</b>	Regional (5)	Will include local and regional impacts.	
<b>Intensity</b>	High positive (5)	Enhancement will likely increase and intensify multiplier effects as it may concentrate impact within the primary and secondary study areas.	
<b>Probability</b>	Highly probable (6)	Increased local employment and procurement as well as upskilling of local enterprises will enhance likelihood of benefits to local economy.	

<b>Activity and Interaction:</b> Construction Activities' Impact on the Socio-Economic Environment		
<b>Nature</b>	Positive	

### 5.1.6 Community Development Initiatives

Currently, the Xivono SLP does not commit to any specific community development projects that the mine will implement for the SLP period but states that community development projects implemented by Xivono will be aligned with ELM's LED strategies and projects. Further, the SLP does not currently commit to local employment and skills development targets.

Contributing toward community development and social upliftment is central to establishing a productive relationship between the mine and its surrounding communities and therefore to establishing and maintaining Social Licence to Operate (SLO). When mining activities do not contribute to community development, either through community development projects or employment and skills development of members of local communities, this leads to tension and conflicts between mine and communities, which can result in protest action, destruction of mine infrastructure and work stoppages. This has negative time and cost consequences for the Project. The development and upliftment This is especially important for the communities in the primary and secondary study areas, both because households within these communities have a low socio-economic base and because members of these communities have very high expectations regarding Project benefits.

As indicated previously, there are a high number of female-headed households in the Project area and the Project should ensure that women are given an equal opportunity to participate in the community development initiatives.

The potential impacts and enhancement measures related to community development initiatives outlined are described in Table 5-6.

**Table 5-6: Potential Impacts Related to Community Development Initiatives**

<b>Activity and Interaction:</b> Implementation of community development initiatives			
<b>Impact Description:</b> Implementation of community development initiatives			
<b>Prior to Enhancement</b>			
<b>Dimension</b>	<b>Rating</b>	<b>Motivation</b>	<b>Significance</b>
<b>Duration</b>	Project Life (5)	Community development initiatives will be implemented during Construction and Operational Phases.	Negligible positive (3)
<b>Extent</b>	Local (3)	Will benefit mine workforce and communities in the primary and secondary study areas.	

<b>Activity and Interaction:</b> Implementation of community development initiatives			
<b>Intensity</b>	Negligible (0)	The intensity of the benefits is determined by the scale and reach of the development.	
<b>Probability</b>	Highly unlikely (1)	Without adequate commitment, planning, consultation and management, development initiatives are unlikely to be implemented.	
<b>Nature</b>	Positive		
<b>Enhancement Actions</b>			
<ul style="list-style-type: none"> <li>▪ Develop a Community Development Plan (CDP) that outlines processes for identifying, implementing and monitoring community development projects and skills development initiatives;</li> <li>▪ Use CDP to inform community development requirements and commitments in the Xivono SLP;</li> <li>▪ Consult with appropriate municipal officials, development agencies and affected communities to identify and plan appropriate development initiatives;</li> <li>▪ Design community development initiatives that will be sustainable beyond the life of the Project and independent of mining operations;</li> <li>▪ Early identification of community members for enrolment in literacy and portable skills training to improve likelihood of employment on the mine;</li> <li>▪ Conduct baseline socio-economic survey of households located within primary study area prior to commencement of community development initiatives to enable accurate identification of eligible LED project and skills training beneficiaries and measure impacts of development initiatives on households;</li> <li>▪ Collaborate with other developmental role players during implementation;</li> <li>▪ Ensure that service providers appointed to plan and implement community development initiatives have the requisite expertise and experience to do so successfully implement these initiatives;</li> <li>▪ Establish an external monitoring programme to monitor and evaluate community development initiatives as well as HRDP and procurement policy implemented by the mine and its contractors on an annual basis;</li> <li>▪ Expand skills development and capacity building programmes to non-employees; and</li> <li>▪ Maintain a record of training courses completed per individual and community. Where training is offered to non-employees, their contact information and qualifications can be shared with other industries.</li> </ul>			
<b>Post- Enhancement</b>			
<b>Dimension</b>	<b>Rating</b>	<b>Motivation</b>	<b>Significance</b>
<b>Duration</b>	Beyond project life (6)	If sustainably managed, benefits could extend beyond the life of the mine.	Minor positive (65)

<b>Activity and Interaction:</b> Implementation of community development initiatives			
<b>Extent</b>	Local (3)	Will benefit mine workforce and communities in the primary and secondary study areas.	
<b>Intensity</b>	Moderately high positive (4)	Recommended measures will enhance stakeholder buy-in and positive impact on beneficiaries.	
<b>Probability</b>	Probable (4)	Recommended measures will improve likelihood of development initiative implementation and sustainability.	
<b>Nature</b>	Positive		

### 5.1.7 Traffic Impacts

The main public road that will be utilised by the project will be the R33 which is adjacent to the Project site. This road is currently utilized by surrounding mines and the increased traffic from the Project will augment the current traffic hazards and risks.

If not effectively mitigated, this will likely pose a safety risk for existing road users as well as pedestrians, livestock and other animals in the areas adjacent to the access and haul road. This impact may extend to regional or national roads. Further to this, measures will need to be taken to address the likely deterioration of existing roads due to mine traffic.

The potential traffic impacts and mitigation measures for construction are described in Table 5-7.

