

# **SOCIAL IMPACT ASSESSMENT**

## **GRID CONNECTIONS FOR PART 2 AMENDMENTS FOR SAN KRAAL AND PHEZUKOMOYA WIND ENERGY FACILITIES**

**NORTHERN AND EASTERN CAPE PROVINCE**

**AUGUST 2019**

**Prepared for**

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LTD**

**By**

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# **EXECUTIVE SUMMARY**

## **INTRODUCTION AND LOCATION**

Arcus Consultancy Services South Africa (Pty) Ltd (hereafter referred to as Arcus) was appointed as the lead consultant to manage the Basic Assessment (BA) process for the new Hartebeesthoek grid connection and collector substations associated with the Part 2 Amendments for the approved San Kraal and Phezukomoya WEFs. The study area is located in the vicinity of the town of Noupoort in the Umsobomvu Local Municipality (ULM), which falls within the Northern Cape Province. A small section of the site is also located in the Inxuba Yethemba Local Municipality (IYLM), which falls within the Eastern Cape Province. The IYLM falls within the Chris Hani District Municipality (CHDM).

In terms of the Part 2 Amendments the San Kraal and Phezukomoya WEFs will each be split into 2 separate WEFs namely:

- San Kraal Split 1;
- Hartebeesthoek East (San Kraal Split 2);
- Phezukomoya Split 1;
- Hartebeesthoek West (Phezukomoya Split 2).

As part of the Part 2 Amendments, a new collector substation is proposed 5 km from the existing Eskom Hydra D substation, located within the approved preferred grid corridor. In addition, an on-site 33/132 kV substation will be added as an extension to the approved San Kraal on-site substation. A new Grid Connection route connecting the two substations is proposed. These three components will require a Basic Assessment process.

Tony Barbour was appointed by Arcus to undertake a specialist Social Impact Assessment (SIA) as part of the BA process. This report contains the findings of the SIA undertaken as part of the BA process.

## **APPROACH TO THE STUDY**

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

- Collection and review of baseline socio-economic data;
- Review of relevant planning and policy frameworks for the area;
- Site-specific information collected during the site visit to the area and interviews with key stakeholders;
- Review of information from similar projects; and
- Identification of social issues associated with the proposed project.

## **SUMMARY OF KEY FINDINGS**

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

- Fit with policy and planning;
- Construction phase impacts;
- Operational phase impacts;
- Cumulative Impacts;
- Decommissioning phase impacts;
- No-development option.

## **FIT WITH POLICY AND PLANNING**

The findings of the review indicated that renewable energy and associated grid infrastructure is strongly supported at a national, provincial and local level. The development of and investment in renewable energy is supported by the National Development Plan (NDP), New Growth Path Framework and National Infrastructure Plan, which all make reference to renewable energy. At a provincial level, the development of renewable energy is supported by the Northern Cape Provincial Growth and Development Strategy and Northern Cape Provincial Spatial Development Framework<sup>1</sup>. The PKSDM IDP also highlights the importance of renewable energy for the area.

However, the provincial and local policy and planning documents also make reference to the importance of tourism and the region's natural resources. Care, therefore, needs to be taken to ensure that the siting of renewable energy facilities (including wind farms and the associated grid infrastructure) does not impact negatively on the areas tourism potential<sup>2</sup>.

## **CONSTRUCTION PHASE**

The key social issues associated with the construction phase of the grid infrastructure will be the same as the issues associated with the establishment of the proposed WEFs. In this regard, the construction activities associated with the establishment of the grid infrastructure are likely to overlap with and be undertaken at the same time as the construction activities associated with the establishment of the proposed WEFs. It is also reasonable to assume that the majority of construction-related activities associated with the construction of the grid infrastructure will be undertaken by the same team of construction workers appointed to establish the proposed WEFs. It is therefore not possible to fully separate and distinguish between the social impacts associated with the construction phase of the proposed WEFs and the associated grid infrastructure. In addition, one must also be aware of double counting.

The key social issues associated with the construction phase apply to all components of the grid infrastructure and include:

### **Potential positive impacts**

- Creation of employment opportunities.

### **Potential negative impacts**

- Impacts associated with the presence of construction workers on local communities;

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<sup>1</sup> The majority of the site is located in the Northern Cape Province. The focus of the review was therefore on the Northern Cape.

<sup>2</sup> The findings of the literature review indicate that the impact of wind farms impact on tourism is low to negligible

- Impacts related to the potential influx of jobseekers;
- Increased risks to livestock and farming infrastructure associated with the construction-related activities and presence of construction workers on the site;
- Increased risk of grass fires associated with construction-related activities;
- Noise, dust and safety impacts of construction-related activities and vehicles;
- Impact on productive farmland.

The findings of the SIA indicate that the significance of all the potential negative impacts with mitigation was **Low Negative**. The potential negative impacts can, therefore, be effectively mitigated if the recommended mitigation measures are implemented. Table 1 summarises the significance of the impacts associated with the construction phase.

**Table 1: Summary of impacts associated with the construction phase**

<b>Impact</b>	<b>Significance No Mitigation/ Enhancement</b>	<b>Significance With Mitigation/ Enhancement</b>
<b>Creation of employment and business opportunities</b>	Low (+)	Medium (+)
<b>Presence of construction workers and potential impacts on family structures and social networks</b>	Medium (-)	Low (-)
<b>Influx of job seekers</b>	Low (-)	Low (-)
<b>Increased risks to livestock and farming infrastructure associated with the construction-related activities and presence of construction workers on the site</b>	Medium (-)	Low (-)
<b>Increased fire risk</b>	Medium (-)	Low (-)
<b>Impact of heavy vehicles and construction activities</b>	Medium (-)	Low (-)

## **OPERATIONAL PHASE**

The social issues related to the operational phase include:

### **Potential positive impacts**

- Creation of employment opportunities.

The benefits associated with the establishment of renewable energy infrastructure (including grid infrastructure) and Community Trust have been assessed as part of the SIAs for the proposed San Kraal and Phezukomoya WEFs. In order to avoid double-counting, they have therefore not been assessed as part of the SIA for the grid infrastructure. However, it is recognised that grid infrastructure is integral to the overall success of the proposed WEFs.

### **Potential negative impacts**

- The visual impacts and associated impact on sense of place;
- Impact on tourism;
- Impact on property values.

The potential negative social impacts associated with the new collector substation located 5 km from the approved Eskom Hydra D substation and the approved substations associated with the Part 2 Amendment will be limited. The impacts

associated with these grid infrastructure components will, therefore, not have a material bearing on the decision-making process.

The location of the proposed 132 kV overhead line HBH Corridor to the south of approved on-site grid corridor for the San Kraal and Phezukomoya WEFs is however likely to have a visual impact on the area.

### ***Visual impact associated with HBH Corridor Option***

The location of the proposed 132 kV overhead line HBH Corridor to the south of the approved on-site grid corridor for the San Kraal and Phezukomoya WEFs is likely to have a more significant visual impact on the area than the approved corridor. In this regard, the owner of Beskuitfontein, Mr Pieter Erasmus, noted that Alternative 1 associated with the San Kraal and Phezukomoya WEFs (the southern-most alternative) was located with the view-shed of the access road to Beskuitfontein and adjacent Vlakfontein.

The proposed HBH Corridor Option is also located on Beskuitfontein and is located further to the south and closer to the Beskuitfontein farmhouse and Charlton Heights Guest Farm. The impact on the viewshed and sense of place will, therefore, be greater than Alternative 1.

In addition:

- The view from the N9 is towards an amphitheatre created by the escarpment. While there is a transmission line that runs in an east-west direction and is visible from the Charlton Heights Guest Farm, the general view is relatively uninterrupted;
- The route affects properties that are not associated with any of the proposed WEFs. They will, therefore, bear the cost of the transmission line without any financial benefit. This raises an issue of impact equity, namely some property owners will be impacted without gaining any benefit from the proposed WEFs;
- Mr Erasmus indicated that he is concerned that the Part 2 Amendment has resulted in a reduced number of wind turbines on his property. The establishment of the proposed HBH Corridor Option is likely to compound his concerns.

Based on the findings of the SIA, the HBH Corridor Option will have a higher social impact than the approved San Kraal/ Phezukomoya corridor, which is located within the site boundary. The approved San Kraal/ Phezukomoya corridor, therefore, remains the preferred option.

### ***Impact on property values***

Based on the findings of the literature review, the potential impact of the proposed WEFs and the associated grid infrastructure on the property values in the area is likely to be low.

### ***Impact on tourism***

Based on the findings of the literature review, there is limited evidence to suggest that wind farms and the associated grid infrastructure impact on tourism. The findings also indicate that wind farms do not impact on tourist routes.

Table 2 summarises the significance of the impacts associated with the operational phase.

**Table 2: Summary of impacts associated with the operational phase**

<b>Impact</b>	<b>Significance No Mitigation/ Enhancement</b>	<b>Significance With Mitigation/ Enhancement</b>
<b>Creation of employment opportunities</b>	Low (+)	Moderate (+)
<b>Visual impact and impact on sense of place associated with HBH Corridor Option</b>	Medium (-)	Medium (-)
<b>Impact on property values<sup>3</sup></b>	Low (-)	Low (-)
<b>Impact on tourism<sup>4</sup></b>	Low (- and +)	Low (- and +)

## **CUMULATIVE IMPACTS**

### ***Cumulative impact on sense of place***

Based on the findings of the SIA and the VIA the overall cumulative impact of the area's sense of place does not represent a fatal flaw for the proposed WEFs and associated grid infrastructure.

### ***Cumulative impact on services***

The SIAs for the proposed WEFs assessed the potential cumulative impact of the establishment renewable energy facilities, including the associated grid infrastructure on local services in nearby towns, specifically services such as medical, education and accommodation. The significance of this impact with mitigation was rated as **Low Negative**.

### ***Cumulative impact on local economies***

The SIAs for the proposed WEFs assessed the potential cumulative impact of the establishment of renewable energy facilities, including the associated grid infrastructure, on the local economy. The significance of this impact with enhancement was rated as **High Positive**.

## **NO-DEVELOPMENT OPTION**

The No-Development option would represent a lost opportunity for South Africa to supplement current energy needs with clean, renewable energy. Given South Africa's position as one of the highest per capita producer of carbon emissions in the world, this would represent a High negative social cost. The no-development option also represents a lost opportunity in terms of the employment and business opportunities (construction and operational phase) associated with the proposed WEFs and associated grid infrastructure and the benefits associated with the establishment of a Community Trust. This also represents a negative social cost.

However, at a provincial and national level, it should be noted that the proposed WEF developments are not unique. In this regard, a significant number of other renewable energy developments are currently proposed in the Northern and Eastern Cape and other parts of South Africa. Foregoing the proposed establishment of WEFs would therefore not necessarily compromise the development of renewable energy facilities in the Eastern Cape Province and or South Africa. However, the socio-economic benefits for local communities in the ULM and IYLM would be forfeited.

<sup>3</sup> The rating applies to the impact on property prices in the broader area.

<sup>4</sup> The rating applies to the impact on tourism in the broader area.

## **DECOMMISSIONING PHASE**

Given the relatively small number of people employed during the operational phase, the potential negative social impact on the local economy associated with decommissioning will be limited. In addition, the potential impacts associated with the decommissioning phase can also be effectively managed with the implementation of retrenchment and downscaling programme. With mitigation, the impacts are assessed to be **Low Negative**.

