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Social Baseline Assessment for the RWEC/IDC Proposed Solar PV and Wind Farm Facility EIA, De Aar

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Undertaken for: SiVEST

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1. INTRODUCTION

SSI Engineers and Environmental Consultants, now operating as Royal HaskoningDHV (RHDHV) were commissioned by SiVEST to undertake a desktop research study toward a Social Baseline Assessment for the installation of a wind farm, solar photo-voltaic facility and associated components in the De Aar area of the Northern Cape Province of South Africa (Figure 1).

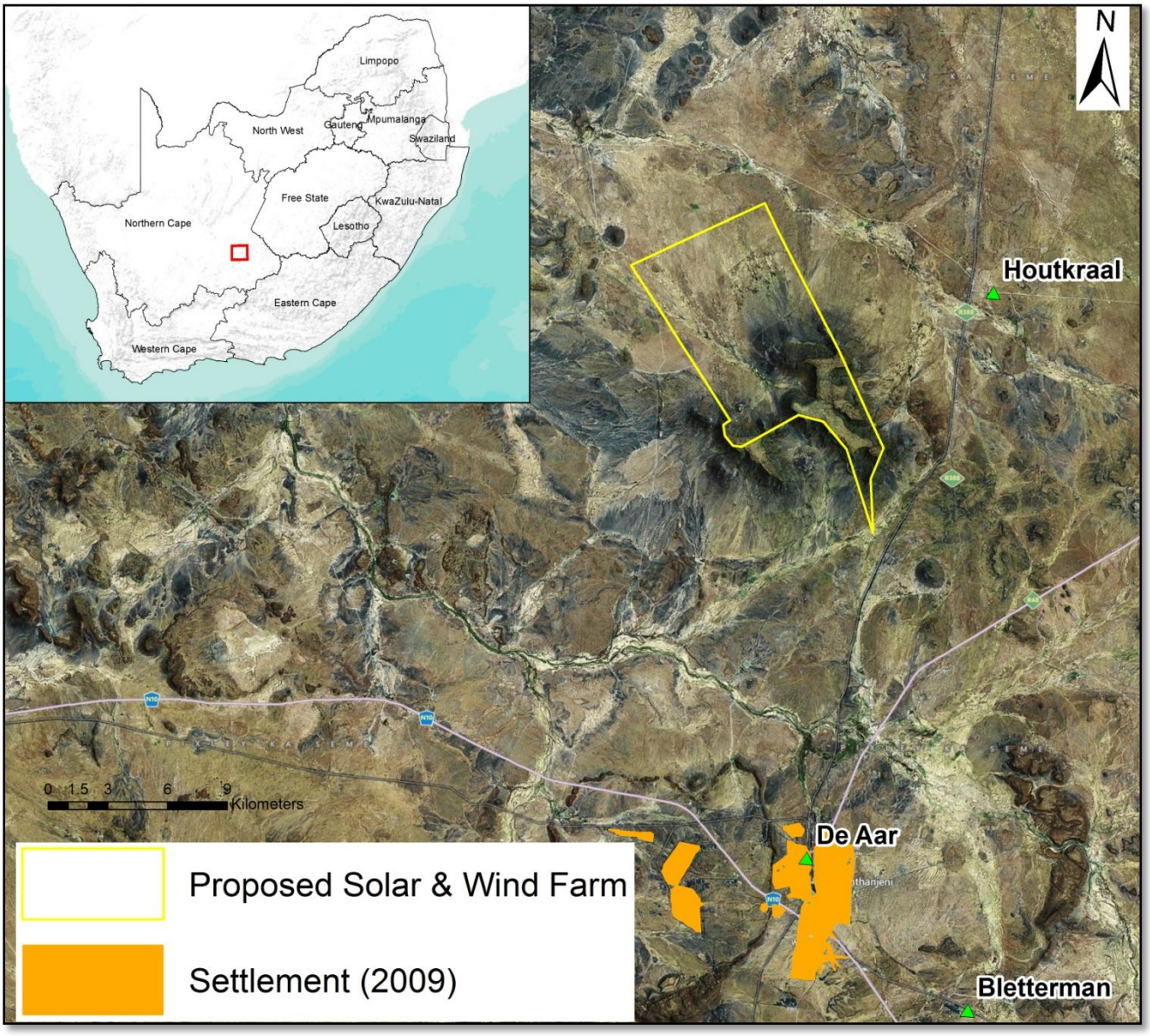

Figure 1. Location of the Proposed Solar PV and Wind Farm Facility Application Site

This report constitutes RHDHV's desktop research findings with respect to key socio-economic strengths and weaknesses at national, provincial, district and local municipal level that are pertinent to the proposed development. The data presented in this report is a consolidation of information obtained from numerous sources. Primary data sources are as follows:

- Millennium Development Goals Country Report: Republic of South Africa, 2010,

- Northern Cape Provincial Growth and Development Strategy. 2004 – 2014,
- Human Sciences Research Council Fact Sheet: Poverty in South Africa. 2004,
- Statistics South Africa. South African National Census Database. 2001,
- Northern Cape Provincial Profile. 2004. StatsSA,
- Integrated Development Plan for the Pixley ka Seme District Municipality 2011, and
- Integrated Development Plan for the Emthanjeni Local Municipality 2012.

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1.1. Project Context and Background

The sites that are proposed for the wind farm and solar PV power plant near De Aar are located on the following farms:

- Portions 1, 2, 3, 4, 5 and Remainder of the Farm Blaauwbosch Dam 103,
- Portion 1 and Remainder of the Farm Rhenosterberg 141, and
- Portion 1 of the Farm Gemsbok Dam 81

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The total area of the project site is 8065.754 hectares (ha) in size.

The proposed development falls within the Pixley ka Seme District Municipality, and the Emthanjeni Local Municipality. There is a greater 'all inclusive scoping area' that has been proposed for assessment to consider a wider area for potential environmental and social constraints. This is presented in the Figure below. The red lines show the respective proposed PV plant (on left) and wind farm (on right). The black boundary presents the 'all inclusive area.'

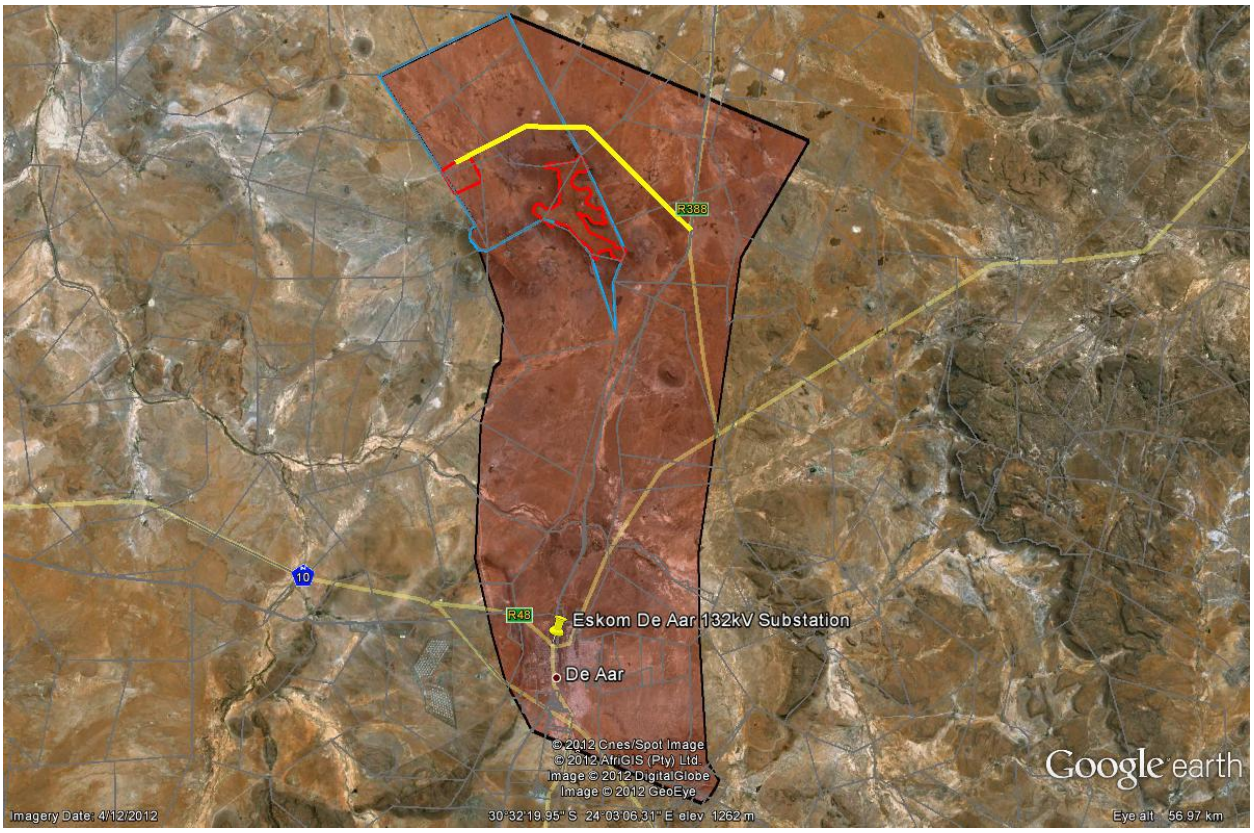


Figure 2. Location of the Proposed Solar PV and Wind Farm Facility Application Site

1.1.1. The PV Plant

The proposed project will encompass the installation of a solar field and its associated components, in order to generate electricity that is to be fed into the existing Eskom grid. The solar photo-voltaic power plant area will occupy an area of approximately 250 hectares (Figure 3), approximately 20 kilometers north of the town of De Aar. The total power generation capacity limit will ultimately depend on the size of the developable area which will be determined by environmental constraints (if any) to be identified in the EIA. It is currently envisaged that the total generation capacity will be no more than 150 Megawatts (MW). The voltage of the connection lines from the solar PV power plant substation to the grid will be dependent on the total generation capacity and the actual available connection as determined by Eskom after EIA approvals have been granted. The solar power plant will include infrastructure consisting of the solar field (that is the solar panels) and buildings. The buildings will likely be a single storey building approximately 150 to 350m² which will be required to accommodate the following:

- Control room,
- Workshop,
- HV switchgear,
- Mess Room,
- Toilets,
- SCADA Room, and
- Storeroom

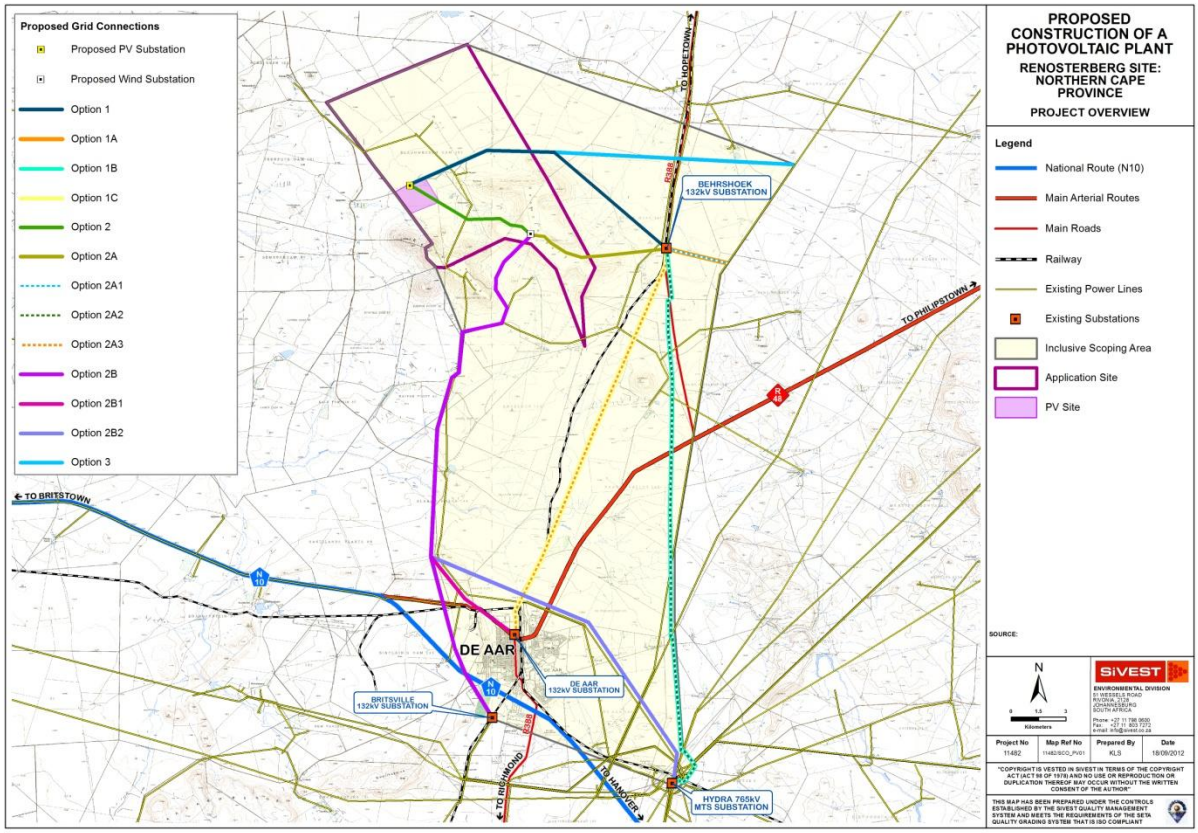


Figure 3. Solar PV power plant grid connection options

1.1.1.1. Associated infrastructure

Medium voltage transformers can be compact transformers distributed throughout the solar field or alternatively located in a central substation. It is likely to be a central substation in this instance. The location of the construction substation will be determined at a later stage in the EIA process based on environmental constraints and design factors.

A distribution substation will ideally be located in close proximity to the existing power lines where possible to limit impact. The substation will be securely fenced. Where the substation is beside the line, the connection to the line will be via drop-down conductors. Where the line is remote from the substation, the connection will be by overhead line, using either pole or pylon structures depending on the voltage.

With regards to the connection of the electricity generated at the PV plant and its connection to the national (Eskom) grid, a number of power line route alternatives have been proposed and will be further investigated in the EIA phase. The proposed alternatives may either link into existing lines in which case a switchyard will also be required, or alternatively establish a completely new line that will link into an existing Eskom substation. A number of potential Eskom substation have preliminarily been identified including Behrshoek 132kV Distribution Substation, De Aar 132kV Distribution Substation, Britsville 132kV Distribution Substation and Hydra 765kv Transmission Substation.

A general construction lay-down area will be required for the construction phase of the proposed solar PV power plant. The area may be up to approximately 80 hectares in size. However, this is likely to smaller. The location of the construction lay-down area will be determined at a later stage in the EIA process based on environmental constraints and design factors.