**Table 5-7: Potential Traffic Impacts**

<b>Activity and Interaction:</b> All Construction- and Mine-related Traffic			
<b>Impact Description:</b> Traffic impacts			
<b>Prior to Mitigation/Management</b>			
<b>Dimension</b>	<b>Rating</b>	<b>Motivation</b>	<b>Significance</b>
<b>Duration</b>	Project life (5)	Will continue for the duration of the Project.	Minor negative (-65)
<b>Extent</b>	Local (3)	All R33 road users will be impacted.	
<b>Intensity</b>	High negative (-5)	Could place the lives of employees and all R33 road users at risk.	
<b>Probability</b>	Likely (5)	The Project requires the use of the R33, which holds an inherent risk.	
<b>Nature</b>	Negative		

<b>Activity and Interaction:</b> All Construction- and Mine-related Traffic			
<b>Mitigation/Management Actions</b>			
<ul style="list-style-type: none"> <li>▪ Develop and implement a Traffic Management Plan based on the recommendations in Traffic Impact Assessment. This plan should also include provisions on how the Project will select and manage its drivers (by means of training, a driver Code of Conduct, spot checks, drug and alcohol use policies, fatigue management, defensive driving training etc.);</li> <li>▪ Implement road maintenance measures to ensure that the quality of the access and haul road constructed by the mine is maintained;</li> <li>▪ Conduct regular road quality inspections;</li> <li>▪ Regulate Heavy Motor Vehicle traffic by implementing safe travelling speeds, restricting traffic to daylight hours;</li> <li>▪ Prevent speeding by installing traffic management and calming measures (e.g. speed humps); and</li> <li>▪ Sensitise community members, especially children, to potential traffic safety risks through community education.</li> </ul>			
<b>Post-Mitigation</b>			
<b>Dimension</b>	<b>Rating</b>	<b>Motivation</b>	<b>Significance</b>
<b>Duration</b>	Project life (5)	Will continue for the duration of the Project.	Negligible negative (-33)
<b>Extent</b>	Local (3)	All R33 road users will be impacted.	
<b>Intensity</b>	Moderate negative (-3)	Appropriate mitigation will reduce the risk of this impact.	
<b>Probability</b>	Unlikely (3)	Probability of traffic accidents will be reduced through mitigation / management.	
<b>Nature</b>	Negative		

### 5.1.8 Impacts on Sense of Place

Sense of place refers to the identity and character of a landscape as perceived by local inhabitants and incorporates both the natural and cultural environment.

As described previously, the Project area is rural in nature, sparsely populated, with agricultural production as the main economic activity. It is expected that the visual impact of surface infrastructure, including lighting at night, increased traffic activity, air quality and water quality impacts, and increased noise levels will alter inhabitants' sense of place.

These impacts, combined with actual or perceived changes in safety and security, are likely to negatively affect the quality of life and sense of well-being of the population living in the primary and secondary study areas. Moreover, the mine may negatively impact the property and land values in these areas.

The changes wrought by the construction and operation of the mine may be perceived as positive by communities whose quality of life is improved by the potential socio-economic benefits associated with employment opportunities and community development initiatives. They will not however be considered as positive by those community members or individual landowners who do not benefit from the Project.

Potential impacts related to sense of place and mitigation measures to address these, are described in are described in Table 5-8.

**Table 5-8: Impacts on Sense of Place**

<b>Activity and Interaction: Impact on Sense of Place</b>			
<b>Impact Description: Impact of Project infrastructure and activities on inhabitants' sense of place</b>			
<b>Prior to Mitigation / Management</b>			
<b>Dimension</b>	<b>Rating</b>	<b>Motivation</b>	<b>Significance</b>
<b>Duration</b>	Permanent (7)	Consequences of impacts may be permanent.	<b>Moderate negative (-98)</b>
<b>Extent</b>	Local (3)	Will mostly affect settlements within ELM.	
<b>Intensity</b>	Moderately high – negative (-4)	Mine may impact on inhabitants' sense of place and quality of life and result in a depreciation of property values for surrounding commercial farmers.	
<b>Probability</b>	Certain (7)	Impacts are largely unavoidable as a result of mining activities, especially if impacts are not mitigated.	
<b>Nature</b>	Negative		
<b>Mitigation/Management Actions</b>			
<ul style="list-style-type: none"> <li>▪ Implement mitigation measures stipulated in specialist studies (Surface and Ground Water Impact Assessment, Noise Impact Assessment, Air Quality Impact Assessment, Blasting and Vibration Impact Assessment and Traffic Impact Assessment) undertaken for this EIA;</li> <li>▪ Optimise mine plan / infrastructure placement to avoid / minimise negative impacts, especially in terms of visual intrusion, air quality and access disruptions;</li> <li>▪ Prioritise local employment and skills training and community development to ensure that affected communities benefit from the Project;</li> <li>▪ Establish a grievance mechanism to record grievances (related to air quality, water quality, blasting, traffic safety etc.) from affected communities and individual landowners; and</li> <li>▪ Implement corrective measures promptly.</li> </ul>			
<b>Post-Mitigation</b>			
<b>Dimension</b>	<b>Rating</b>	<b>Motivation</b>	<b>Significance</b>

<b>Activity and Interaction: Impact on Sense of Place</b>			
<b>Duration</b>	Beyond Project life (6)	Consequences of impacts may continue beyond the Operational Phase of the Project.	<b>Minor negative (-66)</b>
<b>Extent</b>	Project footprint and immediate surrounds (2)	Will mostly affect settlements within the primary and secondary study areas.	
<b>Intensity</b>	Moderate - negative (-3)	Mitigation will lessen physical impacts; affected people likely to adapt over time.	
<b>Probability</b>	Highly probable (6)	Impacts will still occur, albeit not to pre-mitigation degree.	
<b>Nature</b>	Negative		

## 5.2 Operational Phase

Most the social impacts described in Section 5.1 in relation to the Project's Construction Phase will continue into its Operational Phase. These include:

- Community health and safety impacts;
- Loss of agricultural and grazing land;
- Displacement of farm dweller households;
- Multiplier effects on the local and regional economy;
- Benefits from community development initiatives;
- Traffic impacts; and
- Impacts on sense of place.