## **CONCLUSION AND RECOMMENDATIONS**

The development of the grid infrastructure represents an integral part of the proposed WEFs associated with the Part 2 Amendment. The findings of the Part 2 Amendment Reports for the San Kraal and Phezukomoya WEFs (Barbour and van der Merwe, 2019) indicate that they will create employment and business opportunities for locals during both the construction and operational phase of the project. The benefits associated with the Part 2 Amendments are dependent upon being able to connect to the national grid via the establishment of the grid infrastructure.

The findings of the SIA for the grid infrastructure indicate that the significance of the potential negative impacts for both the construction and operational phase are, with the exception of the HBH Corridor Option, **Low Negative** with mitigation. The majority of the potential negative impacts can, therefore, be effectively mitigated if the recommended mitigation measures are implemented.

The establishment of the new collector substation located 5 km from the approved Eskom Hydra D substation and the approved substations associated with the Part 2 Amendment is therefore supported by the findings of the SIA. The proposed 132 kV overhead line HBH Corridor Option located to the south of the approved on-site grid corridor for the San Kraal and Phezukomoya WEFs will, however, result in social impacts that have a bearing on the identification of a preferred option. In this regard, the HBH Corridor Option will have a higher social impact than the approved San Kraal/ Phezukomoya corridor, which is located within the site boundary. The approved San Kraal/ Phezukomoya corridor, therefore, remains the preferred option.

## CONTENTS OF THE SPECIALIST REPORT – CHECKLIST

<b>Regulation GNR 326 of 4 December 2014, as amended 7 April 2017, Appendix 6</b>	<b>Section of Report</b>
(a) details of the specialist who prepared the report; and the expertise of that specialist to compile a specialist report including a <i>curriculum vitae</i> ;	Section 1.5 Annexure C
(b) a declaration that the specialist is independent in a form as may be specified by the competent authority;	Section 1.6 Annexure D
(c) an indication of the scope of, and the purpose for which, the report was prepared;	Section 1.1 Section 1.2
(cA) an indication of the quality and age of base data used for the specialist report;	Section 1.4 Section 3
(cB) a description of existing impacts on the site, cumulative impacts of the proposed development and levels of acceptable change;	Section 4
(d) the duration, date and season of the site investigation and the relevance of the season to the outcome of the assessment;	N/A for SIA
(e) a description of the methodology adopted in preparing the report or carrying out the specialised process inclusive of equipment and modelling used;	Section 1.2 Annexure B
(f) details of an assessment of the specific identified sensitivity of the site related to the proposed activity or activities and its associated structures and infrastructure, inclusive of a site plan identifying site alternatives;	Section 4 Section 5
(g) an identification of any areas to be avoided, including buffers;	N/A
(h) a map superimposing the activity including the associated structures and infrastructure on the environmental sensitivities of the site including areas to be avoided, including buffers;	Figure 3.16
(i) a description of any assumptions made and any uncertainties or gaps in knowledge;	Section 1.4
(j) a description of the findings and potential implications of such findings on the impact of the proposed activity, including identified alternatives on the environment, or activities;	Section 4
(k) any mitigation measures for inclusion in the EMPr;	Section 4
(l) any conditions for inclusion in the environmental authorisation;	Section 4 Section 5.3
(m) any monitoring requirements for inclusion in the EMPr or environmental authorisation;	N/A
(n) a reasoned opinion— i. as to whether the proposed activity, activities or portions thereof should be authorised; iA. Regarding the acceptability of the proposed activity or activities; and ii. if the opinion is that the proposed activity, activities or portions thereof should be authorised, any avoidance, management and mitigation measures that should be included in the EMPr or Environmental Authorization, and where applicable, the closure plan;	Section 5.3
(o) a summary and copies of any comments received during any consultation process and where applicable all responses thereto; and	Annexure A lists all key stakeholders interviewed
(p) any other information requested by the competent authority	N/A
Where a government notice gazetted by the Minister provides for any protocol or minimum information requirement to be applied to a specialist report, the requirements, as indicated in such notice will apply.	



## **ACRONYMS**

DM	District Municipality
DEA&DP	Department of Environmental Affairs and Development Planning
ECPGDP	Eastern Cape Provincial Growth and Development Plan
EIA	Environmental Impact Assessment
IDP	Integrated Development Plan
IPP	Independent Power Producer
IYLM	Inxuba Yethemba Local Municipality
kV	Kilovolts
LED	Local Economic Development
LM	Local Municipality
MW	Megawatt
SEA	Strategic Environmental Assessment
SIA	Social Impact Assessment
ULM	Umsobomvu Local Municipality
WEF	Wind Energy Facility

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# **SECTION 1: INTRODUCTION**

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## **1.1 INTRODUCTION**

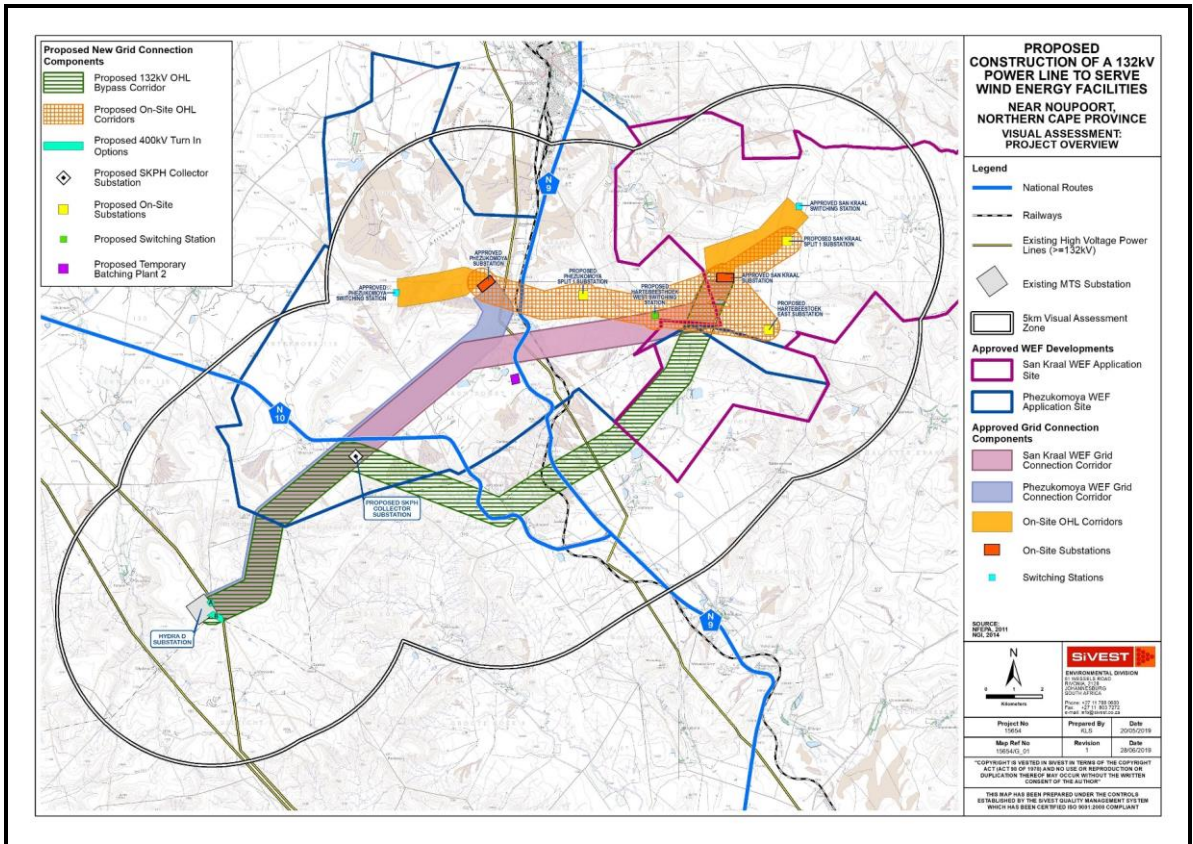
Arcus Consultancy Services South Africa (Pty) Ltd (hereafter referred to as Arcus) was appointed as the lead consultant to manage the Basic Assessment (BA) process for the new Hartebeesthoek grid connection and collector substations associated with the Part 2 Amendments for the approved San Kraal and Phezukomoya WEFs. The study area is located ~ 6 km south-east of the town of Noupoort in the Umsobomvu Local Municipality (ULM), which falls within the Northern Cape Province. A small section of the site is also located in the Inxuba Yethemba Local Municipality (IYLM), which falls within the Eastern Cape Province. The IYLM falls within the Chris Hani District Municipality (CHDM).

In terms of the Part 2 Amendments the San Kraal and Phezukomoya WEFs will each be split into 2 separate WEFs namely:

- San Kraal Split 1;
- Hartebeesthoek East (San Kraal Split 2);
- Phezukomoya Split 1;
- Hartebeesthoek West (Phezukomoya Split 2).

As part of the Part 2 Amendments, a new collector substation is proposed 5 km from the approved Eskom Hydra D substation, located within the approved preferred grid corridor. In addition, an on-site 33/132 kV substation will be added as an extension to the approved San Kraal on-site substation. A new Grid Connection route (HBH Corridor) connecting the two substations is proposed. These three components will require a Basic Assessment process (Figure 1.1).

Tony Barbour was appointed by Arcus to undertake a specialist Social Impact Assessment (SIA) as part of the BA process. This report contains the findings of the SIA undertaken as part of the BA process.



**Figure 1.1: Location of grid infrastructure components**

## 1.2 TERMS OF REFERENCE AND APPROACH TO STUDY

The terms of reference for the SIA require:

- A description of the environment that may be affected by the activity and the manner in which the environment may be affected by the proposed road upgrade;
- A description and assessment of the potential social issues associated with the proposed development and the associated alternatives;
- Identification of enhancement and mitigation measures aimed at maximising opportunities and avoiding and or reducing negative impacts.

In the absence of a similar Guideline for the Eastern Cape and Northern Cape Provinces, the approach to the SIA study is based on the Western Cape Department of Environmental Affairs and Development Planning Guidelines for Social Impact Assessment (DEADP, 2007). The key activities are undertaken as part of the SIA process as embodied in the guidelines included:

- Describing and obtaining an understanding of the proposed intervention (type, scale, and location), the settlements, and communities likely to be affected by the proposed project;
- Collecting baseline data on the current social and economic environment;
- Identifying the key potential social issues associated with the proposed project;

- Site visit and semi-structured interviews with key stakeholders and affected individuals and communities;
- Assessing and documenting the significance of social impacts associated with the proposed intervention;
- Consideration of other renewable energy projects that may pose cumulative impacts.
- Identification of enhancement and mitigation measures aimed at maximising opportunities and avoiding and or reducing negative impacts; and

The identification of potential social issues associated with the proposed facility is based on observations during the project site visit, review of relevant documentation, experience with similar projects and the general area. Annexure A contains a list of the secondary information reviewed and interviews conducted. Annexure B outlines the assessment methodology used to assign significance ratings during the assessment phase.