1.1.1.2. Powerline Route Options

PV Power Line Route Option 1

PV Power Line Route Option 1 consists of establishing a direct connection approximately 15km in length routing in an easterly direction, north of the Renosterberg Plateau to the Behrshoek 132kV distribution substation.

The PV Power Line Route Option 1 then has three potential sub-alternatives (1A, 1B and 1C) stemming from Behrshoek distribution substation. PV Power Line Route Option 1A follows the same path as Option 1 but routes past the Behrshoek 132kv Distribution Substation for approximately 3km linking into the existing 765kV Transmission power line running to the Hydra 765kV transmission substation using a loop-in/loop-out connection via a switchyard. The total length of the alternative is approximately 18km.

PV Power Line Route Option 1B likewise follows the same routes as Option 1 and 1A going north around the Renosterberg plateau and routing to the Behrshoek 132kv distribution substation. However, from this point, the sub-alternative will run southwards directly to the Hydra 765kv transmission substation for an estimated 30km. The total length of PV Power Line Route Option 1b is approximately 45km.

PV Power Line Route Option 1C similarly follows the same routes as Option 1 and 1A going north around the Renosterberg plateau and routing to the Behrshoek 132kv distribution substation. From Behrshoek 132kV distribution substation the proposed line follows a south westerly direction for approximately 22km until

connecting directly into the De Aar 132kV Distribution Substation. The total length of PV Power Line Route Option 1C is approximately 37km.

PV Power Line Route Option 2

PV Power Line Route Option 2 runs from the proposed solar PV plant substation site to the proposed wind farm substation site. This route is approximately 6.2km in length and follows a south eastern trajectory to a central location on the Renosterberg plateau. The portion of the proposed power line represents an overhead interconnecting line between the proposed solar PV plant substation and the proposed wind farm substation. PV Power Line Route Option 2 has two potential sub-alternatives including 2A and 2B. Sub-alternative 2A additionally has three more potential sub-alternatives including 2A1, 2A2 and 2A3. Sub-alternative 2B on the other hand, has two more potential sub-alternatives. This includes 2B1 and 2B2.

PV Power Line Route Option 2A is approximately 6.5km in length and follows an easterly trajectory from the Renosterberg plateau to the Behrshoek 132kv distribution substation. The total length of PV Power Line Route Option 2A is approximately 13.7km. From this point, the three sub-alternatives originate.

PV Power Line Route Option 2A1 follows the same path as PV Power Line Route Option 2A but routes past the Behrshoek 132kv distribution substation for approximately 3km linking into the existing 765kV transmission power line running to the Hydra 765kV transmission substation using a loop-in/loop-out connection via a switchyard. The total length of PV Power Line Route Option 2A1 is approximately 16.7km.

PV Power Line Route Option 2A2 follows the same path as PV Power Line Route Option 2A but routes past the Behrshoek 132kv distribution substation and runs southwards directly to the Hydra 765kv transmission substation for an estimated 30km. The total length of PV Power Line Route Option 2A2 is approximately 43.7km.

PV Power Line Route Option 2A3 follows the same path as PV Power Line Route Option 2A but routes past the Behrshoek 132kv distribution substation and follows a south westerly direction for approximately 22km until connecting directly into the De Aar 132kV Distribution Substation. The total length of PV Power Line Route Option 1C is approximately 35.7km.

PV Power Line Route Option 2B route heads from the proposed wind farm substation site in a southerly direction for an approximate length of 29km linking directly into Britsville 132kV distribution substation. The total length of PV Power Line Route Option 2B is 35.2km.

PV Power Line Route Option 2B1 route heads from the proposed wind farm substation site in a southerly direction following the same path as PV Power Line Route Option 2B for an approximate length of 19.9km but deviates in a south easterly direction for a distance of 5.8km from this point linking directly into De Aar 132kV distribution substation. The total length of PV Power Line Route Option 2B1 is approximately 32.4km.

PV Power Line Route Option 2B2 route heads from the proposed wind farm substation site in a southerly direction following the same path as PV Power Line Route Option 2B for an approximate length of 19.9km but deviates in a south easterly direction for a distance of 18km from this point linking directly into Hydra 765kV transmission substation. The total length of PV Power Line Route Option 2B2 is approximately 44km.

PV Power Line Route Option 3

Finally, PV Power Line Route Option 3 routes in a north easterly direction for approximately 4km before diverting to the east for approximately 14km making the total length of the proposed power line alternative approximately 18km. The connection will be via Loop-in/Loop-out switchyard connection to the existing 765kV power line that eventually links in the Hydra 765kV transmission substation near De Aar.

It should be noted that whilst several power line route options have preliminarily been identified, these fall within a greater 'all inclusive scoping area' that has been proposed for assessment in order to consider a wider area for potential environmental constraints. This area has been delineated to allow for flexibility in the placement of infrastructure necessary for the proposed development should any major constraints be identified during the environmental assessment process. Therefore, the above-mentioned proposed power line routes are subject to change based on any environmental constraints identified and design factors that need to be considered.

1.1.2. The Wind Farm

The project will involve the construction of a wind farm with a total capacity of up to 250MW across nine land portions (Figure 4). The total area for all the wind turbines (approximately 83 to 138) for the Renosterberg study site will be between approximately 26 892m² (2.68 ha) and approximately 44 712m² (4.47 ha) (not including the hard standing areas). The maximum output capacity of each wind turbine may range from 1.8 to 3MW each. The total footprint for each wind turbine and the associated hard standing area will either be 1 574m² or 4 074m². The foundation will be up to 4m deep.

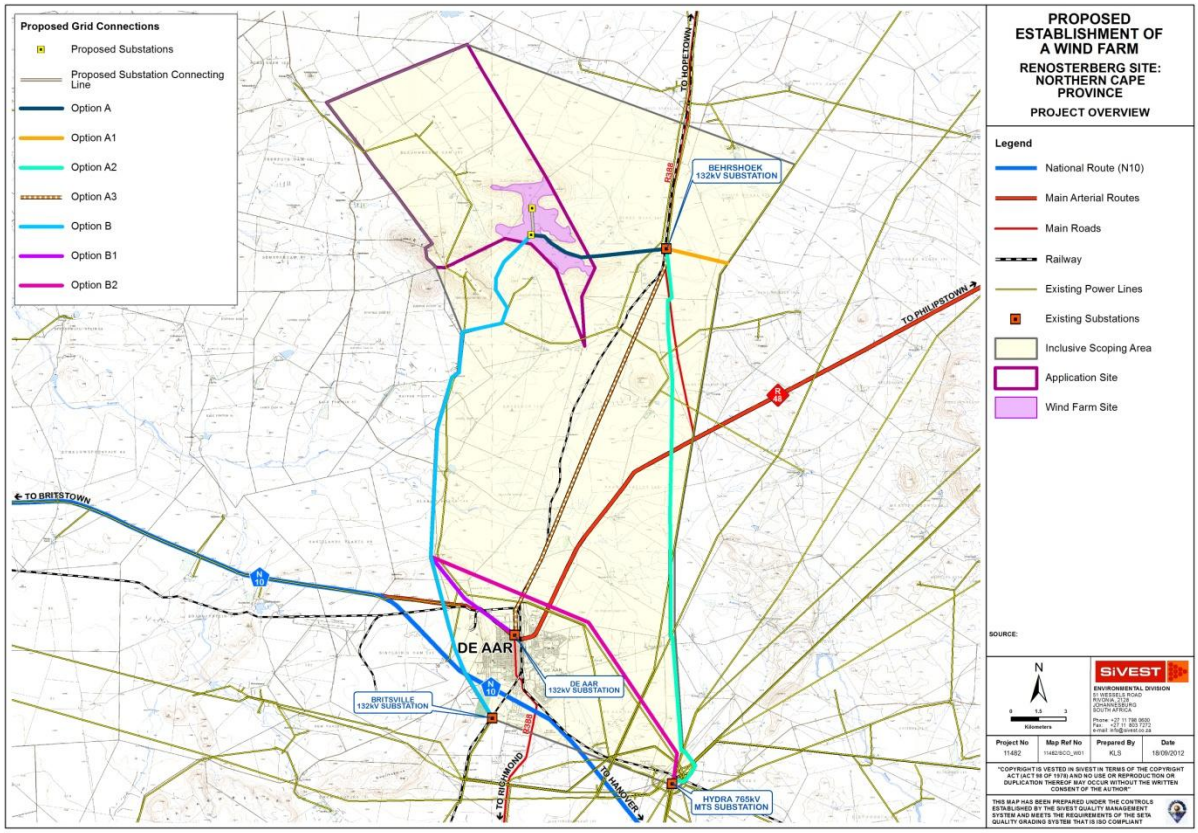


Figure 4. Wind farm grid connection options

1.1.2.1. Associated infrastructure

The wind turbines will be connected to each other and to a substation using buried 33kV voltage cables except where a technical assessment of the proposed design suggests that overhead lines are appropriate. No servitudes will be associated with the wind farm infrastructure.

At this stage a number of power line route alternatives have been proposed and will be further investigated in the EIA phase. The proposed alternatives may either link into existing lines in which case a switchyard will also be required, or alternatively establish a completely new line that will link into an existing Eskom substation. A number of potential Eskom substations have preliminarily been identified including Behrshoek 132kV Distribution Substation, De Aar 132kV Distribution Substation, Britsville 132kV Distribution Substation and Hydra 765kV Transmission Substation.

The wind farm will require an onsite building which will relate to the daily operation of the wind farm. The wind farm will therefore require an administration building (office). Potential locations for the administration building will be determined at a later stage in the EIA process based on environmental constraints and design factors. The buildings will likely be a single storey building approximately 150 to 350m² which will be required to accommodate the following:

- Control room,
- Workshop,
- HV switchgear,
- Mess Room,
- Toilets,
- Supervisory Control and Data Acquisition (SCADA) Room – Control System room, and
- Storeroom.

1.1.2.2. Powerline Route Options

As mentioned above, the option of constructing a new power line to link into an existing power line or to link to nearby Eskom substations will be assessed. As such, provisional routes are being investigated. These include Power Line Options A and B. The Power Line Option A has three of sub-alternatives whist Power Line Option B has two sub-alternatives. The details pertaining to the various proposed power line routes alternatives are explored in greater detail below.

- Power Line Route Option A

The Power Line Route Option A has three potential sub-alternatives (A1, A2 and A3). Power Line Route Option A1 will be a direct connection to the Behrshoek 132kV Distribution Substation. Option A1 will consist of an overhead interconnecting line between the two substation alternatives for an approximate length of 1.5km.

The Power Line Route Option A routes to the east and then south east, traversing the plateau and then the plateau escarpment, before heading in a slightly north but mostly, easterly direction for an approximate length of 6.5km to the Behrshoek 132kV Distribution Substation. The total length of Option A1 is approximately 6.5km.

Power Line Route Option A1 follows the same path as Option A1 but routes past the Behrshoek 132kv Distribution Substation for approximately 3km linking into (Loop-in/Loop-out connection via switchyard) the existing 765kV transmission power line running to the Hydra 765kV Transmission Substation. The total length of the alternative is approximately 11km. Power Line Route

Option A2 likewise follows the same routes as Option A1 routing to the Behrshoek 132kV Distribution Substation. However, from this point, the sub-alternative will run southwards directly to the Hydra 765kV Transmission Substation for approximately 30km in length.
Option A3 similarly follows the same routes as Option A1 routing to the Behrshoek 132kV Distribution Substation. However, from this point, the sub-alternative heads in a southerly direction for an approximate length of 25.5km linking directly into De Aar 132kV Distribution Substation.

- Power Line Route Option B

PV Power Line Route Option B route heads from the proposed wind farm substation site in a southerly direction for an approximate length of 29km linking directly into Britsville 132kV distribution substation. The total length of PV Power Line Route Option 2B is 35.2km.

PV Power Line Route Option B1 route heads from the proposed wind farm substation site in a southerly direction following the same path as PV Power Line Route Option B for an approximate length of 19.9km but deviates in a south easterly direction for a distance of 5.8km from this point linking directly into De Aar 132kV distribution substation. The total length of PV Power Line Route Option B1 is approximately 32.4km.

PV Power Line Route Option B2 route heads from the proposed wind farm substation site in a southerly direction following the same path as PV Power Line Route Option B for an approximate length of 19.9km but deviates in a south easterly direction for a distance of 18km from this point linking directly into Hydra 765kV transmission substation. The total length of PV Power Line Route Option B2 is approximately 44km.

As a final note, it is important to point out that whilst several power line route options have preliminarily been identified, these fall within a greater ‘all inclusive scoping area’ that has been proposed for assessment to consider a wider area for potential environmental constraints. This area has been delineated to allow for flexibility in the environmental assessment process should any major constraints be identified. Therefore, the above-mentioned proposed power line routes are subject to change or be refined based on environmental constraints and design factors.

- No-go Alternative

The ‘no-go’ alternative is the option of not establishing the proposed wind farm. South Africa is currently under immense pressure to provide electricity generating capacity to accommodate for the pressures which have been identified in this regard. With the current global focus on climate change, the government are under severe pressure to explore alternative energy sources in addition to coal fired power stations. Although wind farm is not the only solution to solving the energy crisis in South Africa, not establishing the proposed solar PV power plant would be detrimental to the mandate that the government has set to promote the implementation of renewable energy. It is a suitable sustainable solution to the energy crisis and this project would contribute to this solution.

This project will aid in achieving South Africa's goals in terms of sustainability, energy security, mitigating energy cost risks, local economic development and national job creation.

1.2. Report Structure

This report is structured in the following manner:

Section One: An introduction to the proposed developments (also referred to as the site application area) with a description of the activity and the associated infrastructure and facilities that will be established,

Section Two: An overview of pertinent legislation and policy relevant to national and provincial development targets,

Section Three: An overview of social and economic indicators at national, provincial, district and local municipal levels, respectively. A more focussed presentation of Ward 6 social and economic information (as the Ward in which the developments are proposed), are also presented,

Section Four: A discussion of the potential social and economic impacts and a reference point for a Scope of Work going forward, and

Section Five: A reference list of literature utilised for the development of this Baseline assessment.

2. LEGISLATION AND POLICY

2.1. South African Millennium Development Goals

The Millennium Development Goals (MDGs) consist of eight development priorities. The eight Millennium Development Goals which range from halving extreme poverty to halting the spread of HIV/AIDS and providing universal primary education form a blueprint agreed to by all the world's countries and all of the leading developmental institutions in the world. As a member state of the United Nations, South Africa is a signatory to this agreement. The eight MDGs, in numerical order, are:

1) To eradicate extreme poverty and hunger;
2) To achieve universal primary education;
3) To promote gender equality and empower women;
4) To reduce child mortality;
5) To improve maternal health;
6) To combat HIV/AIDS, malaria and other diseases;
7) To ensure environmental sustainability; and
8) To develop a global partnership for development.