These impacts have been rated, and their associated mitigation and enhancement measures formulated, in recognition that these impacts will endure beyond the Construction Phase into the Operational and Closure Phases.

The impacts described for the Operational Phase are either specific to the Operational Phase or their mitigation / management / enhancement measures require a shift in focus with the transition from the Construction to the Operational Phase. These impacts are described in Table 5-9 to Table 5-11 and include:

- Employment creation during the Operational Phase;
- Growth of the local economy; and
- Blasting impacts.

### 5.2.1 Employment Creation During the Operational Phase

An estimated total of 154 individuals will be employed through the mine during the Operational Phase of the Project. Employment will have a positive impact on employees and their dependents.

It is expected that some of this workforce will be drawn from the local and district municipalities as well as Mpumalanga Province, given the region's well-developed coal mining industry. Providing skills training to members of the communities in the primary and secondary study areas during the Construction Phase may qualify then for employment during the Operational Phase. This will allow some of the benefits of employment, such as wages, skills development and income security, to accrue to local communities. As discussed in Section **Error! Reference source not found.**, providing employment benefits to these communities is essential to maintaining the mine's SLO. However, it should be recognised that employment of South Africans from elsewhere in the country still constitutes a beneficial impact.

As with the Construction Phase, the Operational Phase of the proposed Project could give rise to indirect employment opportunities, including jobs in the informal and formal sectors.

Potential impacts related to employment creation during the Operational Phase and enhancement measures to address these, are described in are described in Table 5-9.

**Table 5-9: Potential Impacts Related to Employment Creation During Operation**

<b>Activity and Interaction:</b> Recruitment / appointment of Operational Phase workforce			
<b>Impact Description:</b> Employment Creation during Operation			
<b>Prior to Enhancement</b>			
<b>Dimension</b>	<b>Rating</b>	<b>Motivation</b>	<b>Significance</b>
<b>Duration</b>	Project Life (5)	Equal to the duration of the Operational Phase.	Minor positive (48)
<b>Extent</b>	Regional (5)	Some positions will be filled by persons living in primary and secondary study areas; however, it is likely that most positions will be filled by persons originating from local and district municipalities and Mpumalanga Province.	
<b>Intensity</b>	Low positive (2)	Without appropriate measures to promote local employment, it is likely that limited numbers of operational employees will be recruited from communities in the primary and secondary study areas.	

<b>Activity and Interaction: Recruitment / appointment of Operational Phase workforce</b>			
<b>Probability</b>	Probable (4)	It is highly probably that at least some operational employees will be recruited from communities in the primary and secondary study areas and elsewhere in the district and province.	
<b>Nature</b>	Positive		
<b>Enhancement Measures</b>			
<ul style="list-style-type: none"> <li>Continue implementation of employment policy recommended for Construction Phase which stipulates commitments and targets for employment and skills development of members of local communities;</li> <li>Monitor the contractors and sub-contractors on an annual basis through an external auditor to ensure their compliance with employment policy; and</li> <li>Provide focused training to construction phase employees from local communities to increase their chances for employment during operations.</li> </ul>			
<b>Post-Enhancement</b>			
<b>Dimension</b>	<b>Rating</b>	<b>Motivation</b>	<b>Significance</b>
<b>Duration</b>	Project Life (5)	Equal to the duration of the Operational Phase.	Moderate positive (84)
<b>Extent</b>	Regional (5)	Some positions will be filled by persons living in primary and secondary study areas; however, it is likely that most positions will be filled by persons originating from local and district municipalities and Mpumalanga Province.	
<b>Intensity</b>	Moderately high positive (4)	Enhancement measures will maximise local job creation.	
<b>Probability</b>	Highly probable (6)	Enhancement will maximise probability that local recruitment targets are achieved and local benefits optimised.	
<b>Nature</b>	Positive		

## 5.2.2 Growth of the Local Economy

Multiplier effects on the local and regional economy were described for the Construction Phase (Section 5.1.4; Table 5-5), albeit in recognition that this impact will continue throughout the Project life cycle. However, during the Operational Phase, this impact will acquire some additional dimensions that warrant separate discussion. These include the following:

- The State will receive royalty and tax payments for the extraction of coal and government structures will benefit from rates and taxes levied on Xivono. These

economic inputs may contribute to infrastructure and economic development at municipal and provincial levels; and

- The Project could contribute to local economic growth through the procurement of goods and services from local SMMEs and BBBEE companies, as per the mine’s procurement policy.

Potential impacts related to the growth of the local economy are described in are described in Table 5-10.

**Table 5-10: Potential Impacts Related to the Growth of the Local Economy**

<b>Activity and Interaction:</b> Operational Activity Impacts on the Local Economy			
<b>Impact Description:</b> Growth of the local economy			
<b>Prior to Enhancement</b>			
<b>Dimension</b>	<b>Rating</b>	<b>Motivation</b>	<b>Significance</b>
<b>Duration</b>	Project Life (5)	Would contribute to economic development throughout Xivono’s operation.	<b>Minor positive (52)</b>
<b>Extent</b>	National (6)	Economic benefits will be experienced at the local, regional and national levels.	
<b>Intensity</b>	Low positive (2)	Effects on the local economy will not be maximised without mitigation or enhancement.	
<b>Probability</b>	Probable (4)	Xivono is obliged by law to pay royalties and taxes, implement the SLP, and some economic multiplier effects may impact regional economic development.	
<b>Nature</b>	Positive		
<b>Enhancement Measures</b>			
<ul style="list-style-type: none"> <li>▪ Continue implementation of the measures recommended to enhance local employment, skills development, community development, and multiplier effects on the local economy for the Construction Phase;</li> <li>▪ Set targets to progressively increase local and regional procurement over the life of the Project; and</li> <li>▪ Incorporate SMME capacity development programmes into future iterations of the SLP to enable local suppliers to take maximum advantage of procurement opportunities during the Operational Phase.</li> </ul>			
<b>Post-Enhancement</b>			