One of the key challenges facing SIA does not necessarily involve the physical disruption of human populations, but understanding the meanings, perceptions and/or social significance of these changes. In order to understand the role of social assessment in the EIA process, one needs to define what social impacts are. This issue is complicated by the way in which different people from different cultural, ethnic, religious, gender, and educational backgrounds, etc., view the world. This is referred to as the “social construct of reality”. The social construct of reality informs people’s worldview and the way in which they react to changes. However, in many instances, these constructs are frequently treated as perceptions or emotions, to be distinguished from “reality.”

The social construct of reality is a characteristic of all social groups, including the agencies that attempt to implement changes, as well as the communities that are affected (Guidelines and Principles for Social Impact Assessment, 1994). The tendency of development agencies and proponents to dismiss the concerns of others as being merely imagined and perceived is, therefore, a key issue that needs to be addressed by social impact assessments.

In this regard, the findings of the SIA indicate that while certain stakeholders are opposed to the proposed WEF, others either support the development and or do not have an objection to the establishment of a WEF on the proposed site.

### **1.3 PROJECT DESCRIPTION**

The components assessed by the BA include:

- A new collector substation is proposed 5 km from the approved Eskom Hydra D substation, located within the approved preferred grid corridor;
- An on-site 33/132 kV substation to be added as an extension to the approved San Kraal on-site substation;
- A new Grid Connection route connecting the two substations, referred to as the HBH Corridor. The proposed 132 kV overhead line HBH Corridor is located to the south of approved on-site grid corridor for the San Kraal and Phezukomoya WEFs (Green hatched line in Figure 1.1).

The location of these components is illustrated in Figure 1.1.

## **1.4 ASSUMPTIONS AND LIMITATIONS**

### **1.4.1 Assumptions**

#### **Technical suitability**

It is assumed that the development site represents a technically suitable site for the establishment of a wind energy facility and the associated grid infrastructure.

#### **Strategic importance of the project**

The strategic importance of promoting wind energy is supported by national and provincial energy policies. However, this does not mean that site-related issues can be ignored or overlooked.

#### **Fit with planning and policy requirements**

Legislation and policies reflect societal norms and values. The legislative and policy context, therefore, plays an important role in identifying and assessing the potential social impacts associated with a proposed development. In this regard, a key component of the SIA process is to assess the proposed development in terms of its fit with key planning and policy documents. As such, if the findings of the study indicate that the proposed development in its current format does not conform to the spatial principles and guidelines contained in the relevant legislation and planning documents, and there are no significant or unique opportunities created by the development, the development cannot be supported. However, the study recognises the strategic importance of wind energy and the technical, spatial and land-use constraints required for wind energy facilities.

#### **Assessment of grid infrastructure components**

The social impacts associated with the new collector substation located 5 km from the approved Eskom Hydra D substation and the approved substations associated with the Part 2 Amendment will be limited. In addition, all of these facilities are located with the approved on-site overhead grid corridor. The impacts associated with these grid infrastructure components will, therefore, have a material bearing on the decision-making process. The proposed 132 kV overhead line by-pass corridor located to the south of approved on-site grid corridor for the San Kraal and Phezukomoya WEFs will, however, result in social impacts that have a bearing on the identification of a preferred option.

### **1.4.2 Limitations**

#### **Demographic data**

The information contained in some key policy and land use planning documents, such as Integrated Development Plans etc., may not contain data from the 2011 Census. However, where, required, this data has been updated with the relevant 2011 Census data.

## **1.5 SPECIALIST DETAILS**

Tony Barbour, the lead author of this report, is an independent specialist with 25 years' experience in the field of environmental management. In terms of SIA experience, Tony Barbour has undertaken in the region of 240 SIAs and is the author of the Guidelines for Social Impact Assessments for EIA's adopted by the Department

of Environmental Affairs and Development Planning (DEA&DP) in the Western Cape in 2007. Annexure C contains a copy of Tony Barbour's CV.

Schalk van der Merwe, the co-author of this report, has an MPhil in Environmental Management from the University of Cape Town and has worked closely with Tony Barbour on a number of SIAs over the last ten years.

## **1.6 DECLARATION OF INDEPENDENCE**

This confirms that Tony Barbour and Schalk van der Merwe, the specialist consultants responsible for undertaking the study and preparing the Draft SIA Report, are independent and do not have any vested or financial interests in the proposed WEF being either approved or rejected. Annexure D contains a signed declaration of independence.

## **1.7 REPORT STRUCTURE**

The report is divided into five sections, namely:

- Section 1: Introduction;
- Section 2: Policy and planning context;
- Section 3: Overview of study area;
- Section 4: Identification and assessment of key issues; and
- Section 5: Key Findings and recommendations.



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## **SECTION 2: DESCRIPTION OF POLICY AND PLANNING CONTEXT**

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### **2.1 INTRODUCTION**

Legislation and policy embody and reflect key societal norms, values and developmental goals. The legislative and policy context, therefore, plays an important role in identifying, assessing and evaluating the significance of potential social impacts associated with any given proposed development. An assessment of the “policy and planning fit<sup>5</sup>” of the proposed development, therefore, constitutes a key aspect of the Social Impact Assessment (SIA). In this regard, assessment of “planning fit” conforms to international best practice for conducting SIAs. Furthermore, it also constitutes a key reporting requirement in terms of the Western Cape Department of Environmental Affairs and Development Planning’s *Guidelines for Social Impact Assessment* (2007).

A detailed review of the national, provincial and local level policy and planning documents is contained in the SIAs undertaken for the San Kraal and Phezukomoya WEFs (Barbour and van der Merwe, January 2018). Given the localised nature of the project component, the focus of the review undertaken as part of the current BA process is on the Integrated Development Plans for the relevant local municipalities, namely:

- Umsobomvu Municipality Integrated Development Plan (Review 2017-2022);
- Inxuba Yethemba Municipality Integrated Development Plan (2017-2022);

A summary of the Inxuba Yethemba Local Municipality Draft Spatial Development Framework (2014) is also provided.

The SIAs undertaken for San Kraal and Phezukomoya WEFs (Barbour and van der Merwe, January 2018) include a review of the Renewable Energy Programme in South Africa. This review is not repeated in the SIA for the grid infrastructure.

A summary of a review of international studies on the potential impacts of wind energy facilities on property values and tourism is also provided. In this regard, it is assumed that these studies also consider the infrastructure associated with wind energy facilities.

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<sup>5</sup> Planning fit” can simply be described as the extent to which any relevant development satisfies the core criteria of appropriateness, need, and desirability, as defined or circumscribed by the relevant applicable legislation and policy documents at a given time.

## 2.4 LOCAL POLICY AND PLANNING ENVIRONMENT

### 2.4.1 Umsobomvu Local Municipality Integrated Development Plan (2017-2022)

The vision for the Umsobomvu Local Municipality (ULM) is a “Developmental Municipality in South Africa”. The mission statement to achieve the vision is “To serve our community by delivering quality services and customer care through dedicated staff for the upliftment of our community socially and economically.”

The IDP lists the strategic objectives to address the vision, namely:

- Develop a capable and capacitated institution to respond to community needs;
- Strengthen community participation;
- Enhance Good Governance processes and accountability;
- Provide appropriate services to all households;
- Ongoing maintenance of municipal infrastructure;
- Enhance municipal financial viability;
- Provide quality and sustainable municipal infrastructure within available resources;
- Facilitate economic growth in the municipal area;
- Environmentally conscious in the delivery of services.

In terms of economic development, the IDP notes that the ULM is a relatively small economy, making up about 13% of Gross Domestic Product in the Pixley ka Seme District municipality and only 2% of the Northern Cape Province’s in 2016. The IDP notes that the economy in the ULM is characterised by:

- High levels of poverty;
- It is a small-town sub-region with a low level of development despite the strategic location in terms of the national transport corridors;
- Sparsely populated towns with Colesberg serving as “agricultural service centre”;
- High rate of unemployment, poverty and social grant dependence;
- Prone to significant environmental changes owing to long-term structural changes (such as climate change, energy crises and other shifts);
- Geographic similarity in economic sectors, growth factors and settlement patterns;
- Economies of scale not easily achieved owing to the relatively small size of towns;
- A diverse road network with national, trunk, main and divisional roads of varying quality;
- Proximity to the Gariep Dam;
- **Potential in renewable energy resource generation.**

Chapter 4, Development strategies, outlines the key strategic objectives of the ULM. The most pressing objective is to facilitate economic growth in the municipal area and create an enabling environment for the promotion of economic development. A SWOT analysis was undertaken as part of the IDP process. Alternative renewable (clean) energy and tourism were identified as an opportunity. The lack of economic drivers was identified as a threat. In this regard, the establishment of renewable energy projects can create an opportunity for economic development in the area.

Section 3.9.2, Possible Opportunities, list the potential opportunities. Two opportunities are of relevance to the proposed development, namely:

- Understanding the impact of significant environmental changes owing to long-term structural changes (such as climate change, energy crises and other shifts);
- Allowing investment in renewable energy resource generation.

The section also highlights the importance of important tourism and development corridors and the need to promote the tourism sector.

Section 3.5, Biophysical Context, also makes reference to renewable energy, noting that the demand for development that will influence the transformation of land use and place pressure on biodiversity and grazing land.

#### **2.4.2 Inxuba Yethemba Local Municipality IDP (2017-2022)**

The vision of Inxuba Yethemba Municipality (IYM) is "A coherent developmental municipality putting people first and providing a better life for all its citizens". The mission statement linked to the vision is that the Inxuba Yethemba Municipality Commits itself to unity, putting people first and providing a better life by:

- Promoting social and economic development;
- Ensuring effective community Participation;
- Providing and maintaining affordable services;
- Effectively and efficiently utilising all available resources.

Central to the strategies adopted by the IYM is a Back to Basics Approach that focuses on:

- Service delivery and basic infrastructure;
- Local economic development;
- Financial viability;
- Institutional Development and Municipal transformation;
- Good governance and Public Participation.

Local economic development is the most relevant strategy for the proposed development. The key focus of the strategy is:

- Developing the Local Economy;
- Poverty alleviation and job creation;
- Tourism.

Section 2.4.9, Economic Potential, lists the strengths, weaknesses, opportunities and threats facing the IYM. The most relevant are listed below.

#### **Strengths**

- Located along the N10; transient market is large;
- Convenient stop-over between inland towns and coastal towns (Port Elizabeth & Garden Route);
- Good climate to support agriculture;
- Agriculture and tourism are well-established sectors;
- Land available for industrial development.

#### **Weaknesses**

- Few entrepreneurs with limited skills and capital;
- skilled population declining;

- HIV/Aids widespread;
- Income levels low;
- Few opportunities for the youth;
- Difficult to market for tourism, since there is no critical mass of attractions.

### **Opportunities**

- Agricultural Value-Added industry;
- Educational institutions;
- Tourism – wildlife, hunting and photographic.

### **Threats**

- Farmers become negative due to political pressures;
- “Brain Drain” continues;
- Infrastructure;
- Electricity in Cradock.

Section 7.2 outlines the development objectives for the IYM in order to support a capable and developmental state. Of relevance to the project are the development of the agricultural sector and the support for SMMEs, education, training and innovation. The tourism sector is also identified as a key sector.

With regard to renewable energy, there is no specific reference at a local municipality level. The only reference is in relation to the National Development Plan 2030, which highlights the need to diversify South Africa's energy mix to include more renewable energy sources. The NDP 2030 also notes that the development of environmentally sustainable green products and services, including renewable energy technologies, will contribute to the creation of jobs in niche markets where South Africa has or can develop a competitive advantage.