(Country Report 2010, UNDP)

The New Partnership for Africa's Development (NEPAD) was launched in 2002 and was designed to address the current challenges facing the African continent. Issues such as the escalating poverty levels, underdevelopment and the continued marginalisation of Africa are seen to need radical intervention. The NEPAD, states that it is spearheaded by African leaders to develop a new vision that would guarantee Africa's renewal.
The primary objectives of NEPAD are:

- To eradicate poverty;
- To place African countries, both individually and collectively, on a path of sustainable growth and development;
- To halt the marginalisation of Africa in the globalisation process and enhance its full and beneficial integration into the global economy; and
- To accelerate the empowerment of women.

2.1.1. South Africa's Medium Term Strategic Framework

The Medium Term Strategic Framework (MTSF) (MTSF 2009-2014) is a statement of government intent. It identifies the development challenges facing South Africa and outlines the medium term strategy for improving living conditions of South Africans. The MTSF base document is meant to guide planning and resource allocation across all spheres of government. National and provincial departments in particular need to develop five year strategic plans and budget requirements, taking into account the medium-term imperatives. Similarly, informed by the MTSF and their 2006 mandates, municipalities are expected to synergise their integrated development plans in line with the national medium-term priorities (UNDP Country Report 2010)

The MTSF's strategic priorities are captured in the table below.

Table 1. Linkage between Medium Term Strategic Framework and Millenium Development Goals

Linkage between South Africa's national development planning and the MDGs		
MTSF STRATEGIC ELEMENTS		**RELEVANT MDGS**
1.	Strategic Priority 1: Speeding up growth and transforming the economy to create decent work and sustainable livelihoods	MDG 1, MDG 2, MDG 3, MDG 8
2.	Strategic Priority 2: Massive programme to build economic and social infrastructure	MDG 1, MDG 3, MDG 8
3.	Strategic Priority 3: Comprehensive rural development strategy linked to land and agrarian reform and food security	MDG 1, MDG 2, MDG 7
4.	Strategic Priority 4: Strengthen the skills and human resource base	MDG 2
5.	Strategic Priority 5: Improve the health profile of all South Africans	MDG 4, MDG 5, MDG 6
6.	Strategic Priority 6: Intensify the fight against crime and corruption	MDG 2, MDG 3
7.	Strategic Priority 7: Build cohesive, caring and sustainable communities	MDG 2, MDG 3, MDG 7
8.	Strategic Priority 8: Pursuing African advancement and enhanced international cooperation	MDG 8
9.	Strategic Priority 9: Sustainable resource management and use	MDG 2, MDG 3, MDG 7
10.	Strategic Priority 10: Building a developmental state, including improvement of public services and strengthening democratic institutions	MDG 1, MDG 2, MDG 3, MDG 8

Source: UNDP Country Report 2010

2.2. South Africa's Accelerated and Shared Growth Initiative (ASGISA)

ASGI-SA which is one of South Africa's government programmes which promotes economic development is structured around the following framework of key interventions:

- Bulk infrastructure investments through all three spheres of Government, State Owned Enterprises and Public-Private Partnerships;
- Immediate, top and medium priority investments in specially selected sectors of the economy;

- The building of Human Capital from very basic primary school infrastructure to tertiary education level
- Provision for a Joint Initiative on Priority Skills Acquisition (JIPSA);
- Special focused Second Economy Interventions that incorporate youth, women and people with disabilities in sector investment strategies, mass roll out of the Expanded Public Works Programme, Small Micro and Medium Enterprises promotion and Micro credit facilities; and
- Strengthening Governance and Institutional arrangements for service delivery.

2.3. The Constitution of the Republic of South Africa (Act No. 108 of 1996)

The Constitution defines the role of the public in the activities of all three spheres of government, namely national, provincial and local government (Sections 59, 72, 118, 152 and 154). Section 59 refers to the National Assembly, Section 72 refers to the National Council of Provinces and Section 118 refers to the Provincial Legislature. These Sections state that public involvement in the legislative and other processes of the Assembly/ Council/ Legislature must be facilitated, where its business is in an open and public manner. Section 152 of the Constitution states that one of the objects of local government is to is to encourage the involvement of communities and community organisations in its matters; whilst Section 154 states the requirement that draft provincial and national legislation be published for public comment and feedback. Chapter 10 of the Constitution (Section 195) states that the basic values and principles governing public administration include encouraging public participation in policy-making and responding to public need.

Chapter 3 (Section 40) requires all spheres of government to adhere to the principles (Section 41) of cooperative governance by informing one another of, and consulting one another, on matters of common interest and providing effective, transparent, accountable and coherent governance for the Republic as a whole.

2.4. Regional Level Plans, Policies and Strategies

2.4.1. Northern Cape Provincial Growth and Development Strategy 2004-2014 (NCPGDS)

The overarching vision of the NCPGDS is to build a prosperous, sustainable growing, provincial economy to reduce poverty and improve social development. The strategy identifies the following primary development objectives:

- To promote the growth, diversification and transformation of the provincial economy; and
- Poverty reduction through social development.

The most significant challenge that the strategy recognises is that of the reduction of poverty. The strategy notes that most of the other challenges faced by the province emanates largely from the effects of poverty. While addressing poverty, attention should be given to a range of societal problems that includes:

- Reducing the backlog of basic needs such as water, sanitation and housing;
- Improving and increasing access to health, education and social services;
- Decreasing the prevalence rate of HIV and AIDS;
- Creating opportunities for employment;
- Reducing crime; and
- Targeting vulnerable groups.

The strategy further identifies long-term sustainable economic growth and development to be the only effective method to poverty reduction. The sectors where economic growth and development can be promoted are identified to be agriculture and agro-processing; fishing and mariculture; mining and mineral processing; transport; manufacturing and tourism. However, the strategy emphasises that economic development in these sectors requires the creation of lifelong learning opportunities; improving the skills of the labour force to increase poverty and increasing accessibility to knowledge and information.

The NCPGDS further notes that the achievement of these primary development objectives depends on the achievement of a number of related objectives that describe the necessary conditions for growth and development. The strategy identifies these to be:

- The development of requisite levels of human capital;
- The improvement of the efficiency and effectiveness of governance and other development institutions; and
- Enhancing infrastructure for economic growth and social development.

The NCPGDS is based on a comprehensive analysis of the status quo of social and economic conditions prevailing in the Northern Cape and has identified the need to focus on:

- Sector specific strategies defining where public and private sector intervention is necessary and justifiable;
- Key macro-level interventions and support required from relevant national line ministries to reinforce provincial initiatives;
- Programme and project level opportunities and interventions;
- A comprehensive provincial spatial development framework and strategy;
- Leveraging adequate financial resources to finance growth and development;
- Identifying appropriate institutional delivery mechanisms; and
- Monitoring and evaluation systems and procedures.

The NCPGDS makes reference to the need to ensure the availability of inexpensive energy. The strategy states that to promote economic growth in the province, the availability of key industrial users at critical localities at rates that enhance the competitiveness of their industries must be ensured. Similarly, the development of new sources of energy through the promotion of the adoption of energy applications that display a synergy with the province's natural resource endowments must be encouraged.

3. SOCIO-ECONOMIC BASELINE

This section addresses the presentation and analysis of social and economic data for provincial, municipal and key areas in close proximity to the proposed development area. The development area lies within the Emthanjeni Local Municipality, which in turn forms part of the Pixley ka Seme District Municipality in the Northern Cape province of South Africa.

3.1. South Africa

According to the United Nations Development Program (UNDP) produced Millennium Country Report 2010, indicator values for South Africa, are recorded as:

- Real GDP (2007) R1,750 billion or $248 billion;
- Real GDP per capita (2007) R36,461 o $5,168;
- Adult literacy rate : Male – 87.2 ; Female – 86.9;
- Population total : 49,320,500;
  - Male : 23,868,700,
  - Female : 25,451,800,
- Age : 0–14 years 15,500,700 and 15–34 years 18,447,000;
- Household size : 13,8 million with an average 3.6 persons;
- Land surface area : 1,220,813km²;
- Provinces : Gauteng, KwaZulu-Natal, North West, Limpopo, Free State, Mpumalanga, Eastern Cape, Western Cape, Northern Cape;
- Key economic sectors : Mining services, transport, energy, manufacturing, tourism, agriculture;
- Official languages : English, isiZulu, isiXhosa, isiNdebele, Afrikaans, siSwati, Sepedi, Sesotho, Setswana, Tshivenda, Xitsonga; and
- Government Constitutional: multiparty, three spheres (local, provincial, national) democracy.

3.1.1. South African Poverty Indicators

New estimates of poverty show that the proportion of people living in poverty in South Africa has not changed significantly between 1996 and 2001. However, those households living in poverty have sunk deeper into poverty and the gap between rich and poor has widened. Approximately 57% of individuals in South Africa were living below the poverty income line in 2001, unchanged from 1996 (HSRC, Poverty Fact Sheet, 2004).

While the poverty rate measures the proportion of a region's population living below the poverty line it does not give any indication of how far below the poverty line poor households are. For this, the HSRC has used a measure called the poverty gap that measures the required annual income transfer to all poor households to bring them out of poverty. The HSRC study has shown that the poverty gap has grown from R56-billion in 1996 to R81-billion in 2001 indicating that poor households have sunk deeper into poverty over this period.

Table 2. Poverty Indicators by Province

Province	No. of poor persons (million)	% of population in poverty	Poverty gap (R billion)	Share of poverty gap
Eastern Cape	4.6	72%	14.8	18.2%
Free State	1.8	68%	5.9	7.2%
Gauteng	3.7	42%	12.1	14.9%
KwaZulu-Natal	5.7	61%	18.3	22.5%
Limpopo	4.1	77%	11.5	14.1%
Mpumalanga	1.8	57%	7.1	8.7%
North West	1.9	52%	6.1	7.5%
Northern Cape	0.5	61%	1.5	1.8%
Western Cape	1.4	32%	4.1	5.0%
South Africa	25.7	57%	81.3	100.0%

To measure inequality the HSRC have used the Gini coefficient[1], which can vary from 0 in the case of a highly even distribution of income, to 1 in the case of a highly unequal distribution. South Africa's Gini coefficient rose from 0.69 in 1996 to 0.77 in 2001. While historically South Africa has had one of the most unequal distributions of income in the world this rise is likely to place it at the top of the world rankings (HSRC, Poverty Fact Sheet, 2004). In 2006, the Worldbank lists South Africa's Gini coefficient as 67 (http://en.wikipedia.org/wiki/List of Countries by income inequality).

In the past, inequality in South Africa was largely defined along race lines. It has become increasingly defined by inequality within population groups as the gap between rich and poor within each group has increased substantially. According to the HSRC (in HSRC, Poverty Fact Sheet, 2004), the Gini coefficient for the African population has risen from 0.62 in 1991 to 0.72 in 2001. This level of inequality is comparable with the most unequal societies in the world. The white population has a Gini coefficient of 0.60 that is extremely high for a group whose education and occupational profile matches that of societies in highly industrialised countries.

3.2. The Northern Cape Province

The Northern Cape Province is the largest of the nine South African provinces and covers an area of 361 830 km^2 constituting approximately 30% of South Africa. Despite being the largest of the nine provinces, it is also the most sparsely populated with a population of approximately 823 000 (according to Census 2001 data) and a population density of just over two people per square kilometre. In 2001 just over 50% of that population consisted of Coloured individuals and a further 35% consisted of Africans. The capital of the province is Kimberley. The province is divided into five district municipalities namely, Frances Baard, Pixley ka Seme, Namakwa, Siyanda and John Taolo Gaetsewe DM, 26 Category-B municipalities and five district management areas (http://en.wikipedia.org/wiki/Northern_Cape).

[1] The Gini coefficient is perhaps the best known inequality measure and can be derived from the Lorenz curve (see figure below). Mathematically the Gini coefficient varies between zero and one, although in reality, values usually range between 0.20 and 0.30 for countries with a low degree of inequality and between 0.50 and 0.70 for countries with highly unequal income distributions

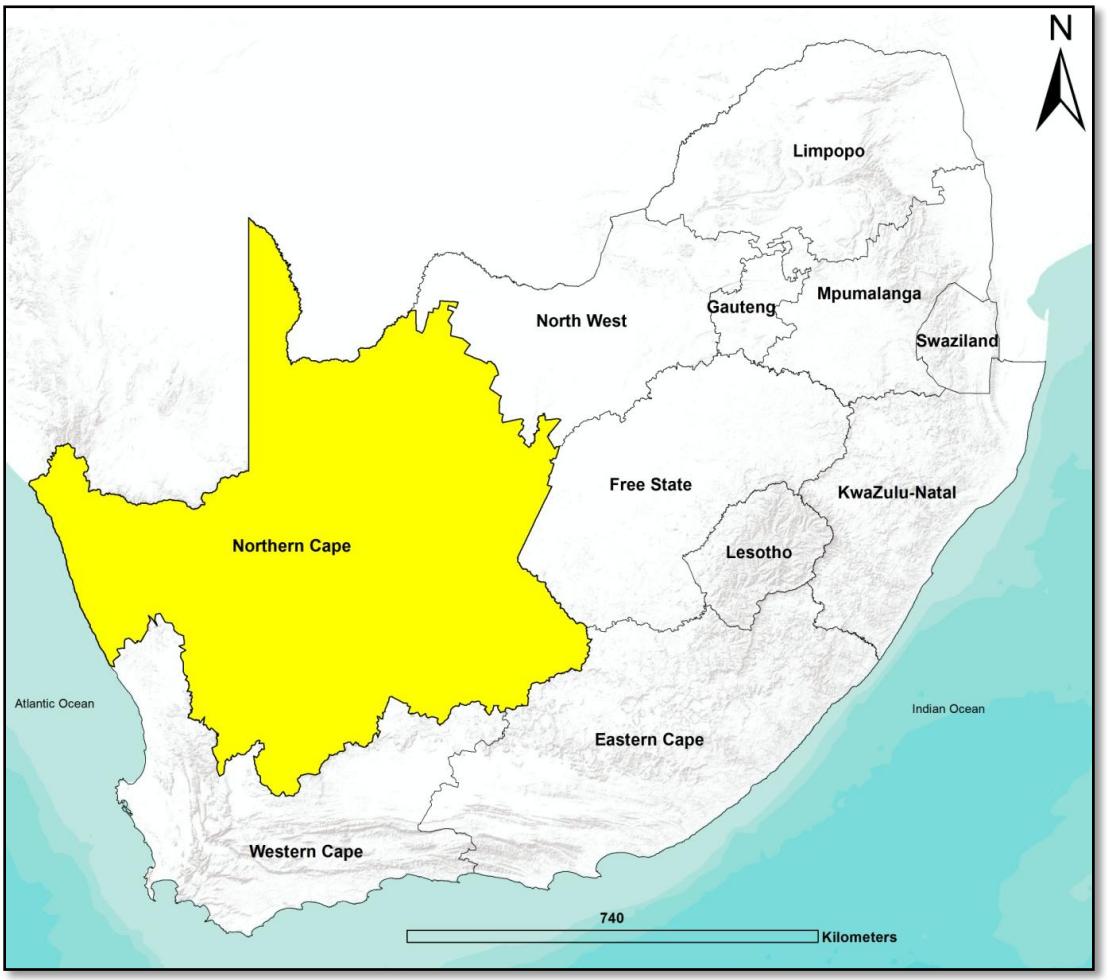
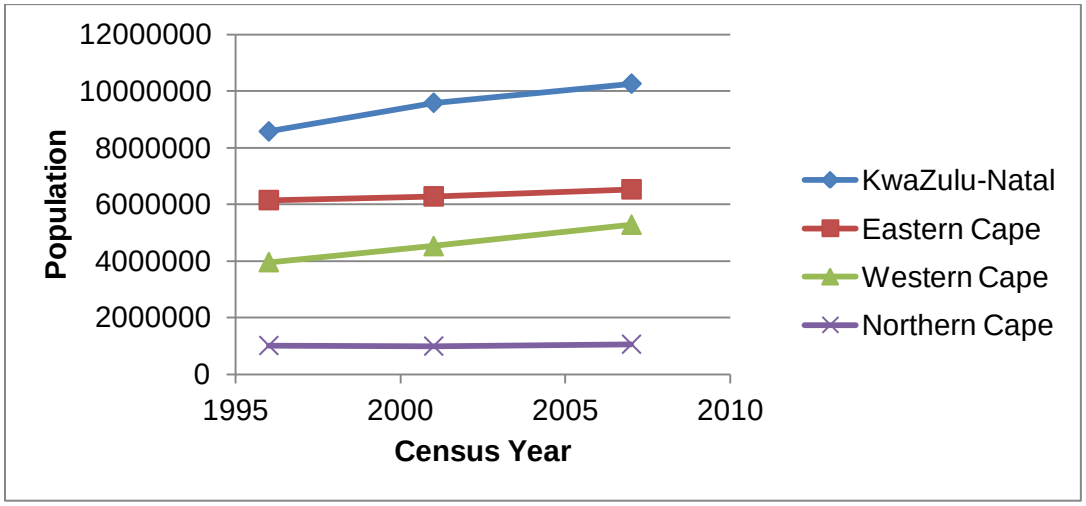