<b>Activity and Interaction:</b> Operational Activity Impacts on the Local Economy			
<b>Dimension</b>	<b>Rating</b>	<b>Motivation</b>	<b>Significance</b>
<b>Duration</b>	Beyond Project Life (6)	Successful mitigation will prolong benefits of economic development beyond life of the Project.	<b>Moderate positive (96)</b>
<b>Extent</b>	National (6)	Economic benefits will be experienced at the local, regional and national levels.	
<b>Intensity</b>	Moderately high positive (4)	Successful enhancement will create an environment conducive for economic growth.	
<b>Probability</b>	Highly probable (6)	Enhancement will increase the probability of manifesting this impact.	
<b>Nature</b>	Positive		

### 5.2.3 Blasting Impacts

Blasting impacts that will result from the open pit blasting activities during the Operational Phase. A Blasting Impact Assessment (BIA)<sup>11</sup> was commissioned for the Project and outlines the ground vibration and air blast impacts associated with the open pit blasting and also includes mitigation measures for adjusting the blasting operations to ensure that expected levels of ground vibration and air blast are within required limits.

The blasting study identifies residential and other structures, specifically those located between the two open pit areas, that will be significantly impacted on even with the implementation of management and mitigation measures. These impacts include high levels of discomfort, structural damage, and the risk of injury. These impacts will lead to community complaints and tensions between the mine and surrounding households and communities, negatively affecting the mine's SLO.

The BIA suggests that the relocation of households that are situated in too close a proximity to the open pits would definitely reduce the blasting impact levels and thus the necessary relocation of the households located between the two open pits has been considered a Project impact (Section 5.1.4, Table 5-4).

The potential health and safety impacts and mitigation measures are described in Table 5-11.

**Table 5-11: Blasting Impacts**

<b>Activity and Interaction:</b> Blasting Activities During Operation
<b>Impact Description:</b> Community health and safety impacts for the Operational Phase

<sup>11</sup> Blast Impact Assessment, Proposed Xivono Mining (Pty) Ltd, October 2019, Blast Management and Consulting.

<b>Activity and Interaction: Blasting Activities During Operation</b>			
<b>Prior to Mitigation/Management</b>			
<b>Dimension</b>	<b>Rating</b>	<b>Motivation</b>	<b>Significance</b>
<b>Duration</b>	Project life (5)	Will continue for the duration of the Project.	<b>Moderate negative (-78)</b>
<b>Extent</b>	Proposed footprint and immediate surrounds (2)	Will affect homesteads and structures within and surrounding (3 500 m) the primary study area.	
<b>Intensity</b>	Very high - negative (-6)	Could cause, discomfort, injury or death to humans and animals and cause damage to structures, resulting in loss of Xivono's SLO and reputational damage.	
<b>Probability</b>	Highly probable (5)	The nature of the Project requires blasting activities which entail an inherent risk.	
<b>Nature</b>	Negative		
<b>Mitigation/Management Actions</b>			
<ul style="list-style-type: none"> <li>▪ Implement all management and mitigation measures outlined in the BIA, including a structural survey of surrounding structures;</li> <li>▪ Relocate the households that are located between the two pit areas and consider relocating other households and structures identified as vulnerable to problematic impacts in the BIA;</li> <li>▪ Enforce the required buffer zones around the pits in accordance with national legislation;</li> <li>▪ Sensitise communities and individual landowners in primary and secondary study areas about health and safety risks and mitigation measures prior to commencement of operational activities;</li> <li>▪ Establish a blasting notification protocol in collaboration with surrounding households, landowners. and communities that provides timely notification of schedule of blasting activities;</li> <li>▪ Establish a reporting and response protocol whereby surrounding homesteads and communities can report suspected blast damages and ensure that these reports are responded to quickly and efficiently; and</li> <li>▪ Where structural damages are ascertained to be caused by mine's blasting activities, ensure that compensation for damages or repair of damages is undertaken as soon as possible after the damages occurred.</li> </ul>			
<b>Post-Mitigation</b>			
<b>Dimension</b>	<b>Rating</b>	<b>Motivation</b>	<b>Significance</b>
<b>Duration</b>	Project life (5)	Will continue for the duration of the Project.	<b>Minor negative (-36)</b>

<b>Activity and Interaction: Blasting Activities During Operation</b>			
<b>Extent</b>	Proposed footprint and immediate surrounds (2)	Will affect homesteads and structures within and surrounding (3 500 m) the primary study area.	
<b>Intensity</b>	Low – negative (-2)	Where such impacts still occur, mitigation / management measures are likely to reduce their severity.	
<b>Probability</b>	Probable (4)	Mitigation / management will reduce the risk of such impacts occurring.	
<b>Nature</b>	Negative		

### 5.3 Decommissioning and Rehabilitation Phase

The Decommissioning and Closure Phase of the Project will result in several potential negative socio-economic impacts. However, any predictions regarding the characteristics of the receiving socio-economic environment at the time of closure are subject to a margin of error that reduces the accuracy of the impact rating provided in Table 5-12.

Employees and their dependents will inevitably become dependent on the mine and employment will be lost at mine closure (approximately 154 workers). More widely, project benefits arising from the procurement of goods and services as well as demand for goods and services by wage-earning employees will cease. The mine's direct involvement in community development initiatives will also cease. Economic downturn and the resultant loss of employment could result in increases in social pathologies, such as crime, gender violence, prostitution and substance abuse (IFC, 2012).