### **2.4.3 Inxuba Yethemba Local Municipality Draft Spatial Development Framework (2014)**

The most recent version of the IYLM Spatial Development Framework (SDF) appears to be a December 2014 revision draft.

The key spatial development principles underpinning the SDF are identified as Sustainability (environmental, social and economic), Efficiency, Urban Integration, Urban Densification, and Land Reform.

The SDF notes that Middleburg is an important urban centre, serving as the centre of urbanisation for surrounding rural populations, thus putting the Council under significant pressure to provide new housing. The majority of the households moving to Middleburg are poor and without adequate income opportunities. Sufficient land for low-cost housing is available in Middelburg.

Most of the spatial proposals in the SDF pertain to urban areas and are not applicable to the study area. Renewable resources are discussed in the context of climate change.

The SDF notes that Council does not currently have any climate change mitigation policies in place. The SDF notes that the IYLM is likely to suffer from higher, but more unpredictable rainfall, increased evaporation, and hotter summers and winters. All of these would significantly impact on existing land use, specifically agriculture.

Increased energy efficiency and the support of renewable sources of energy are identified as key mitigation responses.

The SDF notes the suitability of the IYLM for wind and other renewables proposals and recommends that the Council takes the appropriate measures to prepare itself for dealing with specific applications. The SDF notes that physical impacts should be restricted to suitable areas but does not provide any spatial suitability guidance in this regard.

## **2.5 IMPACT OF WIND FARMS ON TOURISM<sup>6</sup>**

A review of international literature on the impact of wind farms was undertaken as part of the SIA. Three articles were reviewed, namely:

- Aitchison, (April, 2012). Tourism Impact of Wind Farms: Submitted to Renewables Inquiry Scottish Government. University of Edinburgh
- Glasgow Caledonian University (2008). The economic impacts of wind farms on Scottish tourism. A report prepared for the Scottish Government
- Regeneris Consulting (2014). Study into the Potential Economic Impact of Wind Farms and Associated Grid Infrastructure on the Welsh Tourism Sector

The most comprehensive appears to be a review undertaken by Professor Cara Aitchison from the University of Edinburgh in 2012 which formed part Renewable Energy Inquiry by the Scottish Government. The research by Aitchison found that that previous research from other areas of the UK has demonstrated that wind farms are very unlikely to have any adverse impact on tourist numbers (volume), tourist expenditure (value) or tourism experience (satisfaction) (Glasgow Caledonian University, 2008; University of the West of England, 2004). In addition, to date, there is no evidence to demonstrate that any wind farm development in the UK or overseas has resulted in any adverse impact on tourism. In conclusion, the findings from both primary and secondary research relating to the actual and potential tourism impact of wind farms indicate that there will be neither an overall decline in the number of tourists visiting an area nor any overall financial loss in tourism-related earnings as a result of a wind farm development. The study by the Glasgow Caledonian University (2008) found that only a negligible fraction of tourists will change their decision whether to return to Scotland as a whole because they have seen a wind farm during their visit.

The study also found that 51.0% of respondents indicated that they thought wind farms could be tourist attractions. In this regard, the visitor centre at the Whitelee Wind Farm in east Ayrshire Scotland run by ScottishPower Renewables has become one of the most popular 'eco-attractions' in Scotland, receiving 200 000 visitors since it opened in 2009.

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<sup>6</sup> It is assumed that these studies also consider the infrastructure associated with wind energy facilities.

## 2.6 IMPACT OF WIND FARMS ON PROPERTY VALUES<sup>7</sup>

The literature review undertaken as part of the SIA does not constitute a property evaluation study and merely seeks to comment on the potential impact of wind farms on property values based on the findings of studies undertaken overseas. The literature reviewed was based on an attempt by the authors of the SIA to identify what appear to be “scientifically” based studies that have been undertaken by reputable institutions. In this regard, it is apparent that there are a number of articles available on the internet relating to the impact of wind farms on property values that lack scientific vigour. The literature review also sought to identify research undertaken since 2010. The literature review does not represent an exhaustive review.

In total, five articles were identified and reviewed, namely:

- Stephen Gibbons (April, 2014): Gone with the wind: Valuing the Visual Impacts of Wind turbines through house prices. London School of Economics and Political Sciences & Spatial Economics Research Centre, SERC Discussion Paper 159;
- Review of the Impact of Wind Farms on Property Values, Urbis Pty Ltd (2016): Commissioned by the Office of Environment and Heritage, NSW, Australia;
- Yasin Sunak and Reinhard Madlener (May 2012): The Impact of Wind Farms on Property Values: A Geographically Weighted Hedonic Pricing. School of Business and Economics / E.ON Energy Research Center, RWTH Aachen University. Model Working Paper No. 3/2012;
- Martin D. Heintzelman and Carrie M. Tuttle (March 3, 2011): Values in the Wind: A Hedonic Analysis of Wind Power Facilities. Economics and Financial Studies School of Business, Clarkson University;
- Ben Hoen, Jason P. Brown, Thomas Jackson, Ryan Wiser, Mark Thayer and Peter Cappers (August 2013): A Spatial Hedonic Analysis of the Effects of Wind Energy Facilities on Surrounding Property Values in the United States. Ernest Orlando Lawrence Berkeley National Laboratory.

Three of the articles indicate that wind farms have the potential to impact on property values, while two indicate that the impacts are negligible and or non-existent.

In terms of the proposed project, the most relevant study is the Urbis study (2016). The authors of the study found that appropriately located wind farms within rural areas, removed from higher density residential areas, are unlikely to have a measurable negative impact on surrounding land values.

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<sup>7</sup> It is assumed that these studies also consider the infrastructure associated with wind energy facilities.

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## SECTION 3: OVERVIEW OF THE STUDY AREA

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### 3.1 INTRODUCTION

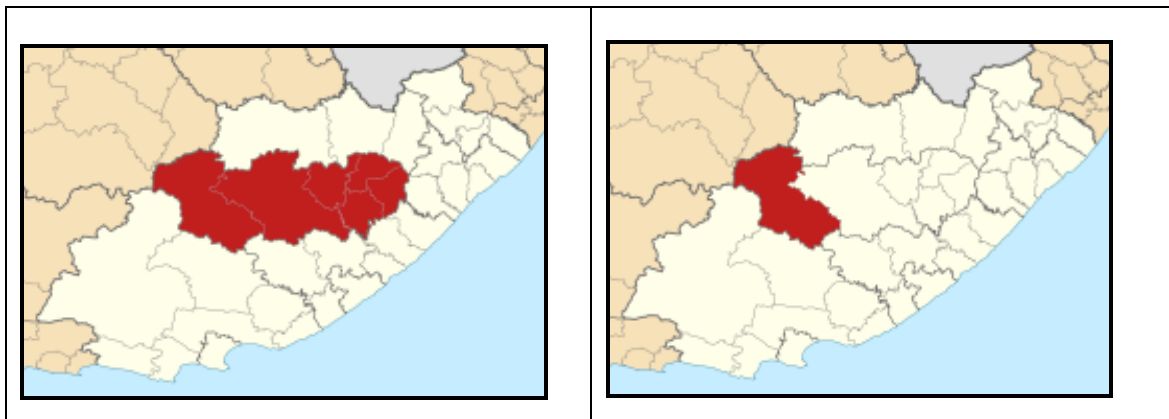
Section 3 provides an overview of the study area with regard to:

- The administrative context;
- The demographic and socio-economic context.

The majority of the study area is located within the Umsobomvu Local Municipality (ULM), which is located in the Northern Cape Province. A small section of the site is located in the Inxuba Yethemba Local Municipality (IYLM), which falls within the Eastern Cape Province. The IYLM falls within the Chris Hani District Municipality.

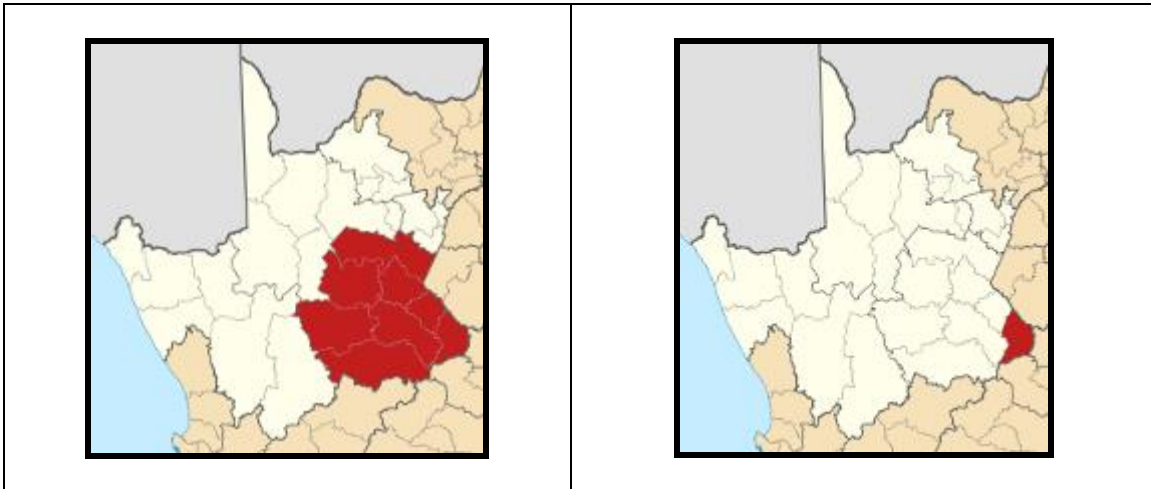
### 3.2 ADMINISTRATIVE CONTEXT

The IYLM is one of six B-Municipalities that constitute the Chris Hani District Municipality (CHDM) (DC13) (Figure 3.1). Cradock is the administrative seat of the IYLM, and together with Middelburg, one of the two major towns in the LM. The mainland uses in the area are linked to stock farming and agriculture.



**Figure 3.1: Location of Chris Hani District Municipality (left) and Inxuba Yethemba Local Municipality (right) within the Eastern Cape Province**

The ULM is one of the eight B-Municipalities that constitute the Pixley ka Seme District Municipality (PKSDM) (NC7) (Figure 3.2). Colesberg is the administrative centre of the ULM. The town of Colesberg is located on the N1 in the Great Karoo, approximately halfway between Johannesburg and Cape Town. Colesberg is also located on the N9, which provides a link to Port Elizabeth to the south. The other two urban centres in the UM are Noupoort and Norvalspont, a small settlement located near the Gariiep Dam.



Source: Wikipedia

**Figure 3.2: Location of Pixley ka Seme District Municipality (left) and Umsobomvu Local Municipality (right) and within the Northern Cape Province (white).**

### 3.1 NORTHERN CAPE PROVINCIAL CONTEXT<sup>8</sup>

The Northern Cape Province is the largest province in South Africa, covers an area of 361,830 km<sup>2</sup>, and constitutes approximately 30% of South Africa. The province is divided into five district municipalities (DM), namely, Pixley ka Seme, Frances Baard, Namakwa, ZF Mgcawu<sup>9</sup>, and John Taola Gaetsewe<sup>10</sup>, twenty-six Category B municipalities and five district management areas. The site itself is located in the Umsobomvu Local Municipality.