Figure 5. Location of the Northern Cape Province in Relation to Other Provinces in South Africa

The population in the province in 2007 was 1 058 060 inhabitants. The NCPGDS (2004-2014) notes that the population of the province has declined by 2.1% from 1996 to 2001 resulting in a decrease in the population density of an already sparsely populated province from 2.32 to 2.27 persons per km^2. However, the Stats SA Community Survey (2007) illustrates that the population of the province increased by 6.7% from 991 919 to 1 058 060 between 2001 and 2007. Furthermore, the number of households in the province also increased by eight percent from 245 086 in 2001 to 264 653 in 2007 (StatsSA Community Survey, 2007).

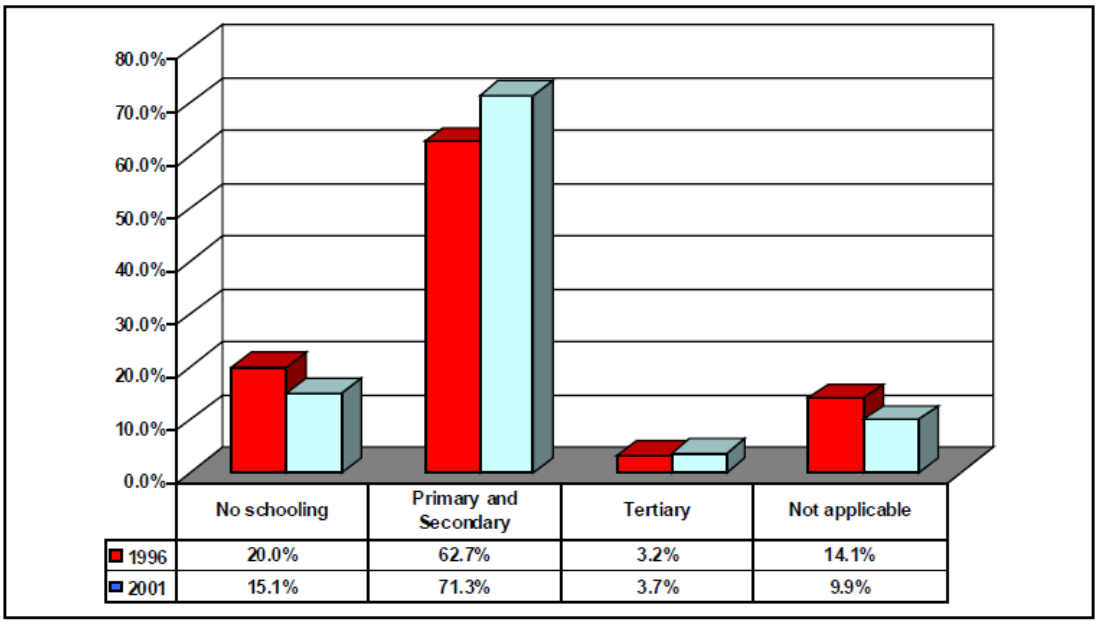


Data source: Statistics South Africa (1998), Statistics South Africa (2003) and Statistics South Africa (2007).

Figure 6. Total population by province - Census 1996, Census 2001 and Community Survey 2007

The Northern Cape as a whole in 2001 had an approximately equal distribution of females and males with there being marginally more females than males.

The official languages of the province are Afrikaans (56.6%), Tswana (33.7%), Xhosa (5.4%), English (2.1%) and Sotho (1.0%) (http://en.wikipedia.org/wiki/Northern_Cape). In terms of education levels, 15.1% of the population has no education while 71.3% have primary or secondary educations. Those with higher qualifications accounted for 3.7% of the population. The graph below indicates an increase in all categories since 1996 except for the 'no schooling' category which decreased by 4.9%. This in itself indicates that a higher percentage of people attended school. This would suggest that there has been an increase in access to education since 1994 (NCPGDS, 2004-2014).



Source : NCPGDS, 2004-2014

Figure 7. Percentage of People by Level of Education for 1996 And 2001

3.2.1. The Northern Cape's Social and Economic Challenges

According to the NCPGDS, the province's share of South Africa's gross domestic product (GDP) was 2% in 2002, the lowest contribution of the nine provinces. Although the Northern Cape has the smallest economy of the nine provinces, gross domestic product of the region (GDPR) per capita is higher than the national average. The economy of the province is heavily dependent on the primary sectors of the economy, which in 2002 made up 31.0% of the GDPR. Economic advantages which create a positive environment for the province include:

- Abundant mineral and natural resources;
- Infrastructure;
- Unique climate conditions;
- Unique tourism destination;
- Abundant land for economic growth planning; and
- Manageable demographic proportions for economic growth planning.

The most significant challenge that the NCPGDS recognises is that of the reduction of poverty. The strategy notes that most of the other challenges faced by the province emanates largely from the effects of poverty. While addressing poverty, attention needs to be given to a range of societal problems that includes:

- Reducing the backlog of basic needs such as water, sanitation and housing;
- Improving and increasing access to health, education and social services;
- Decreasing the prevalence rate of HIV and AIDS;
- Creating opportunities for employment;
- Reducing crime; and
- Targeting vulnerable groups.

In addition to poverty reduction, unemployment is of concern in the Province. In the Northern Cape the total labour force was estimated to consist of approximately 313 000 or 38% of the total population with an aggregate of a third of the total labour force being unemployed in 2001 (Census, 2001). A direct comparison between the 2001 census data relating to unemployment and the 2007 Community Survey was not possible as unemployment was not considered in depth for the latter survey.

Data gleaned from the NCPGDS Strategy helps to render a social and economic perspective on the Northern Cape Province. These are found below:

- The Province is mostly rural in nature,
- It has a low population density and relative inadequate infrastructure, especially in the remote rural areas,
- The Province has inherited an enormous backlog in basic service delivery and maintenance, and it will take time to eradicate these,
- The population is predominantly poor with high levels of illiteracy and dependency that seriously affect their productivity and ability to compete for jobs,
- The Province is faced with HIV/Aids as a social and economic challenge,
- Available resources are unevenly distributed and offer limited potential for improved delivery of services and growth; and
- Job creation and poverty eradication together with the low level of expertise and skills, stand out as the greatest challenges to be resolved.

3.2.2. The Provincial Economy

3.2.2.1. Mining

The exceptional mineral wealth of the Northern Cape Province has ensured the importance, both nationally and internationally, of the province's mining industry. The minerals economy of the Northern Cape is a hundred and fifty years old and continues to remain the mainstay of the provincial economy contributing 23.7% to GGP in 2002. In 1998, the Northern Cape produced around 37% of South Africa's diamond output, 44% of its zinc, 70% of its silver, 84% of its iron-ore, 93% of its lead and 99% if its manganese.

Certain sub-sectors of the mining industry in the Northern Cape are approaching maturity with downscaling already having commenced in the copper and diamond mining industries. This poses serious socio-economic challenges in the affected areas and there is an urgent need to identify and promote alternative economic activities so as to mitigate the negative impact of minerals downscaling. However, at the same time, there are still significant known reserves of a range of minerals as well as many as yet unexploited deposits in other areas that will sustain the provincial mining industry for many years to come.

One of the key challenges faced by planners and those responsible for promoting minerals development is how to ensure that residents of the Northern Cape benefit more extensively from the exploitation of the province's mineral wealth in the future. New minerals legislation, enacted in 2004 has raised the prospect of the transformation of the mining industry through the de-concentration of ownership, increased access to mineral resources on the part of junior and small-scale mining companies and black economic empowerment. At the same time, the new legislation is intended to stimulate new growth in the industry and bring about increased levels of minerals processing and related economic development in the province (NCPGDS, 2004-2014).

3.2.2.2. Agriculture

Agriculture is the other mainstay of the Northern Cape provincial economy contributing 7.3% of GGP in 2002. Despite the largely semi-arid and arid environment in the province, the fertile land that lies alongside the Orange and Vaal rivers supports the production of some of the country's finest quality agricultural products. The province has become a major exporter of table grapes produced along the Orange River and is world renown for the quality of meat which is produced in the province. The Northern Cape is also well known for the production of wool, mohair and karakul pelts as well as dates, citrus products, wine and raisins.

Two major factors currently constrain growth prospects in the agricultural sector in the Northern Cape. Firstly, the need to promote transformation so that new and emerging farmers can take their place as equal members of the commercial agricultural fraternity and in so doing satisfy the need for redistributive justice through increased access by the previously disadvantaged to land and agricultural resources. Secondly, the need to achieve greater levels of diversification in irrigated agriculture in order to spread risk and promote the development of crops that have a high affinity for agro-processing. Because of the potential for growing the agricultural and manufacturing sectors by successfully addressing both of these challenges, promoting transformation and the development of an enlarged agro-processing sector that contributes to growth in manufacturing and job creation are both high priorities for the Northern Cape provincial government (NCPGDS, 2004-2014).

3.2.2.3. Manufacturing

The Northern Cape manufacturing sector's contribution to provincial Gross Geographic Product (GGP) is comparatively low at 4.2% in 2002. Moreover, this contribution has been stagnant or declining for a number of years and as a result remains insignificant in the context of national manufacturing statistics. That said, manufacturing enterprises do make a significant contribution to the local economy in those localities where there

is some concentration of manufacturing activity, mainly in the Kimberley and Upington areas. Most manufacturing that takes place in the Northern Cape involves value-addition to the province's mineral and agricultural raw material output, or, the fabrication of intermediate products used in those industries. Despite the relative insignificance of the manufacturing sector in aggregate, there is significant scope for growth in certain economic sub-sectors, particularly if conditions conducive to increased investment in manufacturing can be created through institutional support and reform (NCPGDS, 2004-2014).

3.2.2.4. Fishing and Mariculture

The cold but nutrient rich up-welling Benguela current that runs along the Namaqualand coast sustains an abundance of marine life that gives rise to enormous potential for the development of fishing and mariculture industries. The area already has a rich fishing and cray-fishing history and research shows that it should be possible under the recently amended legislative and regulatory framework to significantly rejuvenate the fishing industry. However, perhaps the greatest opportunity for economic development based on the exploitation of marine resources today is the development of the pump-ashore mariculture industry. Mariculture entails the cultivation of a range of high value marine species with tremendous potential for exports to lucrative overseas markets. Arguably, the Northern Cape has the best conditions for mariculture out of any area along the South African coast and indications are that mariculture offers sufficient growth potential to replace diamond mining over the long-term as coastal Namaqualand's principal industry. The provincial government is currently working closely with pioneer private sector business persons involved in mariculture to develop new mariculture ventures in the area (NCPGDS, 2004-2014).

3.2.2.5. Tourism

In many respects, tourism in the Northern Cape can also be seen as an industry with tremendous growth potential. Since the advent of democratic government in 1994, the Northern Cape tourism industry has blossomed largely as a result of the opening up of South Africa as a long-haul tourist destination for the world's travellers but also because the province has gained exposure to growing numbers of domestic tourists too. The province caters ideally for nature-based eco-tourists looking for a new experience and at the same time offers traditional tourists a great deal owing to its history in the development of the mining industry in South Africa. A number of major new conservation and eco-tourism developments are currently underway in the province in conjunction with the governments of Botswana and Namibia. At varying stages of execution, it is anticipated that these projects will have a major positive impact on the regional tourist economy, particularly if it is possible to use the conservation assets in each case to leverage private sector investment in new tourism plant and capacity (NCPGDS, 2004-2014).

3.3. The District Municipality

Pixley ka Seme District Municipality (PKSDM) is situated in the south-east of the Northern Cape Province and shares its borders with three other provinces, namely, the Free State province to the east, the Eastern Cape to the south-east and the Western Cape to the south-west (Pixley ka Seme IDP, 2011, see Figure 8). It is the second largest municipality in the province covering a total surface area of approximately 102 727 km². The Pixley ka Seme District Municipality is further divided into eight Category B (local) municipalities and a District Management Municipal Area (Pixley ka Seme IDP, 2011). Local municipalities within PKSDM are as follows: Emthanjeni, Kareeberg, Renosterberg, Siyancuma, Siyathemba, Thembelihle, Ubuntu and Umsobomvu local municipalities (Figure 8).