The severity of this impact depends to a large extent on the degree to which the local economy has grown dependent on the Project throughout its operation. For this reason, skills development, SMME development, and the design of community development initiatives to be sustainable beyond the life of the mine are key elements in successful mitigation of this impact. It will also be important to mitigate the negative impact of retrenchment on employees and their dependents.

The Xivono SLP (**Error! Reference source not found.**) outlines the measures it will implement to ameliorate the socio-economic impacts of mine closure on individuals, communities and economies where retrenchment or mine closure is certain. A Social Closure Plan will be developed to mitigate these impacts through focused interventions, including assessment and counselling services, comprehensive self-employment training programmes, comprehensive re-employment training programmes, and plans for alternative use of infrastructure and land.

However, given that Xivono is one of several mines in the area and that it will only employ a workforce of 154 workers, the significance of mine closure will be low on a regional scale.

Potential socio-economic impacts related to mine closure and mitigation measures to address these, are described in are described in Table 5-12.

**Table 5-12: Socio-Economic Impacts of Mine Closure**

<b>Activity and Interaction:</b> Closure of the Mine			
<b>Impact Description:</b> Job Losses and Negative Effects on the Local Economy			
<b>Prior to Mitigation/Management</b>			
<b>Dimension</b>	<b>Rating</b>	<b>Motivation</b>	<b>Significance</b>
<b>Duration</b>	Beyond Project Life (6)	Effects of retrenchments / decommissioning will be long-lasting for employees, local businesses and government.	Moderate negative (-84)
<b>Extent</b>	District (4)	Will most severely affect employees and service providers in the NDM district.	
<b>Intensity</b>	Moderately high negative (-4)	Given the small size of the mine, effects of mine closure will affect a limited number of households, businesses and the local economy.	
<b>Probability</b>	Likely (5)	Without effective mitigation, it is likely that economic dependence on the mine will develop.	
<b>Nature</b>	Negative		
<b>Mitigation / Management Measures</b>			
<ul style="list-style-type: none"> <li>▪ Develop a detailed Social Closure Plan at least 5 years prior to decommissioning, that includes a retrenchment plan for Project staff as well as a communication strategy that will keep employees and surrounding communities informed about closure timing and management strategies;</li> <li>▪ Develop and implement the required Human Resource systems to provide references for employees;</li> <li>▪ Ensure that employment contracts release employees from non-compete clauses following the closure of the Project;</li> <li>▪ Design community development initiatives that will be sustainable beyond the life of the Project and independent of mining operations;</li> <li>▪ Increase opportunities for ABET, portable skills training, and mining skills-related skills development during the Operational Phase; and</li> <li>▪ Proactively assess and manage the social and economic impacts on individuals, regions and economies where retrenchment and/or closure of the Project are certain.</li> </ul>			

<b>Activity and Interaction:</b> Closure of the Mine			
<b>Post-Mitigation</b>			
<b>Dimension</b>	<b>Rating</b>	<b>Motivation</b>	<b>Significance</b>
<b>Duration</b>	Beyond Project Life (6)	Effects of retrenchments / decommissioning will be long-lasting for employees, local businesses and government.	<b>Minor negative (-52)</b>
<b>Extent</b>	District (4)	Will most severely affect employees and service providers in the NDM district.	
<b>Intensity x type of impact</b>	Moderate negative (-3)	Mitigation will reduce economic dependency on the mine and ameliorate the impact of retrenchment.	
<b>Probability</b>	Probable (4)	Mitigation will reduce the likelihood that the local economy will grow dependent on the mine (even though eventual mine closure is inevitable).	
<b>Nature</b>	Negative		

## 6 Cumulative Impacts

Cumulative impacts are those impacts that result from the incremental impact, on areas or resources used or directly impacted by the project, from other existing, planned or reasonably defined developments (including third-party developments) at the time that the risks and impacts identification process is conducted (IFC PS 1, 2012).

There are ten other mines currently active within ELM. These are:

- Umsimbithi Mining Wonderfontein
- Mile Investment 284 (Pty) Ltd
- Marlin Kwaggaskop
- Lafarge Stonetech Machadodorp
- Glisa Colliery
- Belfast Silica Mine (Pty) Ltd.
- Belfast Granite Quarries (Pty) Ltd.
- Nkomati Nickel Mine
- Mafube Colliery
- UCD Eerstelingsfontein Mine

Potential cumulative impacts associated with the Project are listed in Table 6-1.

**Table 6-1: Potential Cumulative Impacts Related to Proposed Project**

<b>Nature</b>	<b>Direction of change</b>	<b>Extent of impact</b>
Improved standard of living through increased employment opportunities, local business development, and improved public and community services and facilities (the latter will be dependent on government and private-sector contributions).	Positive	Local and regional
Urban sprawl, housing backlog and / or growth of informal settlements.	Negative	Local and regional
Added pressure on local public service delivery and infrastructure, including housing, health systems, water and sanitation facilities, schools, and police services.	Negative	Local and regional
The use of non-local labour, due to unavailability of local skilled workers, may cause tension in local communities due to expectations that the Project should provide employment to locals.	Negative	Local
The visual impact of mining infrastructure and other industrial developments, and associated changes in land use, are significant and imprint an industrial character onto the rural agricultural landscape, impacting on sense of place.	Negative	Local and regional
Increased pressure on water resources to maintain the reserves required to supply basic human and ecological needs.	Negative	Local and regional
Compounded effects of lighting, noise, traffic, water pollution, dust emission, groundwater abstraction and physical reduction in habitat impacts community health and safety.	Negative	Local and regional
Reduced land availability for agricultural use (crop and livestock production).	Negative	Local, regional and national
Economic dependency on surrounding mines will negatively impact local, regional and national economies with decommissioning and mine closure.	Negative	Local, regional and national

Isolated attempts by Xivono to ameliorate the above impacts will have only limited success. It is essential that Xivono collaborates with the appropriate governmental and non-governmental structures and forums as well as the mining projects listed above to address these impacts.