#### Population

Despite having the largest surface area, the Northern Cape has the smallest population of 1 145 861 (Census 2011) or 2.28% of the population of South Africa. The population had increased from 991 919 in 2001. Of the five districts, Frances Baard has the largest population of 382 086. The other districts and their respective populations are ZF Mgcawu (236 783), John Taola Gaetsewe (224 799), Pixley ka Seme (186 351) and Namakwa (115 842). In terms of age, 30.1% are younger than 15 years of age, and 64.2% fall within the economically active age group of 15-64 years of age (Census 2011). The female proportion makes up approximately 52.7% of the total, with males making up the remaining 47.3% (Census 2011).

#### Education

Based on the information contained in the NCPSTDF, the average adult education attainment levels in the Northern Cape are lower than the adult education attainment levels of South Africa as a whole. Approximately 19.7% of the Northern Cape adults have no schooling in comparison to South Africa's 18.1%. The Northern Cape has the

<sup>8</sup> The information in this section is based on the Northern Cape Provincial Growth and Development Strategy 2004-2014. This document does not include 2011 Census Data. Where possible data from the 2011 Census and the NCSDF 2012 has been used to update the information.

<sup>9</sup> The ZF Mgcawu DM was previously referred to as the Siyanda DM.

<sup>10</sup> The John Taola Gaetsewe DM was previously referred to as the Kgalagadi DM



second-lowest percentage of adult individuals (5.5%) that obtained a tertiary education in South Africa. The LED Strategy for the Northern Cape indicates that Pixley ka Seme has the lowest adult education attainment levels in the Northern Cape with 27.3% of the adult population having no form of schooling, whilst John Taolo Gaetsewe is second with 25.4% having no schooling. The highest number of the adult population with tertiary education (6.4%) is located in Frances Baard.

The Northern Cape also has the smallest portion (11.1%) of highly skilled formal employees in South Africa, and Gauteng has the highest (14.3%). Linked to this, the Northern Cape has the second largest portion of semi and unskilled formal employees in the country. A lack of skilled people often results in both the public and the private sector being unable to implement planned growth strategies and achieve the desired productivity, service delivery and service quality (NCSDF, 2012).

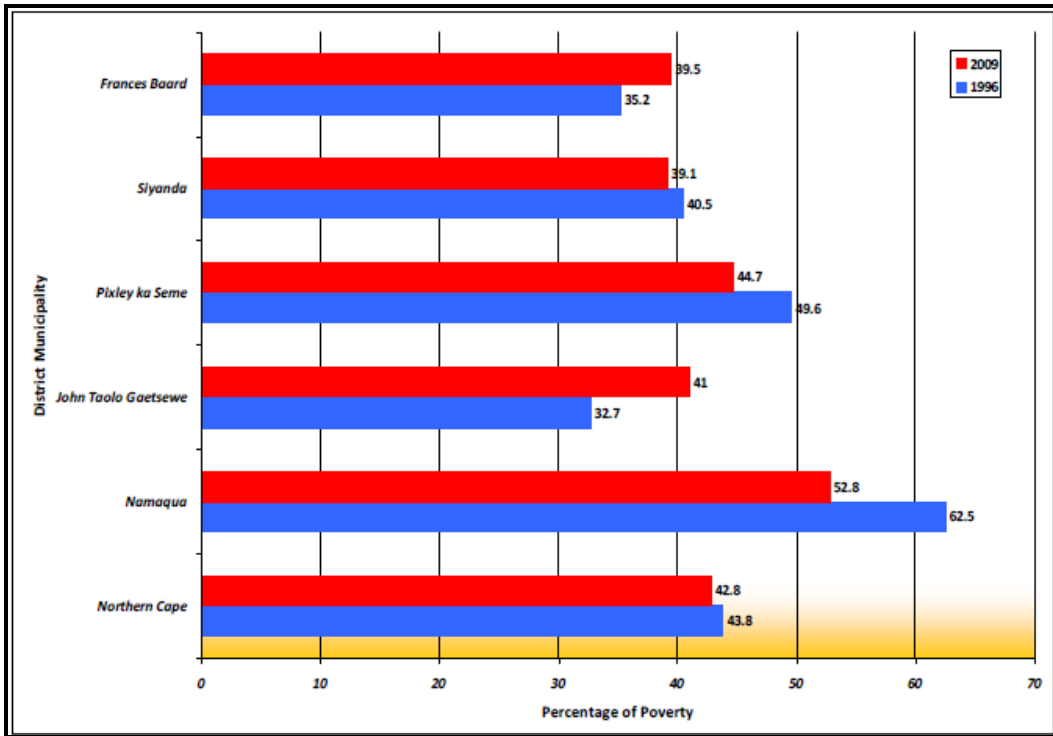
### **Economic development**

Over the past 8 years, there has been little to no variance in the Human Development Index (HDI) figures for the Northern Cape, indicating no increase or decrease in the overall standard of living<sup>11</sup>. This trend is unlikely to change in the foreseeable future, mainly due to the marginal economic base of the poorer areas, and the consolidation of the economic base in the relatively better-off areas. It is important to note that the HDI for the Northern Cape (0.55) is substantially below the South African figure of 0.72. The HDI of 0.55 displays a pattern of semi-development, and there is a definite inequality between the different population groups, with the Whites having a higher development lifestyle than the African or Coloured groups.

The percentage of Northern Cape people living below the poverty line has decreased from 40% in 1995 to 27% in 2011, while the poverty gap has decreased from 11% in 1995 to 8% in 2011 (Figure 3.3). The goal set by the province is to decrease the percentage of people living below the poverty line to 20% by 2015 (NCSDF, 2012). The alleviation of poverty is one of the key challenges for economic development. Higher levels of economic growth are a key challenge for poverty eradication. Investment in people is pivotal to the eradication of poverty and inequality. Investment in people is also, to a large extent, about delivering social and economic infrastructure for education, welfare, health, housing, as well as transport and bulk infrastructure.

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<sup>11</sup> The Human Development Index (HDI) was developed by the United Nations Development Programme (UNDP) based on the philosophy that the goal of development was to ensure that individuals live long, informed and comfortable lives. The HDI consists of three components: Longevity, which is measured by life expectancy at birth; Educational attainment, which is measured by two education variables, namely adult literacy and combined gross primary, secondary and tertiary enrolment ratio, and; Income, which is measured by gross domestic product (GDP) per capita. Performance in each dimension is expressed as a value between 0 and 1, and the HDI index gives an internationally accepted measure of the wellness (quality of life) of the population of the area under consideration. The closer the HDI is to 1.0, the higher the level of "living condition". For example, Sweden has an index of 0.91 defined as high, South Africa at 0.72 is defined as middle and Lesotho at 0.47 is defined as low.

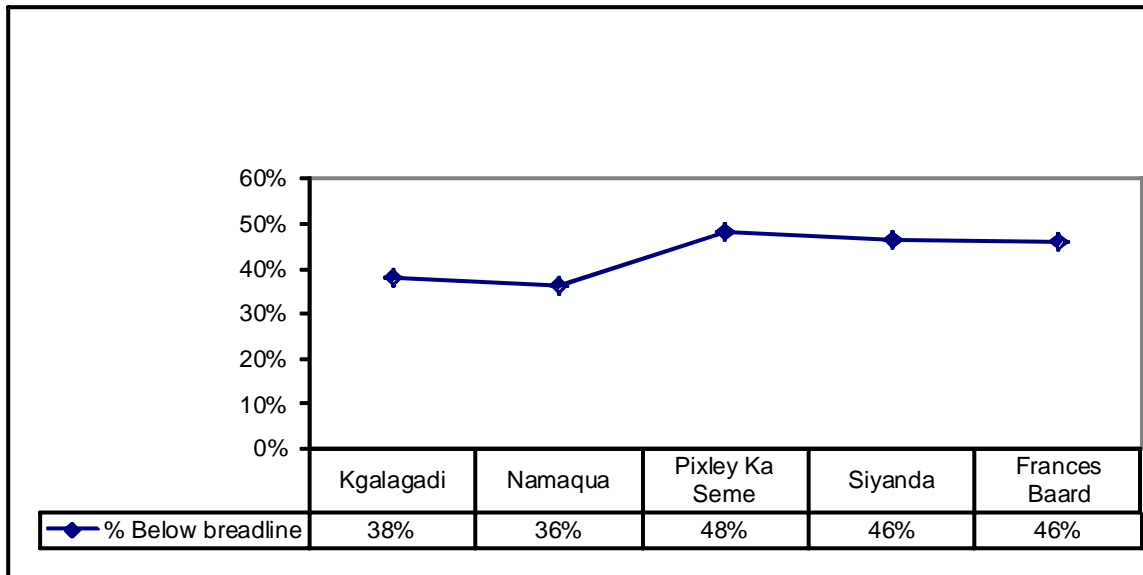


**Figure 3.3: Percentage of people living in poverty in the Northern Cape (Source: Global Insight, 2009 as cited in the PGDS, July 2011)<sup>12</sup>.**

In terms of per capita income, the Northern Cape Province has the third-highest per capita income of all nine Provinces. However, income distribution is extremely skewed, with a high percentage of the population living in extreme poverty. The measure used in the PGDS document to measure poverty is the percentage of people living below the poverty line or breadline is used<sup>13</sup>. The poverty line indicates a lack of economic resources to meet basic food needs. Figure 3.4 indicates the percentage of household income below the poverty breadline of R800 in the Northern Cape Province, the highest being Karoo at 48% and the lowest being Namakwa at 36%.

<sup>12</sup> The name of the Siyanda DM has been changed to the ZF Mgcau DM

<sup>13</sup> In terms of the poverty line, a person is considered poor if his or her consumption or income level falls below some minimum level necessary to meet basic needs. The minimum level is usually called the poverty line. In South Africa the poverty income level is set at R800/month.



**Figure 3.4: Percentage of household income below the poverty breadline by district<sup>14</sup>** (Source: Northern Cape PGDS).

### Economic sectors

The Northern Cape economy has shown significant recovery since 2000/2001 when it had a negative economic growth rate of -1.5% (LED Strategy). The provincial economy reached a peak of 3.7% in 2003/2004 and remained the lowest of all provinces. The Northern Cape is the smallest contributing province to South Africa's economy (only 2% to South Africa GDP per region in 2007).

The mining sector is the largest contributor to the provincial GDP, contributing 28.9% to the GDP in 2002 and 27.6% in 2008. The mining sector is also important at a national level. In this regard, the Northern Cape produces approximately 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% of its manganese.

Agriculture and the agri-processing sector is also a key economic sector. Approximately 2% of the province is used for crop farming, mainly under irrigation in the Orange River Valley and Vaalharts Irrigation Scheme. Approximately 96% of the land is used for stock farming, including beef cattle and sheep or goats, as well as game farming. The agricultural sector contributed 5.8% to the Northern Cape GDP per region in 2007, which was approximately R1.3 billion, and it employs approximately 19.5% of the total formally employed individuals (NCSD, 2012). The sector is experiencing significant growth in value-added activities, including game-farming. Food production and processing for the local and export market is also growing significantly.