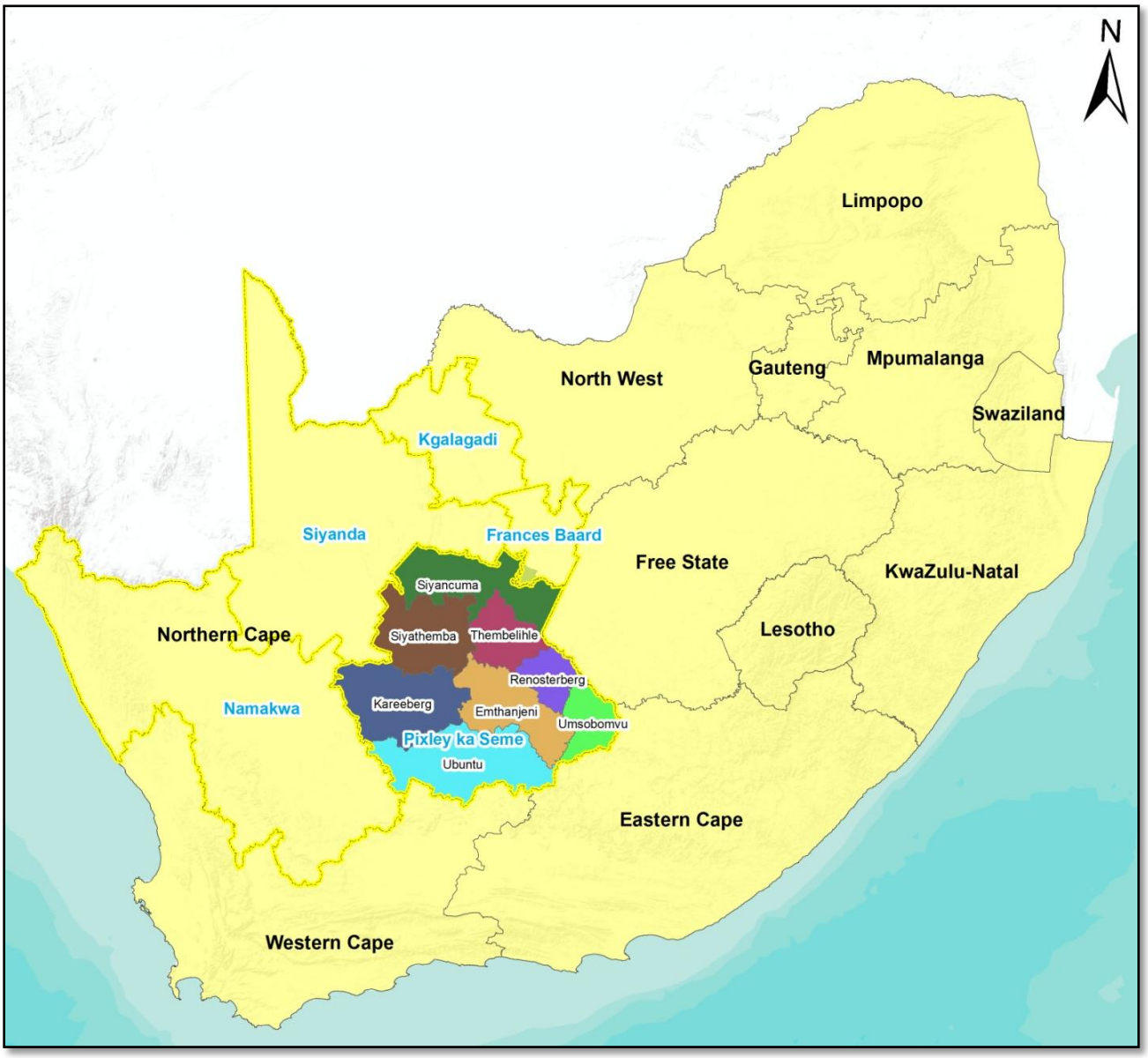


Figure 8. Location of the Pixley ka Seme District Municipality within the Northern Cape and South Africa

3.3.1. Social and Economic Characteristics

There are approximately 24 towns or settlements within PKSDM which range from medium sized towns with a population of ±30 000 to very small towns with populations of a few thousand people (Pixley ka Seme IDP, 2011). In keeping with the provincial trend of sparse, dispersed distribution of settlement, long distances must often be travelled in order to provide social services and stimulate economic growth.

3.3.2. Key Strengths in the Pixley ka Seme District

The key economic strengths of the district are community services, agriculture, transport and tourism (Pixley ka Seme IDP, 2011). The small towns function primarily as agricultural service centres, with the main economic activities located in the main urban areas of De Aar, Colesberg, Victoria-West and Carnarvon. Opportunities identified for growth and development include manufacturing, agro-processing, mining and semi-precious stones (Pixley ka Seme IDP, 2011).

In transportation infrastructural terms, PKSDM is intersected by key major routes such as the N1 from the Northern Province, Pretoria and Johannesburg to Cape Town; the N9 route from Colesberg which joins the N10 to Port Elizabeth and the Eastern Cape; the N12 route form Johannesburg via Kimberley to Cape Town; as well as the N10 from Namibia via Upington which links Namibia and the Eastern Cape. The railway network around De Aar is acknowledged as one of the largest in South Africa (Pixley ka Seme IDP, 2011).

Bulk water supply in the district originates from the Orange River and three major dams within the area, namely the Gariep Dam, Vanderkloof Dam and Boegoeberg Dam. In addition to bulk water supply, intensive agriculture is also associated with these water resources (Pixley ka Seme IDP, 2011). The commercial agricultural sector is strong within the PKSDM, predominantly as a result of ready access to irrigation infrastructure and the aforementioned bulk water resource base. Stock farming augments the strength of the agricultural sector, with production of wool, mutton and beef lending further impetus to the sector.

3.3.3. Key Weaknesses in the Pixley ka Seme District

Given the aridity of the region, economic activities are mostly situated in close proximity to rivers, while peripheral towns often experience water shortages which in turn impacts adversely on local economies (Pixley ka Seme IDP, 2011). Water provision and availability is one of the issues that will have to be addressed in order to improve the economic activity in most towns situated within the area (Pixley ka Seme IDP, 2011). All communities are affected in terms of poverty and development deficits with unemployment levels disconcertingly high at approximately 32% (Pixley ka Seme IDP, 2011). In summary, according to the IDP, key economic and development weakness within the PKSDM are as follows:

- Lack of diversification of the district economy.
- Lack of investment in the region.
- Lack of employment opportunities.
- Lack of skills.
- Lack of entrepreneurship.
- Few SMME's are active in the region.
- Underutilization of the regions natural resources and economic opportunities.
- Lack of water for irrigation farming in outlying areas.

3.4. The Emthanjeni Local Municipality

Emthanjeni Local Municipality (ELM) is one of eight local authorities within the Pixley ka Seme District Municipality (Figure 9).

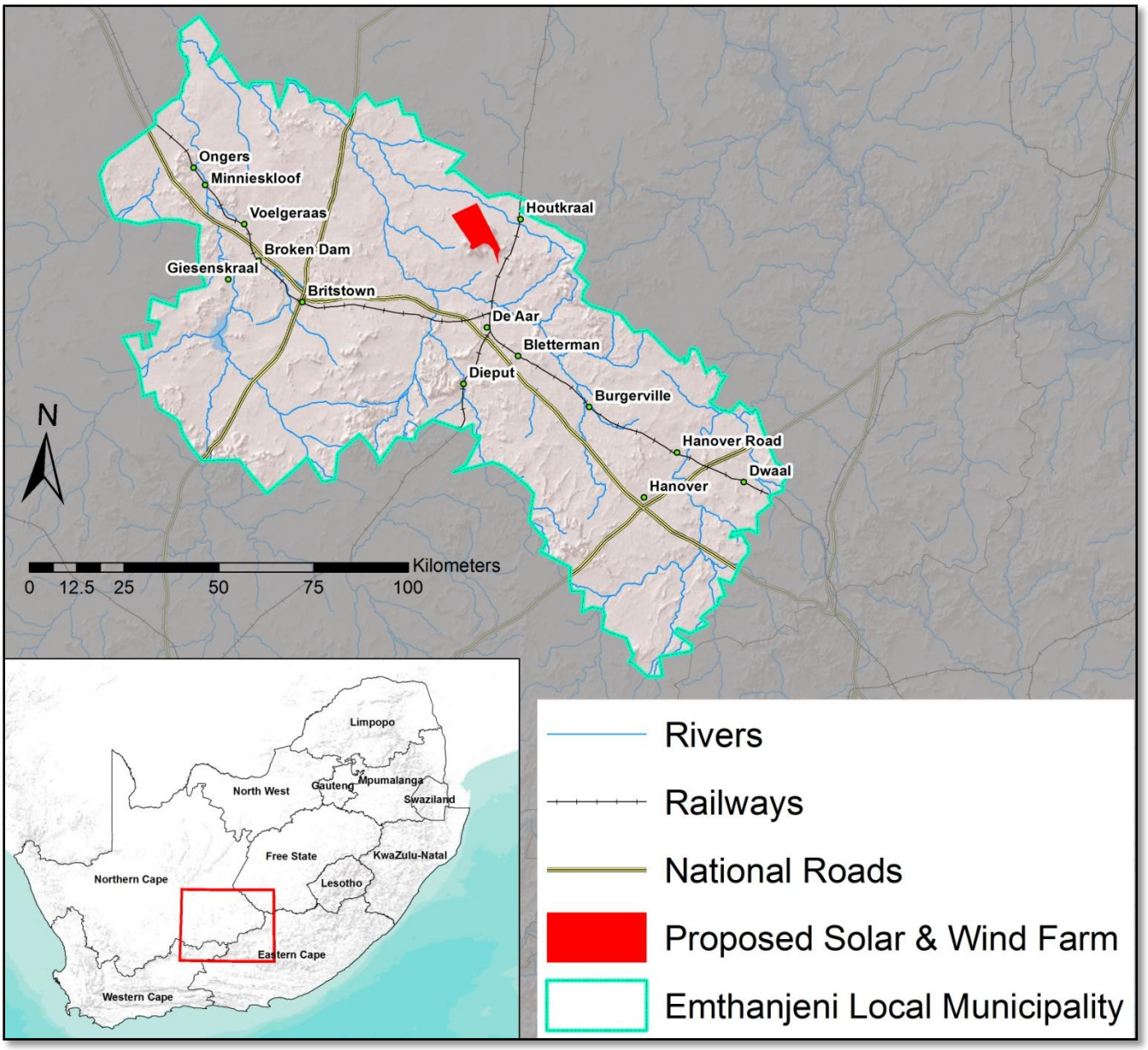


Figure 9. Location of the Emthanjeni Local Municipality

De Aar (see Figure 9) is the largest settlement within the ELM, and means “the artery”, and is described as the lifeblood of the municipality (Emthanjeni Local Municipality IDP, 2012). The head offices of both the Emthanjeni Local Municipality and Pixley Ka Seme District Municipality are located in De Aar. De Aar is furthermore significant from cultural, historic, meteorological and bulk transport infrastructure perspectives.

3.4.1. Demographics

Emthanjeni had a total population of 38228 in 2007, made up of the following race groups (StatsSA Community Survey, 2007):

- Black African (26.0%)
- Coloured (63.1%)
- Indian/Asian (0.1%)
- White (10.8%)

The population of ELM is distributed amongst some 11650 households with an average size of four members per household (StatsSA Community Survey, 2007). The table below compares the type of households present within ELM in 2001 and 2007.

Table 3. Breakdown of Household Types within Emthanjeni Local Municipality in 2001 and 2007

	Census 2001	CS 2007
House or brick structure on separate stand or yard	86,9	90,1
Traditional dwelling/hut/structure made of traditional materials	2,5	0,4
Flat in block of flats	1,4	1,8
Town/cluster/semi-detached house (simplex: duplex: triplex)	0,8	3,1
House/flat/room in back yard	1,3	0,7
Informal dwelling/shack In back yard Not in back yard e.g. in an informal/squatter settlement	 1,8 4,8	 1,9 2,1
Room/flat not in back yard but on a shared property	0,4	-
Caravan or tent	0,1	-
Private ship/boat	0,0	-
Workers' hostel (bed/room)	-	-
Other	-	-
Total	**100,0**	**100,0**

3.4.2. Health and Education Facilities

Health facilities are provided to ELM by the province of the Northern Cape, and consist of six clinics and a district hospital (Emthanjeni Local Municipality IDP, 2012). These are displayed spatially in Figure 10, along with education facilities for the municipality.

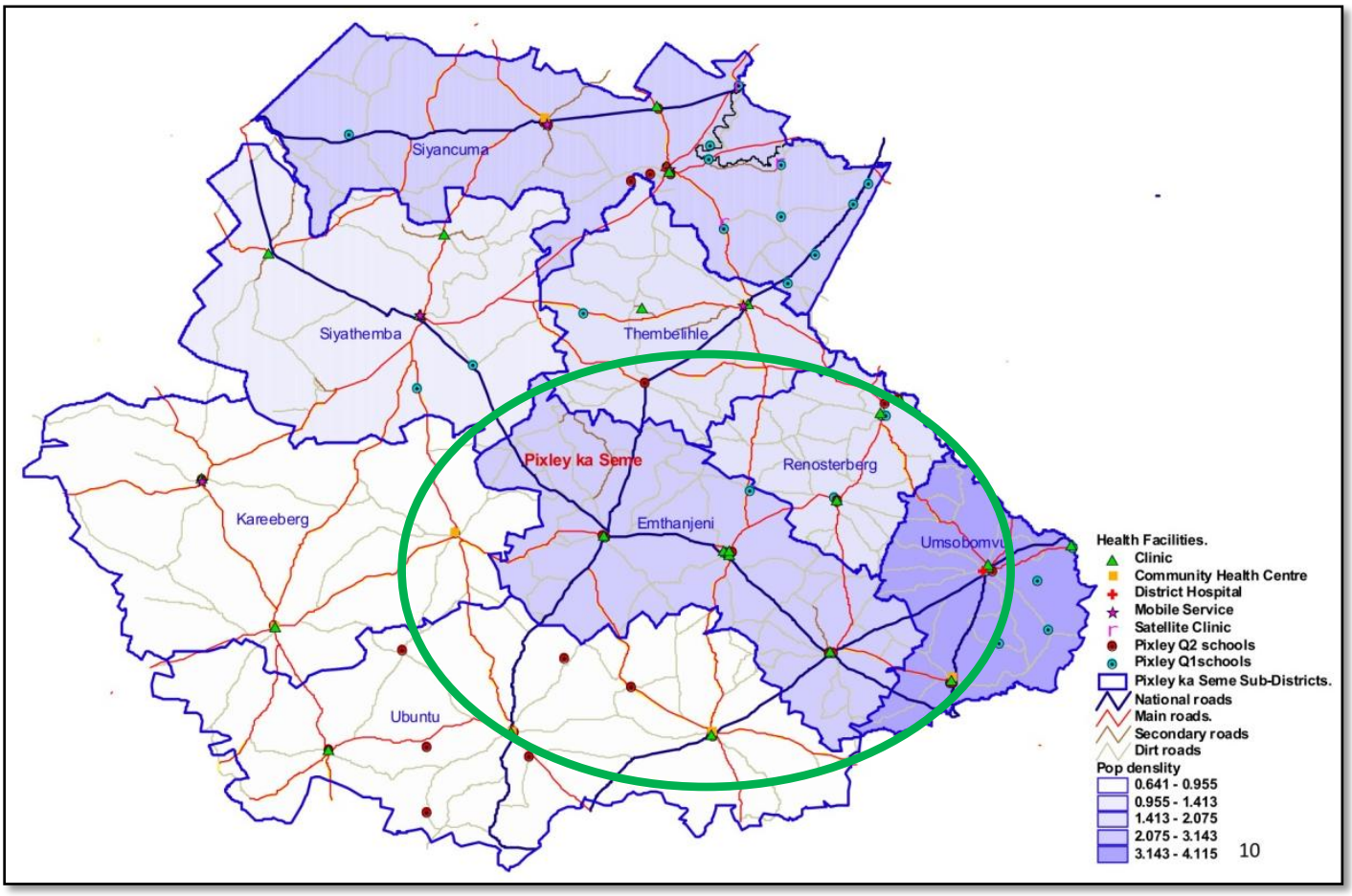


Figure 10. Health Facilities and Schools within the Pixley ka Seme District (Pixley ka Seme IDP, 2011)

3.4.3. Economic Characteristics

3.4.3.1. Policy

Strategic economic and development planning for the ELM is driven predominantly by national and district level policy in the form of the New Growth Path (NGP, 2009, cited in Emthanjeni Local Municipality IDP, 2012) of 2009 and the Pixley ka Seme Growth and Development Strategy (PKSGDS) respectively. The NGP aims to stimulate job opportunities in both the traditional economic sectors as well as cross-cutting sectors. It further aims to develop strategies that would create the needed jobs in the economy of South Africa over the medium term (Emthanjeni Local Municipality IDP, 2012).