## 7 Discussion

A total of 12 socio-economic impacts were identified for the proposed Project, five positive and seven negative impacts. A summary of the socio-economic impacts identified is presented in Table 7-1 and then followed by a discussion.

**Table 7-1: Summary of Potential Socio-Economic Impacts**

Impact	Activities Contributing to Impact	Pre-mitigation	Post-mitigation
Employment creation during construction	<p>Most construction-related Project activities will require a workforce. The following activities will trigger employment opportunities:</p> <ul style="list-style-type: none"> <li>Construction of mine-related infrastructure; and</li> <li>Employment of mine workforce</li> </ul>	Minor - positive	Minor - positive
Multiplier effects on the local and regional economy	<p>Project activities that involve capital expenditure may trigger multiplier effects on local economy, including:</p> <ul style="list-style-type: none"> <li>Employment of mine workforce;</li> <li>Appointment of contractors for construction of mine infrastructure, including access road;</li> <li>Procurement of goods and services from local SMMEs; and</li> <li>Implementation of community development and skills training initiatives.</li> </ul>	Minor - positive	Moderate - positive
Community development	<p>The implementation of community development initiatives will be triggered by:</p> <ul style="list-style-type: none"> <li>Commencement of the mine and mining activities; and</li> <li>Implementation of community development project and employment and skills training commitments and targets for members of local communities.</li> </ul>	Negligible - positive	Minor - positive
Loss of agricultural and grazing land	<p>The loss of grazing land will be triggered by the following activities:</p> <ul style="list-style-type: none"> <li>Land acquisition;</li> <li>Site clearing, including removal of topsoil and vegetation;</li> <li>Construction of surface infrastructure; and</li> <li>Blasting and development of pits, including stockpiling.</li> </ul>	Moderate - negative	Minor - negative

Impact	Activities Contributing to Impact	Pre-mitigation	Post-mitigation
Displacement of farm dweller households	The required relocation of farm dweller households will be triggered by the following activities: <ul style="list-style-type: none"> <li>▪ Acquisition of land for the Project; and</li> <li>▪ Blasting impacts, ground vibrations and air blast impacts, during Operation Phase.</li> </ul>	Moderate - negative	Minor - negative
Community health and safety impacts	Community health, safety and security will be potentially impacted by the following activities and events: <ul style="list-style-type: none"> <li>▪ Construction of mine infrastructure;</li> <li>▪ Open pit blasting during Operation Phase;</li> <li>▪ Loading, hauling and stockpiling of waste rock, RoM coal;</li> <li>▪ Plant and equipment operations;</li> <li>▪ Storage, handling and treatment of hazardous products and waste; including explosives;</li> <li>▪ On-site water use and storage;</li> <li>▪ Dust emissions; and</li> <li>▪ Demolition and removal of mine infrastructure.</li> </ul>	Minor - negative	Negligible - negative
Traffic impacts	Traffic hazards will be potentially be triggered by the following activities: <ul style="list-style-type: none"> <li>▪ Use of R33 road by mine vehicles; and</li> <li>▪ Use of local, regional and national roads by mine vehicles.</li> </ul>	Minor - negative	Negligible - negative

Impact	Activities Contributing to Impact	Pre-mitigation	Post-mitigation
Disturbance of sense of place	Disturbance of agricultural sense of place will be triggered by the following activities: <ul style="list-style-type: none"> <li>▪ Commencement of mine;</li> <li>▪ Blasting and development of the pits, including stockpiling;</li> <li>▪ Construction of mine infrastructure;</li> <li>▪ Drilling and blasting;</li> <li>▪ Loading, hauling and stockpiling of waste rock, RoM coal;</li> <li>▪ Plant and equipment operations;</li> <li>▪ Dust emissions; and</li> <li>▪ Increase in traffic and traffic hazards.</li> </ul>	Moderate - negative	Minor - negative
Employment creation during operation	Most operational activities will require a workforce.	Minor - positive	Moderate - positive
Growth of local economy	<b>Local economic growth will be potentially be triggered by the following activities:</b> <ul style="list-style-type: none"> <li>▪ Employment and project expenditure;</li> <li>▪ Payment of royalties and taxes;</li> <li>▪ Procurement of goods and services from local SMMEs;</li> <li>▪ Successful implementation of community development initiatives and employment and procurement policies; and</li> <li>▪ Mine and equipment operations.</li> </ul>	Minor - positive	Moderate - positive

Impact	Activities Contributing to Impact	Pre-mitigation	Post-mitigation
Blasting impacts	<ul style="list-style-type: none"> <li>▪ Implement all management and mitigation measures outlined in the BIA, including a structural survey of surrounding structures;</li> <li>▪ Relocate the households that are located between the two pit areas and consider relocating other households and structures identified as vulnerable to problematic impacts in the BIA;</li> <li>▪ Enforce the required buffer zones around the pits in accordance with national legislation;</li> <li>▪ Sensitise communities and individual landowners in primary and secondary study areas about health and safety risks and mitigation measures prior to commencement of operational activities;</li> <li>▪ Establish a blasting notification protocol in collaboration with surrounding households, landowners. and communities that provides timely notification of schedule of blasting activities;</li> <li>▪ Establish a reporting and response protocol whereby surrounding homesteads and communities can report suspected blast damages and ensure that these reports are responded to quickly and efficiently; and</li> <li>▪ Where structural damages are ascertained to be caused by mine’s blasting activities, ensure that compensation for damages or repair of damages is undertaken as soon as possible after the damages occurred.</li> </ul>	Moderate - negative	Minor - negative
Mine closure impacts on local economy	<p>Mine closure impacts on the local economy will be triggered by the following activities:</p> <ul style="list-style-type: none"> <li>▪ Retrenchment of workforce and cessation of operational expenditure; and</li> <li>▪ Cessation of procurement and goods from local SMMEs.</li> </ul>	Moderate - negative	Minor - negative