The main agricultural produce of the Northern Cape include:

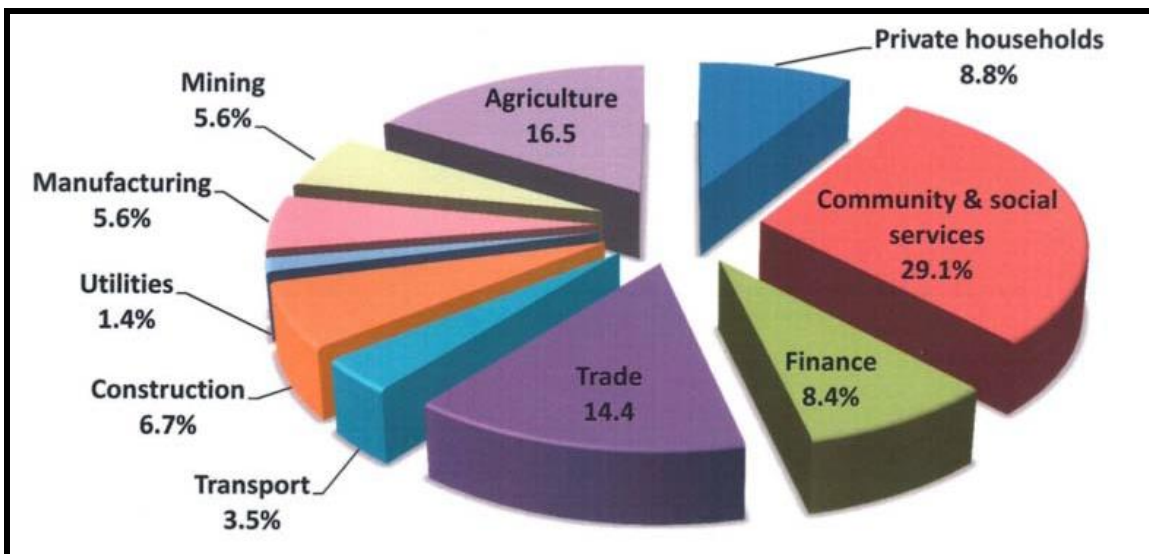
<sup>14</sup> The name of the Kgalagadi DA has been changed to the John Taola Gaetsewe DM. The name of the Siyanda DM has been changed to the ZF Mgcawu DM.

- High-value horticultural products such as table grapes, sultanas and wine grapes, dates, nuts, cotton, fodder, and cereal crops are grown along the Orange River.
- Wheat, fruit, groundnuts, maize and cotton in the Vaalharts irrigation scheme in the vicinity of Hartswater and Jan Kempdorp.
- Vegetables and cereal crops at the confluence of the Vaal River and the Orange Rivers in the vicinity of Douglas.
- Wool, mohair, karakul, Karoo lamb, ostrich meat and leather, and venison throughout most of the province.

Economic Development in the Northern Cape is hampered by the vastness of the area and the remoteness of its communities in rural areas. Development is also hampered by the low education and skills levels in the province. As a result, unemployment in the Northern Cape presents a major challenge.

### Employment

According to Statistics South Africa Labour (2012) the community and social services sector is the largest employer in the province at 29%, followed by the agricultural sector (16%), wholesale and retail trade (14%), finance (8%) manufacturing (6%) and mining (6%), etc. (Figure 3.5).



**Figure 3.5: Employment by Economic Sector and Industry (Source: Statistics South Africa, 2012).**

## 3.3 PIXLEY KA SEME AND UBUNTU MUNICIPALITY

### 3.3.1 Demographic Overview

As indicated in Table 3.1, the population of the PKSDM increased by from 166 547 in 2001 to 186 351 in 2011, which represents an increase of ~ 12%. The population of the ULM increased from 23 641 in 2001 to 28 376 in 2011 (~ 20%) over the same period. This represents an average annual increase of ~ 1.12% and 1.83% for the PKSDM and ULM respectively. The increase in the population in the PKSDM and ULM was linked to an increase in the 15-64 and 65 and older age groups. This is likely to reflect a situation where the majority of job seekers in the 15-64 age group are

single males who have not settled down and started a family and increase in retirees settling in the area. In terms of numbers, 87% of the ULM population is urbanised. The relatively higher increase in the population in the towns was due to farm workers moving to the towns. As expected, the number of households in both the PKSDM and ULM increased between 2001 and 2011. The size of the household sizes in both areas decreased marginally, namely from ~ 3.8-9 to 3.7-3.5.

The majority of the population in the ULM was Black African (62.6%), followed by Coloured (30.6%) and Whites (5.7%)(Census, 2011). The dominant language within the Municipality is isiXhosa (~54.2%), followed by Afrikaans (~37.9%), Sesotho (1.9%) and English (~1.8%)(Census 2011). The ULM accounts for ~ 14% of the total population of the PKSDM. Colesburg, the largest town in the ULM, has a population of ~ 13 000. A negative growth rate is forecasted for the rural population due to emigration. Therefore, the statistics reveal the rapid migration to towns within the Municipality.

**Table 3.1: Overview of key demographic indicators for the PKSDM and ULM**

ASPECT	PKSDM		ULM	
	2001	2011	2001	2011
<b>Population</b>	166 547	186 351	23 641	28 376
<b>% Population &lt;15 years</b>	32.6	31.6	33.7	31.4
<b>% Population 15-64</b>	61.5	62.4	61.0	62.8
<b>% Population 65+</b>	5.9	6.1	5.3	5.8
<b>Households</b>	41 707	49 193	5 848	7 841
<b>Household size (average)</b>	3.8	3.7	3.9	3.5
<b>Formal Dwellings %</b>	84.7%	86.3%	81.8%	88.2%
<b>Dependency ratio per 100 (15-64)</b>	62.7	60.4	63.8	59.3
<b>Unemployment rate (official) - % of economically active population</b>	36.4%	28.3%	51.9%	33.0%
<b>Youth unemployment rate (official) - % of economically active population 15-34</b>	44.1%	35.4%	60.8%	40.4%
<b>No schooling - % of population 20+</b>	27.1%	14.6%	27.9%	16.3%
<b>Higher Education - % of population 20+</b>	5.7%	6.1%	5.5%	6.3%
<b>Matric - % of population 20+</b>	12.9%	20.5%	13.1%	23.1%

*Source: Compiled from StatsSA Census 2011 Municipal Fact Sheet.*

The dependency ratio in both the PKSDM and ULM decreased from 62.7 to 60.4 and 63.8 to 59.3, respectively. The decrease represents a positive socio-economic improvement by indicating that there are a decreasing number of people dependent on the economically active 15-64 age group. The age dependency ratio is the ratio of dependents, people younger than 15 or older than 64, to the working, age population, those ages 15-64. However, the dependency ratios for the PKSDM and ULM were higher than the ratio for the Northern Cape as a whole, which was 55.7 in 2011.

In terms of percentage of formal dwellings, the number of formal dwellings in the PKSDM increased from 84.7% in 2001 to 86.3% in 2011. In the ULM, the number of formal dwellings increased from 81.8 to 88.2% for the same period. This represents a positive socio-economic benefit for both the PKSDM and ULM. However, despite the increase in formal dwelling the ULM IDP indicate that there is a housing backlog of ~

2 000 houses in the ULM, with the majority (1 200) of the backlog located in Noupoot.

### **Employment**

The official unemployment rate in both the PKSDM and ULM decreased for the ten-year period between 2001 and 2011. In the PKSDM the rate fell from 36.4% to 28.2%, a decrease of 8.2%. In the ULM the unemployment rate decreased from a significantly high level of 51.9% in 2001 to 33.0% in 2011, a decrease of nearly 19%. Despite the decreases, the unemployment levels in the PKSDM and ULM are still higher than the Northern Cape average of 27.4%. This highlights the limited employment opportunities in the area, specifically in the ULM. Youth unemployment in both the PKSDM and ULM also dropped over the same period. Youth unemployment in both the PKSDM and ULM is still high; however (35.4% and 40.4% respectively).

### **Household income**

Based on the data from the 2011 Census, 13.5 % of the population of the ULM has no formal income, 4.5% earn between 1 and R 4 800, 6.3% earn between R 4 801 and R 9 600 per annum, 21.1% between R 9 601 and 19 600 per annum and 21.7% between R 19 600 and R 38 200 per annum (Census 2011). The poverty gap indicator produced by the World Bank Development Research Group measures poverty using information from household per capita income/consumption. This indicator illustrates the average shortfall of the total population from the poverty line. This measurement is used to reflect the intensity of poverty, which is based on living on less than R3 200 per month for an average-sized household. Based on this measure, 67.1% of the ULMs population live below the poverty line. The low-income levels reflect the reliance on the agricultural sector and limited formal employment opportunities in the ULM. The low-income levels are a major concern given that an increasing number of individuals and households are likely to be dependent on social grants. The low-income levels also result in reduced spending in the local economy and less tax and rates revenue for the district and local municipality.

### **Education**

The education levels at both the district and local municipal level also improved, with the percentage of the population over 20 years of age with no schooling in the PKSDM decreasing from 27.1% to 14.6%. For the ULM there was a significant decrease from 27.9% to 16.3%. The percentage of the population over the age of 20 with matric also increased in both the PKSDM and ULM, from 12.9% to 20.5% in the PKSDM and 13.1% to 23.1% in the ULM. However, despite this increase, the figure for the PKSDM and ULM are still below the national (28.4%) level in 2011.

### **3.3.2 Municipal Services**

As indicated in Table 3.2, the municipal service levels, with the exception of weekly access to refuse removal in the ULM, in the PKSDM and ULM all improved over the period 2001 to 2011. This represents a socio-economic improvement. The service levels in the PKSDM and ULM are, with the exception of households in the ULM that have piped water inside the dwelling and households that use electricity in the PKSDM, all higher than the provincial averages for the Northern Cape Province.

**Table 3.2: Overview of access to basic services in the PKSDM and ULM**

Municipal Services	PKSDM		ULM	
	2001	2011	2001	2011
% households with access to flush toilet	45.4	65.7	48.3	68.7
% households with weekly municipal refuse removal	67.8	72.6	76.6	76.3
% households with piped water inside dwelling	32.8	47.0	21.3	45.1
% households which use electricity for lighting	75.1	85.1	80.6	86.7

Source: Compiled from StatsSA Census 2011 Municipal Fact Sheet

### 3.3.3 Social Services

#### Education

There are 8 primary schools and 6 secondary schools in the ULM (Table 3.3). The IDP notes that while the actual number of schools is generally satisfactory, there is an acute shortage in the remote rural areas of the Municipality. As a result, children often have to walk long walking distances to access the available schools.

The key issues listed in the IDP include:

- Insufficient and accessibility to educational facilities;
- Availability of qualified staff and quality of educational facilities.

**Table 3.3: Education Facilities Umsobomvu Municipality (2013)**

Town	Crèche	Pre-primary	Primary	Secondary	Tertiary	Grand Total
Colesberg	1	1	1	1	0	3
Kuyasa	1	0	2	2	0	4
Lowryville	1	1	1	1	0	3
Norvalspont	0	0	1	0	0	1
Noupoort	1	1	1	1	0	3
Eurekaville	0	0	1	0	0	1
Kwazamuxolo	1	1	1	1	0	3
<b>Umsobomvu LM</b>	<b>5</b>	<b>4</b>	<b>8</b>	<b>6</b>	<b>0</b>	<b>18</b>

#### Health

The IDP indicates that there are 7 health facilities in the ULM (Table 3.4). This total includes a hospital and clinic in Noupoort. The key issues identified include:

- Insufficient health facilities;
- Lack of public transport services for patients;
- Availability of medical staff;
- Lack of aftercare facilitates and support services to patients;
- Lack of 24-hour health services and emergency services;
- Lack of hospice for aged and terminal ill;
- Support of AIDs/HIV patients.