The main indicators for success of the NGP are listed as:

- Jobs (number and quality),
- Growth (the rate, labour intensity & composition of economic growth),
- Equity (lower income and inequality),and
- Environmental outcomes

Furthermore, the five pillars on which the NGP rests are:

1. Infrastructure
2. Main Economic Sectors
    a. Agricultural value chains, and
    b. Mining value chains

3. Seizing the potential of New Economies
    a. The Green economy
4. Investing in Social Capital and Public Services
5. Spatial Development
    a. Measurable improvements in livelihoods for 500 000 households in rural development areas, and
    b. African regional development

At the district level, the Pixley ka Seme District Growth and Development Strategy (PKSGDS) furthermore seeks to achieve a shared vision, amongst all sectors of its society, for the achievement of its goal of reducing poverty and improving the quality of life all its citizens. The PKSDGDS reinforces the following principles:

- Integrated, sustainable, holistic and participatory growth and development,
- Providing for the needs of all people,
- Ensuring community and/or beneficiary involvement and ownership,
- Long term sustainability on all levels, and
- Equitable socio-economic development with equitable benefits for all

The Development Targets identified for the DGDS are as follows:

- To achieve an average annual economic growth rate of between 2%-4%,
- To reduce poverty by 50% by 2014,
- To eradicate the bucket system by 2010,
- To reduce crime by 10% by 2010,
- To decrease the illiteracy rate by half by 2014,
- To reduce unemployment by 50% by 2014,
- To reduce the prevalence rate of HIV/AIDS by 2014, and
- To provide adequate housing for all by 2014.

3.4.3.2. Key Economic Activities

As the district municipal capital and an important regional service centre, De Aar is a potential industrial growth point with ample industrial sites, reasonable prices and tariffs, affordable labour and the necessary infrastructure (Emthanjeni Local Municipality IDP, 2012). The Emthanjeni area is becoming increasingly prominent as a centre for supplying Karoo mutton to the rest of South Africa, with De Aar capable of processing in excess of 2000 sheep carcasses per day through several abattoirs (Emthanjeni Local Municipality IDP, 2012). Additional primary economic activities within ELM are shown in the table below.

Table 4. Key Economic Activities within Emthanjeni Local Municipality (ELM IDP, 2012)

Key Economic Activities	Description
Services Sector (Community)	The services sector consist of the various government institutions, NGO;s, CBO's and NPO's that resides within our area of jurisdiction. ABSA, FNB, STANDARD BANK and CAPITEC
Manufacturing	Stone crushers who specialize in the manufacturing of sand, bricks, cements and rocks
	Rocla, Green Akker, Abattoir for meat processing
Retail	Purchasing of goods and services
	Checkers, Shoprite, Mr Price, Ackermans, Sheet Street, Fashion Express etc.
Agriculture	Game Farming
	Sheep, goat, pig and cattle farming
Transport	Rail Infrastructure
	Road Infrastructure
Tourism	To market Emthanjeni as a tourism destination
	To speed up the restoration of existing attractions and the development of new attractions

Source: (Emthanjeni Local Municipality IDP, 2012)

3.4.3.3. Employment and Income Demographics

Employment and income demographics are key indicators for social baseline assessments. Table 6 and 7,display employment and income demographics for the Emthanjeni Local Municipality as at 2001. Seventy three percent (73%) of the eligible workforce reside in De Aar, with 57% of those eligible workers, being unemployed.

Table 5. Employment Demographics for the Emthanjeni Local Municipality (Census 2001)

Area	Eligible workforce	Permanent Unemployed residents	Seasonal Farm workers	Domestic workers	Permanent Farm workers	Permanent Industry workers	Professional Workers
De Aar	13251	7544	63	763	105	4034	1085
Britstown	1891	1306	9	96	69	392	123
Hanover	1277	829	-	30	9	235	79
Farms	1745	435	15	352	862	1148	51
Emthanjeni Total	**18164**	**10114**	**87**	**1241**	**1045**	**5809**	**1338**

Table 6. Income Demographics for the Emthanjeni Local Municipality adapted to HH level (Census 2001)

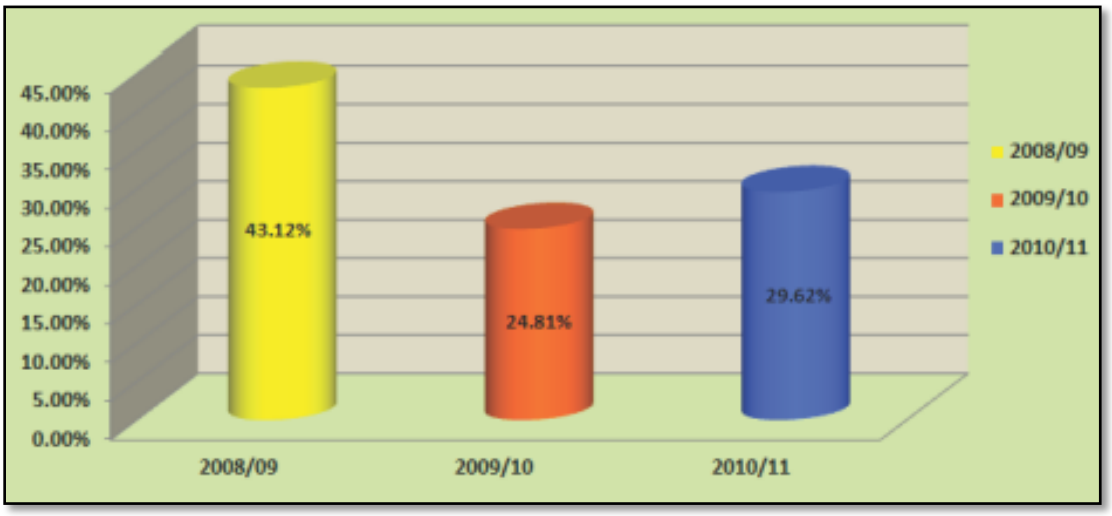
Area	<400	R401-R800	R801-R1600	R1601-R3000	>R3200	Total
De Aar	1347	999	960	884	1261	5452
Britstown	259	252	255	125	97	988
Hanover	275	253	146	121	92	887
Farms	147	295	308	84	131	965
Emthanjeni total	**2027**	**1799**	**1670**	**1214**	**1581**	**8292**

Table 7. Basic Employment Data for the Emthanjeni Local Municipality (Census 2001)

EMPLOYMENT CATEGORY	FEMALE	MALE	TOTAL F & M	% OF TLF F & M	% OF POPULATION F & M
EMPLOYED	3178	4271	7449	33.3%	21.0%
UNEMPLOYED	2848	2320	5168	23.1%	14.5%
NOT ECONOMICALLY ACTIVE	5538	4182	9720	43.5%	27.4%

3.4.3.4. Unemployment and Poverty

Unemployment and poverty levels are of concern with ELM, illustrated by the figure below which compares the total number of indigent (poverty-stricken) households within the municipality between 2008 and 2011. Whilst a significant decrease in indigent households is evident between 2008 and 2010, this trend is reversed between 2010 and 2011.



Source: Emthanjeni Local Municipality IDP 2012

Figure 11. Percentage of Indigent Households within Emthanjeni Local Municipality between 2008 and 2011

Economic activity within the area is seen as gradually stagnating as a result of reduced investment and operation in the area by Transnet, among others (Emthanjeni Local Municipality IDP, 2012). Planned strategic economic interventions for the ELM are:

- The new referral Hospital,
- The proposed N12 at Britstown,
- Possible upgrading of railway stations,
- Development of industrial sites in towns,
- Renewal of residential sites in all towns,
- Development N10 corridor,
- Hydroponics plants, and
- Ostrich farming projects.

3.4.4. Key Strengths of the Emthanjeni Local Municipality

ELM is noted as having strengths in the following key areas:

- The ELM has been the beneficiary of intervention by both national and provincial spheres of government; i.e. it as seen as a strategic area of investment and growth.
- Key transportation infrastructure intersects and converges within the ELM making it important from a strategic logistics perspective.
- Buy-in from the private sector has been secured which bodes well for economic development through possible public-private partnerships
- Agricultural and retails sectors remain strong, although there is scope for diversification.
- Cultural and heritage areas are becoming increasingly prominent as a generator of revenue and a driver of growth.

3.4.5. Key Weaknesses of the Emthanjeni Local Municipality

Numerous challenges face the ELM. These weaknesses or threats are summarised as follows:

- Policy implementation challenges including financial and human capacity.
- Lack of entrepreneurship and/or business leadership to implement large-scale development projects.
- Limited financial capacity to introduce and sustain local economic development.
- The local economy is not diversified, and is currently stagnating. The manufacturing base continues to narrow.
- Limited diversification within the agricultural sector coupled with unsustainable farming techniques.
- Limited natural resources base, water in particular.
- Rising unemployment and poverty due to inability of local economy to generate and sustain jobs.
- Poor public transportation infrastructure.
- Harsh local climatic conditions are likely to intensify with global climate change.

3.5. Ward 6 within Emthanjeni Municipality

The proposed development site occurs within Ward 6 of the Emthanjeni Local Municipality. Ward 6, delineated in 2011, comprises the consolidation of Wards 2 and 6 as delineated for the purposes of Census 2001. As a result, ward-level data for the proposed development site consists of the summation[2] of the data pertaining to these two Wards. It must also be noted that while the South African Community Survey of 2007 may yield more updated data at District level, ward level data is not available.

3.5.1. The Main Hub

The main hub within Ward 6, is De Aar. It has a population of around 45,857 inhabitants, and is the second-most important railway junction in the country - situated on the line between Cape Town and Kimberley. Major production activities of the area include wool production and livestock farming. The area is also popular for hunting, despite the fact that the region is rather arid (www.wikipedia.org).

[2] As a result of the data being an extrapolation and consequent summation from Census 2001, it must be noted that up to date statistics may show varying differences.

There are ancient Khoisan rock engravings on the Nooitgedacht and Brandfontein farms. De Aar is famous amongst paragliding & hang-gliding pilots worldwide as it holds two world records and many countries' national distance records. De Aar was also the host to the XC World Series in 2008 and 2009. During the summer months De Aar is home for several thousand Kestrels (www.wikipedia.org).

Nearest nature reserves include: the Doornkloof Nature Reserve, Karoo Gariep Conservancy, and Rolfontein Nature Reserve. The proposed developments lie approximately 20 kms north of De Aar. De Aar itself is not closely situated to other towns. Nearest towns to De Aar include:

- Orania which lies approximately 100 kms north,
- Colesbrug which lies approximately 100 kms east,
- Richmond which lies approximately 85 kms south, and
- Britstown which lies approximately 50 kms east (the nearest town by far).

3.5.2. Demographics in Ward 6

There were 11158 people living within Ward 6 in 2001, of which 46% were Black African, 45% were Coloured, 0.01% were Indian, 7% were White and 0.8% were categorised as 'Other'. The population of Ward 6 in 2001 was slightly skewed in gender terms towards females by approximately 300 persons.

3.5.3. Employment in Ward 6

Of the total population of 11158 people in 2001, 22% were employed while 13% were unemployed. Employment categories for Ward 6 in 2001 are shown by Figure 12.

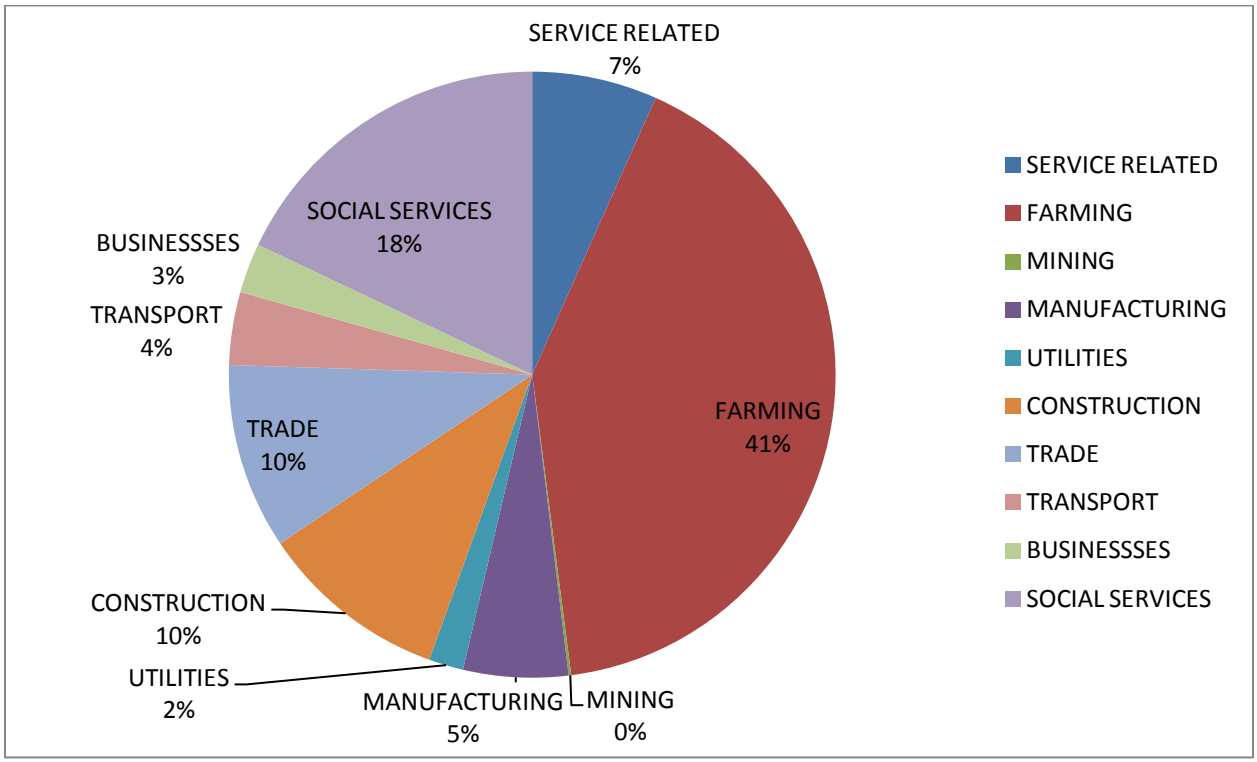


Figure 12. Employment Categories for Ward 6 of the Emthanjeni Municipality in 2001 (Census 2001)

At 41%, farming accounted for the vast majority of employment in Ward 6 in 2001, followed by social services (18%) and trade and construction with 10% each. The remaining employment categories range between 2% and 5%, with the exception of mining which accounted for less than 1% of the employed population of Ward 6 in 2001.