## 7.1 Positive Impacts

The successful implementation of the enhancement measures listed for each of these positive impacts in Section 5 will enhance their positive impacts. The significance of employment creation and multiplier effects on the local and regional economies can be increased from minor positive to moderate positive during the Construction and Operation phases, while the significance of community development impacts can be enhanced from negligible to minor positive if the enhancement measures are implemented. As indicated, SLP commitments to local employment, skills development, procurement and community development projects are essential to ensuring that members of local communities as well as local businesses and SMMEs benefit from the Project. These commitments have not been stipulated in the current Xivono SLP and it is essential that this shortcoming is addressed as soon as possible.

## 7.2 Negative Impacts

While none of the negative impacts can be avoided if the Project is approved, their intensity, duration and significance can be reduced if the mitigation measures listed for each impact in Section 5 are successfully implemented. With mitigation, the significance of negative impacts related to loss of agricultural and grazing land, displacement of farm dweller households, sense of place, blasting impacts and mine closure can be reduced from moderate negative to minor negative.

Similarly, with mitigation, the significance of negative impacts related to community health and safety and traffic impacts can be reduced from minor negative to negligible negative.

## 8 Recommendations

From a socio-economic perspective, it is recommended that the proposed Project only be allowed to proceed on condition of the following:

- The mitigation and enhancement measures listed for each impact, negative and positive, must be implemented;
- A Resettlement Action Plan (RAP) is developed and implemented in accordance with best practice standards to mitigate the adverse impacts on the livelihoods and standards of living of the farm dweller households that will be displaced by the Project;
- The Xivono SLP be updated to address the current gaps related to community development commitments and local employment and procurement commitments. It is essential that community development projects be identified and planned in collaboration with communities in the primary and secondary study areas as well as relevant municipal officials and development agencies;
- Develop and implement a robust stakeholder engagement plan geared towards promoting active communication between the authorities, communities and Xivono. The plan should include a grievance redress mechanism widely accessible to communities;

- A social management plan and social monitoring plan must be developed to manage and monitor the implementation of these measures and recommend corrective measures, where necessary; and
- Implement mitigation measures recommended in other specialist studies, including traffic, dust, blasting, ground and surface water and others, that are likely to have socio-economic impacts.

## 9 Conclusion

The proposed Project has the potential to benefit local, regional and national economies. There are high expectations amongst members of communities in the primary and secondary study areas regarding employment, skills training and procurement opportunities as well as development benefits. To establish and maintain a SLO, manage reputational risks, and minimise the cost and time risks associated with protest action, mine must endeavour to benefit local communities by implementing the mitigation and enhancement measures recommended in this report.

Effective stakeholder engagement involving consultation and information sharing is an important component of maintaining good community relations and of addressing community concerns and grievances regarding mining activities.

Xivono would be well-served to establish linkages with other institutions (e.g. government, other existing or planned mines, community development organisations and conservation groups) involved in local and regional economic development and social upliftment to maximise the benefits of its contribution to the welfare of local communities.

## 10 References

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## Appendix A: Impact Assessment Methodology

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

$$\text{Significance} = \text{consequence of an event} \times \text{probability of the event occurring}$$

where

$$\text{Consequence} = \text{Type of impact} \times (\text{Intensity} + \text{Spatial Scale} + \text{Duration})$$

and

$$\text{Probability} = \text{Likelihood of an impact occurring}$$

In the formula for calculating **consequence**:

$$\text{Type of impact} = +1 \text{ (for positive impacts) or } -1 \text{ (for negative impacts)}$$

The weight assigned to the various parameters for positive and negative impacts in the formula is presented in Table 10-1.

**Table 10-1: Impact Rating Options**

Rating	Criteria and definitions	
	Negative impacts (Type of impact = -1)	Positive impacts (Type of impact = +1)
Intensity		
7	Irreversible damage to highly valued items of great sociocultural significance or complete breakdown of social order	Noticeable, on-going social benefits which have improved the livelihoods and living standards of the local community in general
6	Irreparable damage to highly valued items of sociocultural significance or breakdown of social order	Great improvement to livelihoods and living standards of a large percentage of population
5	Very serious widespread social impacts. Irreparable damage to highly valued socio-cultural items	On-going and widespread positive benefits to local communities which improves livelihoods
4	On-going serious social issues. Significant damage to structures / items of sociocultural significance	Average to intense social benefits to some people
3	On-going social issues. Damage to items of sociocultural significance	Average, on-going positive benefits, not widespread but felt by some

2	<b>Minor medium-term social impacts on local population. Mostly repairable. Cultural functions and processes not affected</b>	<b>Low positive impacts experience by very few of population</b>
1	<b>Minimal social impacts, low-level repairable damage to commonplace structures</b>	<b>Some low-level social benefits felt by very few of the population</b>
Spatial scale		
7	<b><u>International:</u> The effect will occur across international borders</b>	
6	<b><u>National:</u> Will affect the entire country</b>	
5	<b><u>Province/ Region:</u> Will affect the regional study area and potentially the Mpumalanga Province</b>	
4	<b><u>Municipal Area:</u> Affect will be limited to the local study area</b>	
3	<b><u>Local:</u> Extending across the site and to nearby settlements within the local study area</b>	
2	<b><u>Limited:</u> Limited to the site and its immediate surroundings (i.e. site-specific study area)</b>	
1	<b><u>Very limited:</u> Limited to specific isolated parts of the site</b>	
Duration		
7	<b><u>Permanent:</u> The impact will remain long after the life of the project</b>	
6	<b><u>Beyond project life:</u> The impact will remain for some time after the life of the project</b>	
5	<b><u>Project Life:</u> The impact will cease after the operational life span of the Project (20 years)</b>	
4	<b><u>Long term:</u> 6-15 years</b>	
3	<b><u>Medium term:</u> 1-5 years</b>	
2	<b><u>Short term:</u> Less than one year</b>	
1	<b><u>Immediate:</u> Less than one month</b>	
Probability		
7	<b><u>Certain/ Definite:</u> There are sound scientific reasons to expect that the impact will definitely occur</b>	
6	<b><u>Almost certain/Highly probable:</u> It is most likely that the impact will occur</b>	
5	<b><u>Likely:</u> The impact may occur</b>	
4	<b><u>Probable:</u> Has occurred here or elsewhere and could therefore occur</b>	
3	<b><u>Unlikely:</u> Has not happened yet but could happen once in the lifetime of the project, therefore there is a possibility that the impact will occur</b>	