**Table 3.4: Health Facilities Umsobomvu Municipality (2014).**

<b>Town</b>	<b>Hospital</b>	<b>Clinic</b>	<b>Grand Total</b>
Colesberg	1	0	2
Kuyasa	0	1	1
Lowryville	0	1	1
Norvalspont	0	1	1
Noupoort	1	1	2
<b>Umsobomvu LM</b>	<b>2</b>	<b>4</b>	<b>7</b>

**Safety and security**

The IDP indicates that there are 4 police stations in the ULM, one of which is located in Noupoort (Table 3.5). There is also a Magistrates Court in Noupoort. Even though the crime rate in the region is low if compared to other areas in South Africa, some issues were raised regarding safety and securities. These include:

- Police need to be more visible;
- Police stations are not accessible to the greater community- Lowryville, EurekaVille, Kwazamuxolo;
- Shortage of police resources;
- Not enough police stations;
- Shortage of human resources;
- High level of unemployment;
- Youth delinquency.

**Table 3.5: Safety and Security Facilities Umsobomvu municipality (2014)**

<b>Town</b>	<b>Police stations</b>	<b>Magisterial court</b>	<b>District court</b>
Colesberg	1	1	1
Kuyasa	1	0	0
Lowryville	0	0	0
Norvalspont	1	0	0
Noupoort	1	1	0
EurekaVille	0	0	0
Kwazamuxolo	0	0	0
<b>Umsobomvu LM</b>	<b>4</b>	<b>2</b>	<b>1</b>

**3.4 EASTERN CAPE PROVINCIAL CONTEXT<sup>15</sup>**

As indicated, a small portion of the proposed WEF falls within the Inxuba Yethemba LM of the Chris Hani DM in the Eastern Cape Province (ECP). The ECP faces significant social challenges: addressing poverty, income inequality, food insecurity, and unemployment.

**Population**

According to the 2011 census, the province was home to 6.7 million people, which constituted 12.7% of the national population. This makes the Eastern Cape the third most populated province after Gauteng (12.2 million) and KwaZulu-Natal (10.2 million). The ECP's population grew by 4.5% between 2001 and 2011. The demographics for the Province also indicate that 57% of the total population was

<sup>15</sup> The majority of the information in this section is based on a study undertaken by the University of Pretoria in 2013, titled Eastern Cape Socio-economic Review and Outlook, 2013.



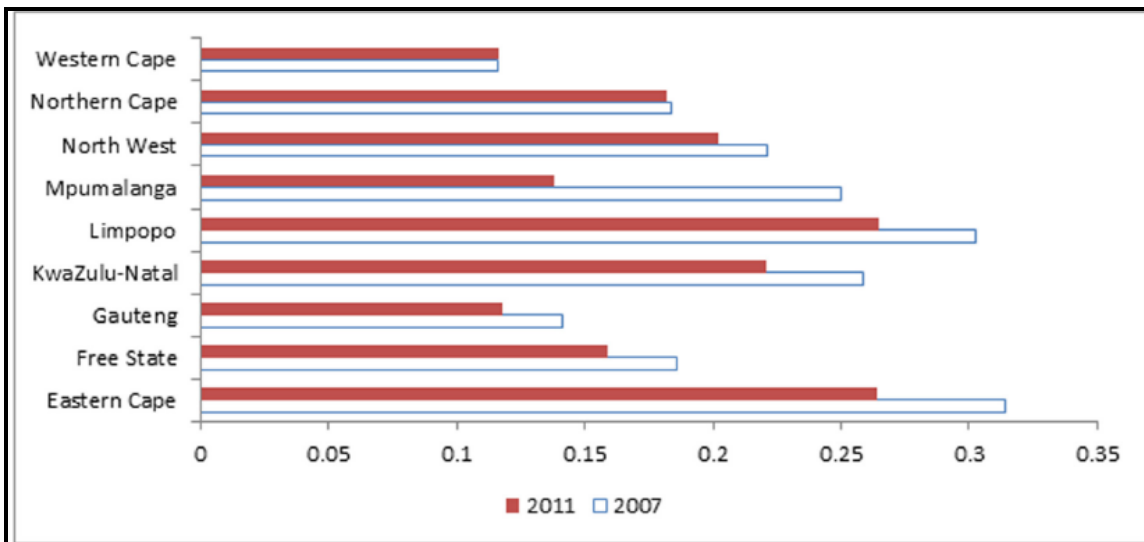
under the age of 30, while the median age was 22.4, the second-lowest after the Limpopo Province. The national average in 2011 was 24.4.

In terms of population distribution, the OR Tambo DM (21%), NMBM (17%), Amotole (14%), and Buffalo City Metropolitan Area (12%), account for 64 % of the Provinces' population. The Chris Hani DM makes up 12% of the province's total population. It is also important to note that youth constitute the largest share of the population in all DMs. The proposed project is located in the OR Tambo DM.

The average life expectancy for males in the Eastern Cape Province was 50.2 years in 2011. Only KwaZulu-Natal and the Free State Province had life expectancy estimates lower than the ECP, at 48.4 and 44.9 years respectively. Average life expectancy for the South African male population between the years 2006 and 2011 was only 52.1 years. Males in the Western Cape Province had the highest life expectancy rate of 59.9 years, followed by Limpopo at 55.8 and Gauteng at 54.4. Female expectancy in the Eastern Cape was 54 years for the period 2006 to 2011, also lower than the national average of 56 years. The figures for the Western Cape and Limpopo were 65.8 years and 61.4 years, respectively (Eastern Cape, Socio-economic Review and Outlook, 2013).

**Poverty and inequality**

The University of Pretoria undertook a study in 2013 (Eastern Cape, Socio-economic Review and Outlook, 2013) which used the Fuzzy Index of Poverty (FIP) to measure poverty<sup>16</sup> found that the Eastern Cape Province had the highest poverty levels in South Africa in 2011 (Figure 3.6).

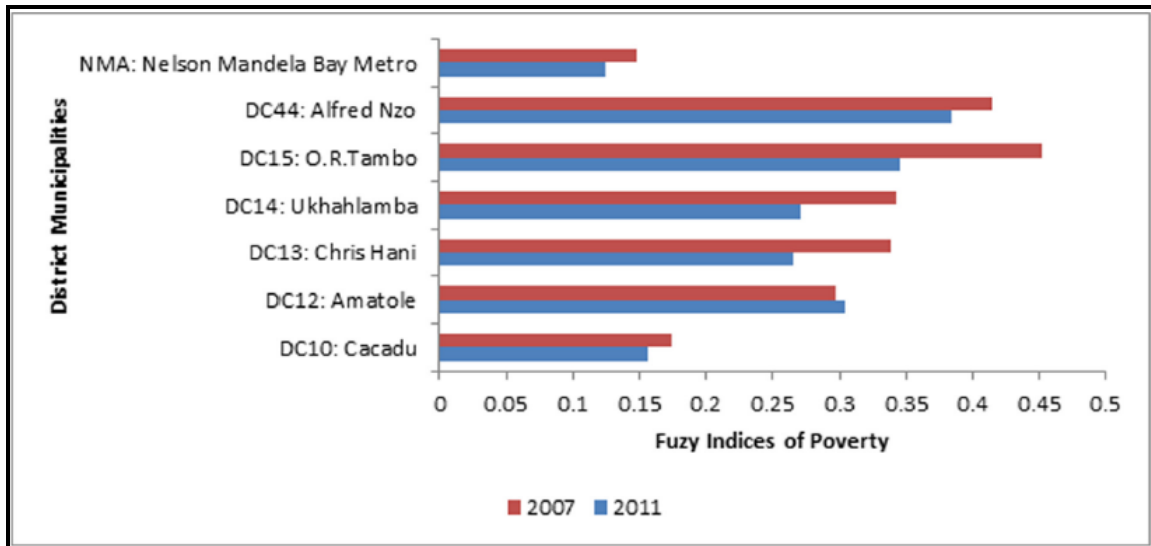


**Figure 3.6: Provincial poverty levels in SA**

Source: Eastern Cape, Socio-economic Review and Outlook, 2013

<sup>16</sup> The FIP approach does not rely on a monetary poverty line, but used a the FIP uses a set of 12 indicators of well-being to measure poverty levels, namely, employment, municipal services (such as refuse collection, access to water, access to toilet, and access to electricity for lighting, cooking, and heating), type of dwelling, education, income, household size, and access to means of communication such as cell phones.

Within the province itself, the poorest districts in 2011 were the Alfred Nzo followed by the O.R. Tambo and Amatole DMs. The Chris Hani DM was ranked the fifth poorest of the ECP's seven District Municipalities (Figure 3.7).



**Figure 3.7: Poverty levels with the Eastern Cape Province**

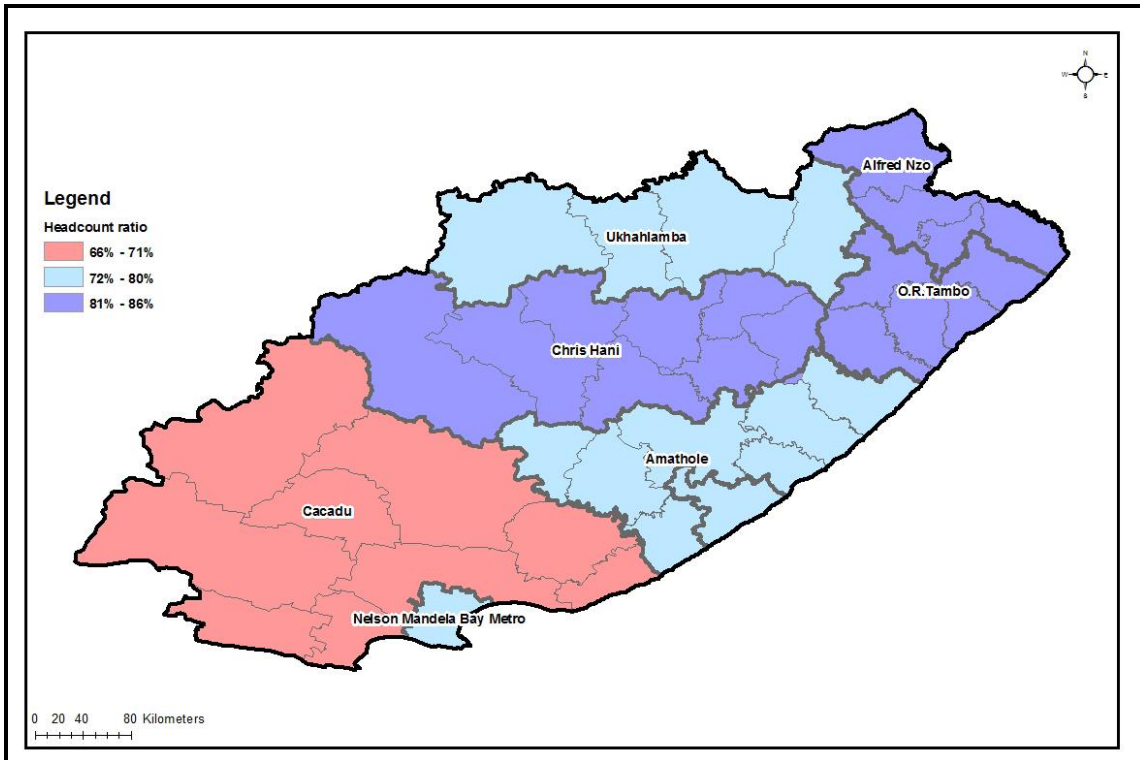
Source: Eastern Cape, Socio-economic Review and Outlook, 2013

In terms of inequality, South Africa is one of the most unequal societies in the world. According to data from IHS Global Insight, national income inequality, measured in terms of Gini Coefficient, was 0.68 in 2002 and fell marginally to 0.63 in 2011. The data from the Eastern Cape indicates that income inequality has fallen marginally in all DMs in the province. Income equality, however, remains a major challenge facing the Eastern Cape Province.