3.5.4. Sanitation in Ward 6

Types of sanitation for Ward 6 are shown in Figure 13 below.

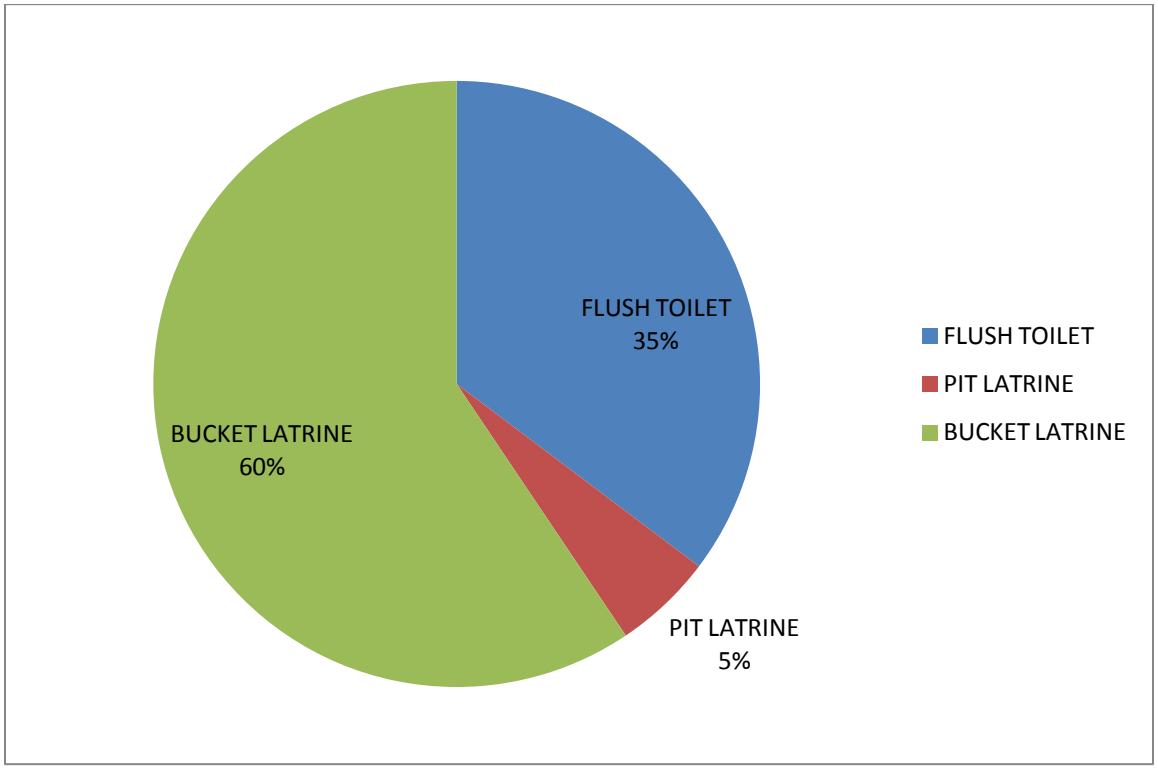


Figure 13. Sanitation Categories for Ward 6 of the Emthanjeni Local Municipality in 2001 (Census 2001)

Bucket latrines (60%) predominate for the households of Ward 6 in 2001, followed by flush toilets (35%) while pit latrines account for just 5% of household sanitation.

3.5.5. Energy Usage in Ward 6

Given that the proposed development is an energy project, most recent data regarding energy usage in the area is an important indicator of potential socio-economic impacts of the development on proximate communities. To this end, the most recently available census data from 2001 was utilised to indicate which types of energy are used for lighting, cooking and heating respectively for the De Aar area. Figure 14 compares the use of electric, paraffin, candles, solar and other energy sources for lighting in the De Aar area in 2001.

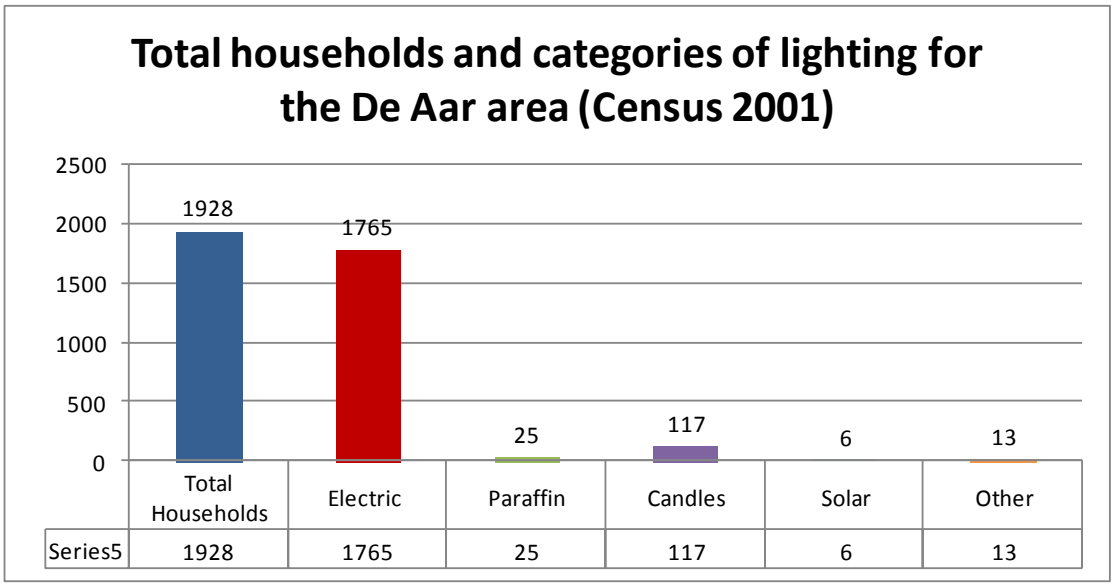


Figure 14. Energy Usage for Lighting By Category for the De Aar Area (Census 2001)

Electric lighting was most used for domestic lighting in 2001, with 91% of households utilising electricity for their lighting needs. Candles were the second most utilised at 6%, with other energy sources making up the remaining 3% in 2001. Figure 15 compares the use of different categories of energy for cooking in 2001 for the De Aar area.

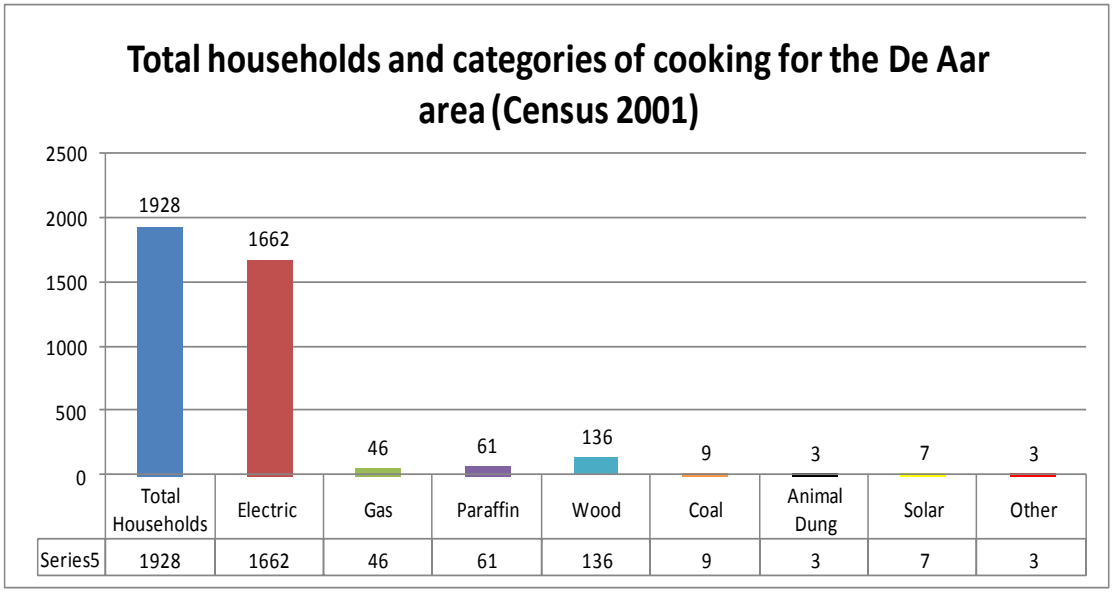


Figure 15. Energy Usage for Cooking By Category for the De Aar Area (Census 2001)

Electric cooking was most popular in 2001, accounting for 82% of households, followed by wood fuelled cooking at 7%. The remaining 11% is made up of the categories: gas, paraffin, coal, animal dung, solar and other.
Figure 16 below compares the use of different categories of energy for heating in 2001 for the De Aar area.

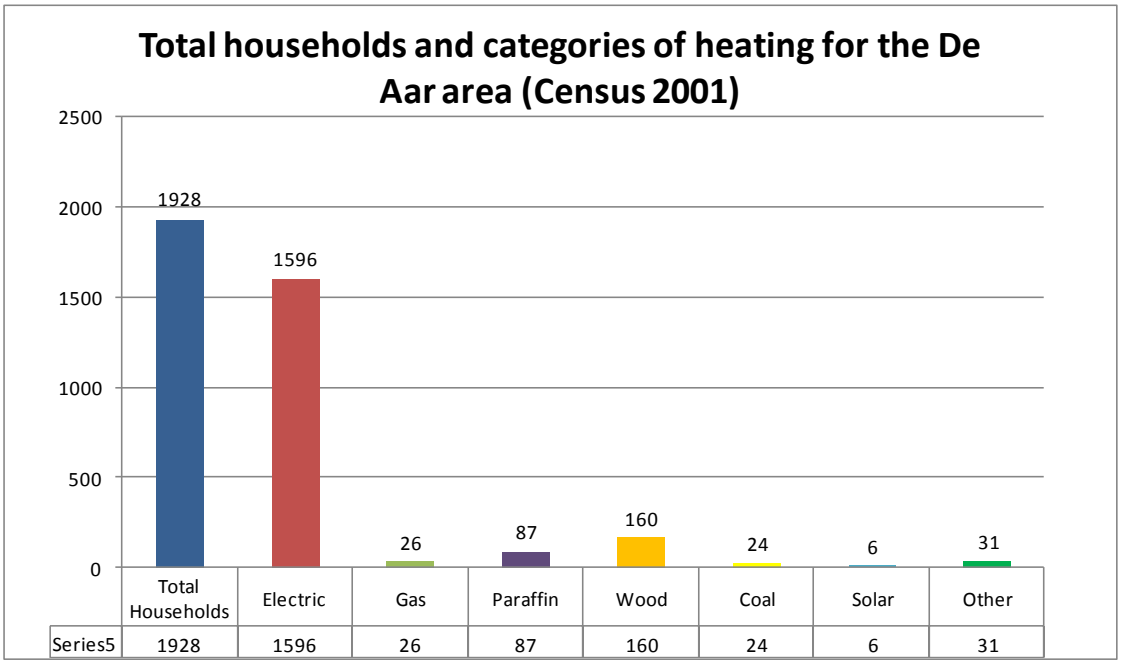


Figure 16. Energy Usage for Heating By Category for the De Aar Area (Census 2001)

In keeping with the trend for lighting and cooking, electric heating predominated in 2001, accounting for 83% of household usage. Wood fuelled heating was second most popular at 7%, with the remaining 10% of households utilising gas, paraffin, coal, solar and other heating sources.

3.5.6. Conclusions from Ward and Local Level Data

Demographic and employment data for Ward 6 suggest that the population of the Ward in 2001 was largely not of working age, as approximately 65% of the total Ward population was not categorised as employed or unemployed. Farming was by far the most important employment sector in Ward 6 in 2001, whilst the predominance of the bucket latrine sanitation system suggests that the majority of the Ward did not have access to waterborne sanitation in 2001. Data relating to energy usage indicates that there was a strong reliance on electricity for lighting, heating and cooking, with only minor augmentation from other sources.

3.6. Further Augmentation of the Baseline

A further augmentation of the baseline may occur in the later part of the social assessment, as data becomes available.

4. SOCIAL AND ECONOMIC IMPACT ASSESSMENT

The assessment of social impacts is complex due to the multi-facetted nature of human systems and organization, the potential inter-connectedness of impacts, and differing implications of the same impacts for different receptors.

The following perspectives will guide the SIA :

- SIA must be based on sound social economic assessment and the comprehensive description and understanding of social and economic baseline conditions;
- Impacts are defined as the social and economic consequences of project driven changes in the baseline environment;
- Impacts might flow directly from project activities (for example the loss of land and crops due to the construction of a facility), or they might be indirect. Indirect impacts could be a consequence of the project itself (for example improved quality of life where an employee of the project is bringing an income to a household), or they might be a secondary outcome (for example credit facilities due to an improved local business outlook);
- Impacts might also be isolated or cumulative. Cumulative impacts are typically those with many links in the local socio-economic system. They also arise from multiple activities associated with the initial project;
- Impacts must be assessed for different phases of the project cycle. The IFC[3] proposes a four-phase breakdown[4] that is, design and planning; construction; operations; decommissioning and closure. For the purposes of this report impacts are assessed at three levels, that is, pre-construction, construction and operation;
- Impacts can be positive or negative. The same change in the baseline condition might be experienced as positive by one section of an affected community, and as negative by another. In principle, all changes are seen to have the potential to initiate development, if the impacts are managed creatively and effectively; and
- The mitigation of impacts must be recommended. However it should be noted that responses to impacts can range from focused and specific mitigation and compensation to broad and inclusive contributions to sustainable development.