2	<b><u>Rare/ improbable:</u> Conceivable, but only in extreme circumstances and/ or has not happened during lifetime of the Project but has happened elsewhere. The possibility of the impact materialising is very low as a result of design, historic experience or implementation of adequate mitigation measures</b>
1	<b><u>Highly unlikely/None:</u> Expected never to happen.</b>

Impacts are rated prior to mitigation or enhancement and again after consideration of the proposed mitigation or enhancement measures. The impact is then determined and categorised into one of eight significance categories, as indicated in the Table 10-1. The relationship between consequence, probability and significance ratings is graphically depicted in Figure 10-1.

**Table 10-2: Significance Ratings**

Score	Description	Rating
109 to 147	A very beneficial impact that may be sufficient by itself to justify implementation of the project. The impact may result in permanent positive change	Major (positive) (+)
73 to 108	A beneficial impact which may help to justify the implementation of the project. These impacts would be considered by society as constituting a major and usually a long-term positive change to the (natural and / or social) environment	Moderate (positive) (+)
36 to 72	A positive impact. These impacts will usually result in positive medium to long-term effect on the natural and / or social environment	Minor (positive) (+)
3 to 35	A small positive impact. The impact will result in medium to short term effects on the natural and / or social environment	Negligible (positive) (+)
-3 to -35	An acceptable negative impact for which mitigation is desirable. The impact by itself is insufficient even in combination with other low impacts to prevent the development being approved. These impacts will result in negative medium to short term effects on the natural and / or social environment	Negligible (negative) (-)
-36 to -72	A minor negative impact requires mitigation. The impact is insufficient by itself to prevent the implementation of the project but which in conjunction with other impacts may prevent its implementation. These impacts will usually result in negative medium to long-term effect on the natural and / or social environment	Minor (negative) (-)
-73 to -108	A moderate negative impact may prevent the implementation of the project. These impacts would be considered as constituting a major and usually a long-term change to the (natural and / or social) environment and result in severe changes.	Moderate (negative) (-)
-109 to -147	A major negative impact may be sufficient by itself to prevent implementation of the project. The impact may result in permanent change. Very often these impacts are immitigable and usually result in very severe effects. The impacts are likely to be irreversible and/or irreplaceable.	Major (negative) (-)

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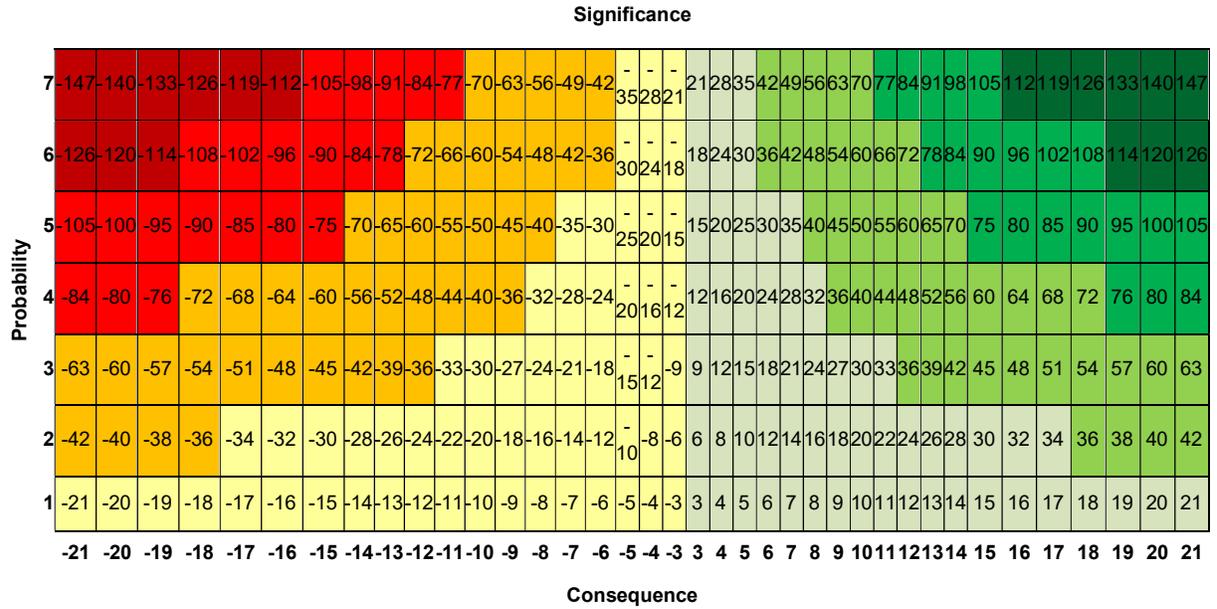
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**Figure 10-1: Relationship Between Consequence, Probability and Significance Ratings**

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