4.1. Understanding the Proposed Application Site

The land identified as the proposed development area will occupy approximately 250 hectares for the proposed Solar PV Facility whilst the Wind Farm Facility will occupy approximately 800 hectares. The application site rests approximately 20 kilometres north of the town of De Aar. The area is not a highly populated area and does not support much human movement. The full extent of the potential of such a development to positively or negatively impact on the area and it's people must be supported through a visual and oral verification exercise (on-site) that will be undertaken as part of the Impact Phase of the EIA.

[3] IFC – International Finance Corporation (International lenders. Project typically complies with international guidelines for environmental and social requirements).
[4] International Finance Corporation: Good Practice Note – Addressing the Social Dimensions of Private Sector Projects

4.2. Impact Considerations for this Study

The following impacts have been scoped at this early stage and will be investigated further during the impact phase of the EIA.

ISSUE AND IMPACT	
ISSUE	**Impact: Opportunistic invasion of the development area by people seeking compensation**
DISCUSSION	Should people be aware of the proposed development the potential for the setting up of illegal settlements is possible unless controlled.
EXISTING IMPACT	None. There are no people residing on the proposed development land (yet to be confirmed).
PREDICTED IMPACT	None
EIA INVESTIGATION REQUIRED	Yes
CUMULATIVE EFFECT	None
ISSUE	**Impact: Loss of land and crops due to infrastructure construction**
DISCUSSION	Land, whether used for the purposes of commercial, subsistence agriculture by legal or illegal farmers or where land is being utilised for the purpose of grazing would prove to be a loss of potential livelihood.
EXISTING IMPACT	The area is largely unused for agricultural or livestock farming (yet to be confirmed)
PREDICTED IMPACT	Low
EIA INVESTIGATION REQUIRED	Yes
CUMULATIVE EFFECT	Low
ISSUE	**Impact: Loss of areas of cultural heritage**
DISCUSSION	Site clearing, construction activities and the establishment of facilities could potentially impact areas of cultural significance. Cultural heritage has increased prominence in the respective LM at present.
EXISTING IMPACT	Low. To be confirmed via a heritage study.
PREDICTED IMPACT	Low
EIA INVESTIGATION REQUIRED	Yes
CUMULATIVE EFFECT	Low
ISSUE	**Impact: Community disruption due to physical, economic displacement and land replacement**
DISCUSSION	Should people be residing in the area of impact (within the entire inclusive development footprint), there is the potential for disruption.
EXISTING IMPACT	None. There are no people residing on the proposed development land (yet to be confirmed).
PREDICTED IMPACT	None
EIA INVESTIGATION REQUIRED	Yes
CUMULATIVE EFFECT	None
ISSUE	**Impact: Pressure on existing services and facilities**
DISCUSSION	Depending on the number of workers migrating into the area for work purposes, the potential is that the town of De Aar will be impacted due to the increased demand for educational, health, recreational facilities.

ISSUE AND IMPACT	
EXISTING IMPACT	Medium. De Aar is the only established (formal) town in the area. There are no other known formal (peri-urban) or rural settlements in close proximity to the development site. As a result, should additional people migrate to the area, they will in all likelihood settle in De Aar.
PREDICTED IMPACT	Medium. Yet to be confirmed if the impact will remain medium after construction phase.
EIA INVESTIGATION REQUIRED	Yes
CUMULATIVE EFFECT	Low (if impact lasts only for the construction phase)
ISSUE	**Impact: Establishment or extension of informal settlements by people seeking work opportunities**
DISCUSSION	There is potential for the establishment or extension of informal settlements due to perceived work opportunities. Statistics indicates that of De Aar's 73% of eligible workers, 56% are unemployed. The unemployment figures across the Northern Cape are likely to be similar - thus increasing the number of people seeking work opportunities and possibly migrating to areas of perceived work opportunities.
EXISTING IMPACT	None. There are no known informal settlements in close proximity to the development site.
PREDICTED IMPACT	Low. The expected workforce to be employed is still to be confirmed - this would indicate the demand for local labour and potential for the establishment of such settlements - unless controlled.
EIA INVESTIGATION REQUIRED	Yes
CUMULATIVE EFFECT	Low
ISSUE	**Impact: Changes in employment and incomes through project recruitment**
DISCUSSION	Should the local labour component be substantial, there is potential that local incomes would increase, improving the earning potential and capacity of local residents.
EXISTING IMPACT	Unknown. Local industry and farms are the biggest employers at present. Existing impact from other similar developments in the LM are yet to be confirmed.
PREDICTED IMPACT	Medium. (assuming there is a substantial local labour component) and employment will last through construction and operational phases of the project.
EIA INVESTIGATION REQUIRED	Yes
CUMULATIVE EFFECT	Medium
ISSUE	**Impact: Increased business opportunity through the procurement of goods and services**
DISCUSSION	The specialised nature of the developments may assume procurement of the majority of the goods from outside of the LM and Northern Cape province. However, there is a large amount of goods required that could be sourced locally (food, vehicles, maintenance of wearable equipment, etc)
EXISTING IMPACT	Unknown.
PREDICTED IMPACT	High potential - particularly during construction
EIA INVESTIGATION REQUIRED	Yes
CUMULATIVE EFFECT	Medium
ISSUE	**Impact: Increased opportunity for informal business development**
DISCUSSION	Informal traders may take to the opportunity to sell goods and services - depending on the demand during the construction and operational phases.

ISSUE AND IMPACT	
EXISTING IMPACT	None. At present there are no known informal traders on the land identified for development. (Yet to be confirmed)
PREDICTED IMPACT	Low (if impact lasts only for the construction phase.)
EIA INVESTIGATION REQUIRED	Yes
CUMULATIVE EFFECT	Low
ISSUE	**Impact: Increased business confidence**
DISCUSSION	The fact that the power generation will ensure future power supplies may increase business confidence in the Northern Cape and South Africa as a whole. Is has been indicated that the power generation is for the benefit of the national grid.
EXISTING IMPACT	Unknown. (There is evidence of a PV solar plant in De Aar, the existing impact of which should be drawn into this study.)
PREDICTED IMPACT	Low
EIA INVESTIGATION REQUIRED	Yes
CUMULATIVE EFFECT	Low (as it will be at a national level).
ISSUE	**Impact: Inconvenience and danger to proximate residents through increased road traffic and dust, and reduced access to farms and worksites**
DISCUSSION	Residents living and working nearby to the development areas are likely to suffer the inconvenience and hazards related to increased road traffic. The rail depot existing in De Aar would act as an access channel for goods coming into and leaving De Aar. The consequence of trucks routing into and out of the town increases road hazard risks to town residents.
EXISTING IMPACT	Unknown. At present there are no known residents nearby to the development site. There is evidence of one farm north of the development footprint. This is yet to be confirmed.
PREDICTED IMPACT	Medium (if impact lasts only for the construction phase).
EIA INVESTIGATION REQUIRED	Yes
CUMULATIVE EFFECT	Medium. This is largely dependent on other developments that utilise the De Aar town for various reasons.
ISSUE	**Impact: Community disruption by non-local and local workers and opportunity seekers**
DISCUSSION	The potential for increased work opportunity may attract others from outside the local areas. In addition the existence of a construction workforce which is not from the local areas may also contribute to socio-political tensions in local areas.
EXISTING IMPACT	Unknown.
PREDICTED IMPACT	Low. This impact depends on the number of workers and the access of workers to local towns and settlements.
EIA INVESTIGATION REQUIRED	Yes
CUMULATIVE EFFECT	Low
ISSUE	**Impact: Local improvements to road, power and water infrastructure with benefits to proximate communities**
DISCUSSION	The development would in all likelihood open up routes to local communities thereby increasing mobility. Should water and power access be available to the development site, this increases the opportunity for others to gain (legal) access.

ISSUE AND IMPACT	
EXISTING IMPACT	None. There are no communities in close proximity to the development site apart from De Aar (20 kms away). The town of De Aar is being spatially planned, with the majority of residents having above standard electricity supply, while the sanitation scenario is below standard (given the number of residents in Ward 6 that still utilise the bucket system).
PREDICTED IMPACT	Low
EIA INVESTIGATION REQUIRED	Yes
CUMULATIVE EFFECT	Low
ISSUE	**Impact: Access to well –resourced social facilities by employees and contractors due to the ability to pay fees**
DISCUSSION	The increase in household income through potential project recruitment will increase a household member's access to facilities for which payment would be made. For example, payment for doctors' consultation fees, school fees for children, etc.
EXISTING IMPACT	Unknown.
PREDICTED IMPACT	Medium. (assuming there is a substantial local labour component) and employment will last through construction and operational phases of the project.
EIA INVESTIGATION REQUIRED	Yes
CUMULATIVE EFFECT	Medium
ISSUE	**Impact: Increased local risk of HIV/AIDS infection with influx of workers and opportunity seekers**
DISCUSSION	There is potential for newcomers (non-local) residents to enter the De Aar town (and possibly residential suburbs). The contractor workforce (if housed on site and are not local) may frequent the town. The rail routing into town and the consequent use of trucks for transportation (perhaps even long -haul trucks), increases the chances of the spread of HIV/AIDS due to the increased movement of people.
EXISTING IMPACT	Unknown
PREDICTED IMPACT	High - due to the long term impact of HIV/AIDS
EIA INVESTIGATION REQUIRED	Yes
CUMULATIVE EFFECT	High potential - due to the long term impact of HIV/AIDS
ISSUE	**Impact: Local dissatisfaction due to finite jobs and perceived preferential access to these jobs and procurement**
DISCUSSION	Local unemployed (but eligible) workers may perceive bias in the recruitment/ employment process.
EXISTING IMPACT	Unknown
PREDICTED IMPACT	Low
EIA INVESTIGATION REQUIRED	Yes
CUMULATIVE EFFECT	Low
ISSUE	**Impact: Crime related incidents**
DISCUSSION	An area of human development increases the chance of criminal activity. Whether crime takes place in the form of petty theft, vehicle hijackings or even electrical cable theft, the potential will increase as a result of the development.
EXISTING IMPACT	Low
PREDICTED IMPACT	Low - assuming the town does not see a huge influx of non-local people.
EIA INVESTIGATION REQUIRED	Yes

ISSUE AND IMPACT	
CUMULATIVE EFFECT	Low - assuming the town does not see a huge influx of non-local people.

4.3. The Social and Economic Impact Assessment Scope of Work

Based on the findings presented in this social baseline report and the scoped impacts at this early stage, this study recommends a three step process scope of work (SoW) to fulfil the requirements for a Social Impact Assessment:

Step One: Project planning

In this Step it is expected that:

- The project team will be fully briefed by the client on all activities/ actions to date with regard to the proposed development area. This would include a full technical description of the development and its associated facilities;
- All available documentation will be made available to the project team; and
- The Client and project team will together identify a geographical radius (in meters/ kilometres) for primary and areas of impact from the proposed development.

Step Two: Data Collection

Primary data will be collected through a certain number of open-ended focus group interviews conducted in the study area. The likelihood is that focus group participants would include:

- The directly affected individuals currently facing economic/ physical displacement;
- Government (including appropriate representatives from the respective Municipality);
- Ward Councillors from the appropriate affected Wards within the Municipalities;
- Civil groups (Non-governmental, Community-based, Social and Environmental Action Interest Groups; Ratepayers Association, etc); and
- Local businesses within the Ward/Municipality.

No more than *6* on site meetings will be undertaken in the appropriate language most familiar to participants. The focus group discussions will represent a qualitative data gathering technique.

It is expected that all previous and related studies will form the secondary data sources required for interrogation at this point in the SIA. This would include the related public consultation meetings of the EIA study.

While the focus of the interviews is to elicit information from participants, it also serves as an opportunity for participants to voice their concerns related to the proposed development as only they can perceive how the development could affect them, their families, their lifestyle and their livelihoods.

The data will be gathered in an unbiased and holistically factual manner from the information received via secondary and primary sources. Should participants prefer not to respond to questions, that is their prerogative, as participants are not persuaded to respond, rather offer information of their own free will.

Step Three: Analysis and Write Up

Following the data collection activities, and following the compilation of a baseline section for the full Social Impact Assessment Report, the SIA specialist will identify the impacts that will be associated with the development in both the long and short term.

The social and economic baseline is compiled in order to increase and contribute to knowledge of the social and economic characteristics of the people and the place in which they work, own and/or reside. All affected or potentially affected persons that undertake an activity, such as farming, and live in an area in which there is a proposed development, have a right to form part of the focus groups to be interviewed.

Social and economic information is obtained in a variety of ways. The assessment of related studies and published material (secondary data collection) as well as limited focus group interviews (primary data collection) with identified willing participants must take place. In addition, input from the various professionals that may form part of the EIA project team (this includes culture and heritage, traffic, noise, air, etc) is also required to feed into the SIA.

The identification of potential positive and negative impacts will be informed by the all the data collected (which consists of data collection and analysis of primary quantitative information from Census 2001, the focus group meetings, secondary data sources, the ongoing consultation process, and the professional expertise of the project team (this includes other specialist studies, such as, culture and heritage, traffic, noise, air, etc)).

Mitigation measures to address the identified impacts will be recommended and drafted. These measures will be formulated to maximise the positive impacts and reduce the extent of the negative impacts.

4.3.1. Presentation of the Impacts in 'Impact Categories'

The Impact Report present the various project anticipated impacts within 'Impact categories' such as :

- *Population and Politics:* this includes changes and impacts related to population structure, migration, welfare balances, and power and authority;
- *Economy and Work:* this context includes changes and impacts related to national and regional economic networks, entrepreneurial opportunities, tax income, employment levels and patterns, commercial and labour organization, access to jobs and employment equity, labour exploitation and household and community livelihoods;
- *Land and Resources:* this includes baseline changes and impacts related to the use of and access to natural resources such as land and water, and to location and settlement based on access to such resources;
- *Infrastructure and Social Services:* the social services context includes changes and impacts related to services infrastructure (water, energy, education, roads, and communication) and demand for these services. Health is considered under this heading, particularly in relation to demand for and access to health services;
- *Organisation and Community:* changes and impacts related to local government, crime, community organization, development planning, access to decision making, voluntary organizations (CBOs and NGOs), support networks, community stability, response to change, trust in political and social institutions,

barriers to access (skills, literacy), household budgeting and use of income, and cultural resources and practices; and

- *Social Divisions:* this context focuses on changes and impacts around equity (for example the distribution and circulation of compensation), non-participation, unmet expectations, prevailing social tensions and divisions, the influx of newcomers, and the status of vulnerable groups such as the elderly, women, children and the disabled.

5. LITERATURE CITED

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