### ***Food security***

The Eastern Cape has one of the highest levels of food insecurity in South Africa. According to estimates, about 78% of the households in the province may be classified as food insecure. This is significantly higher than the national average of 64% (Eastern Cape, Socio-economic Review and Outlook, 2013).

Vulnerability to food insecurity is widespread, particularly among households in Alfred Nzo, Chris Hani and O.R Tambo DMs (81-86%). (Figure 3.8). The majority of households in the province that are affected by food insecurity are located in the rural areas. A number of these are also headed by females, have larger family sizes, and have higher dependency ratios.

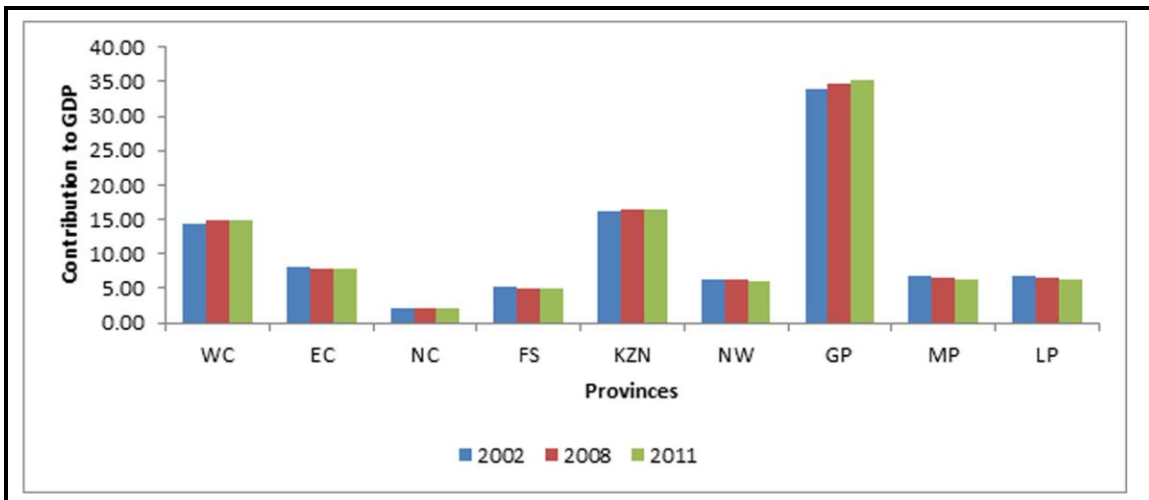


**Figure 3.8: Food Insecurity in the Eastern Cape**

Source: Eastern Cape, Socio-economic Review and Outlook, 2013

***Economic Performance***

The Eastern Cape Province accounted for 7.8% of the national GDP in 2011 making it the fourth-largest economy in South Africa, although only marginally ahead of the North West, Mpumalanga and Limpopo. Gauteng (35%) is the biggest contributor to the national economy, followed by KwaZulu-Natal (16.4%) and the Western Cape (14.8%). It is also worth noting that the contribution of the Eastern Cape Province to national GDP has fallen marginally since 2002 (Figure 3.9).



**Figure 3.9: The Eastern Cape Provinces' Contribution to GDP**

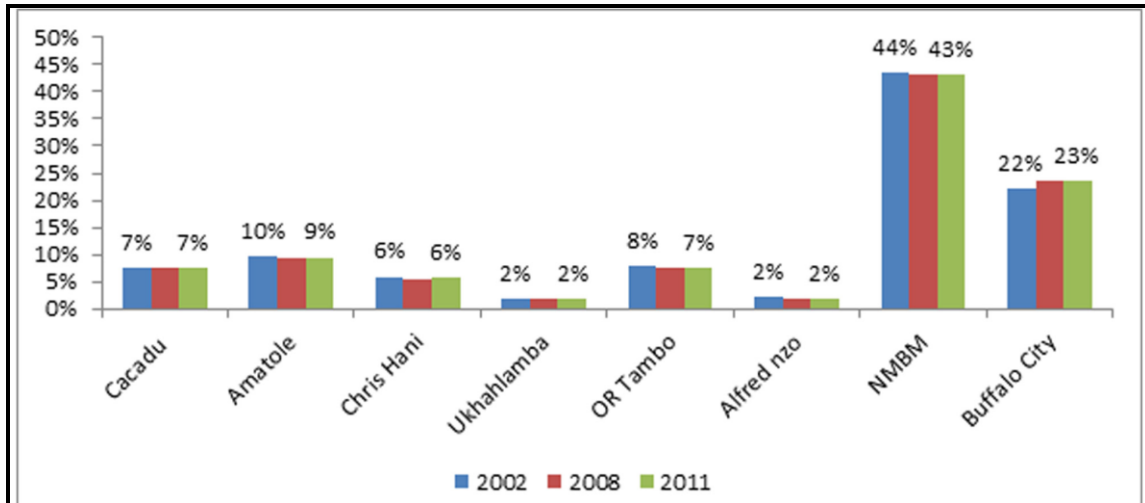
In terms of sectors the most important sector in the Eastern Cape economy is the tertiary sector, which contributed 76.7% of the regional GDP, followed by the secondary sector (21.2%), and the primary sector (2.2%). Within the tertiary sector, the most important sub-sectors were finance, real estate and business services (22.4%), general government services (21.2%) and wholesale and retail trade (13.8%). Within the Secondary Sector, the most important sub-sectors were manufacturing (17.5%), followed by construction (2.6%). The most important sub-sector in the Primary Sector was agriculture, forestry and fishing (2.1%) followed by mining and quarrying (0.1%) (Table 3.6).

**Table 3.6: Sectoral contribution to Provincial economy**

Sectors	2002	2011	% Point Change
Primary Sector	2.7	2.2	-0.5
Agriculture, forestry and fishing	2.5	2.1	-0.5
Mining and quarrying	0.2	0.1	-0.1
Secondary Sector	22.3	21.2	-1.2
Manufacturing	19.6	17.5	-2.2
Electricity, gas and water	1.1	1.1	0.0
Construction	1.6	2.6	1.1
Tertiary Sector	75.0	76.7	1.7
Wholesale & retail trade	14.5	13.8	-0.7
Transport, storage and communication	8.8	8.9	0.1
Finance, real estate and business services	20.1	22.4	2.4
Personal services	10.2	10.3	0.1
General government services	21.5	21.2	-0.2
All industries at basic prices	100	100	

Source: Eastern Cape, Socio-economic Review and Outlook, 2013

In terms of contribution of the provincial GDP, the NMBM (43%) and Buffalo City Metropolitan Area (23%) are the two most important areas, followed by the Amotole DM (9%) and the SBDM and OR Thambo DM with 7% each in 2011 (Figure 3.10). The contribution of Chris Hani DM to the Province's GDP has remained constant since 2002 at around 6%.



**Figure 3.10: Contribution of District Municipalities to Provincial GDP**  
(Source: Eastern Cape, Socio-economic Review and Outlook, 2013)

In terms of key sectors in each of the DMs, as in the case at the provincial level, the tertiary sector is the largest sector in all DMs followed by the secondary sector. In 2011 the contribution of the tertiary sector in each DM's GVA ranged between 63% (in Nelson Mandela Bay Metro) and 82% (in O.R Tambo DM), with that of the Chris Hani DM around 78%. The secondary sector is the second-largest sector. The contribution of the primary sector was low for all DMs. In the Chris Hani DM, it only accounted for 4.3%. Furthermore, the contribution of the primary sector to GVA in all of the DMs declined between 2002 and 2011. That of the Chris Hani DM declined by 0.6% (Table 3.7). The low contribution of the primary sector to the GVA of the DMs and the decline over time is a concern given a high number of rural households in these areas and the province as a whole.

**Table 3.7: Sectoral Shares of GVA by District Municipality in the Eastern Cape (%)**

	Cacadu		Amatole		Chris Hani		Ukhahlamba		O.R Tambo		Alfred Nzo		NMBM		Buffalo City	
	2002	2011	2002	2011	2002	2011	2002	2011	2002	2011	2002	2011	2002	2011	2002	2011
Primary	10.4	8.7	3.0	2.6	4.9	4.3	8.3	7.2	4.4	4.3	3.5	2.9	0.4	0.3	1	1
Agriculture	10.4	8.6	2.8	2.5	4.8	4.2	8.3	7.2	4.4	4.3	2.6	2.5	0.2	0.2	1	1
Mining	0.0	0.0	0.2	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.9	0.4	0.2	0.1	0	0
Secondary	12.2	13.4	15.6	15.1	8.6	8.6	13.4	12.2	5.5	5.7	4.6	4.9	26.5	24.8	20	20
Manufacturing	8.2	7.7	13.9	12.7	5.6	4.6	11.4	9.5	3.6	3.1	2.7	2.2	24.2	21.7	17	16
Electricity	2.0	2.1	0.5	0.5	1.1	1.1	0.6	0.6	0.7	0.6	0.6	0.6	1.0	1.0	1	1
Construction	2.0	3.6	1.2	1.9	1.9	2.9	1.4	2.1	1.3	2.0	1.3	2.0	1.3	2.2	2	3
Tertiary	68.1	68.9	70.6	71.2	76.7	77.8	66.5	68.7	81	81.5	79.3	79.8	61.5	62.9	69	69
Trade	12.6	13.6	12.7	11.8	15.2	13.5	9.0	7.9	18.2	16.2	23.9	20.5	11.6	11.4	12	12
Transport	5.9	6.6	3.2	3.1	6.1	5.2	3.6	3.1	3.6	3.3	2.9	2.2	11.3	11.4	7	7
Finance	18.8	19.0	14.6	17.0	10.8	13.7	9.1	12.2	15.7	17.8	5.4	6.7	18.4	19.9	22	25
Community	30.7	29.8	40.1	39.2	44.6	45.4	44.7	45.5	43.5	44.2	47.1	50.5	20.2	20.2	28	25
Total GVA	90.7	91.0	89.2	88.9	90.2	90.7	88.1	88.1	90.9	91.4	87.4	87.6	88.4	88.0	89	89
Taxes less Subs	9.3	9.0	10.8	11.1	9.8	9.3	11.9	11.9	9.1	8.6	12.6	12.4	11.6	12.0	11	11
Total	100	100	100.0	100.0	100	100	100	100	100	100	100	100	100	100	100	100

Source: Eastern Cape, Socio-economic Review and Outlook, 2013. Computation based on data from Global Insight

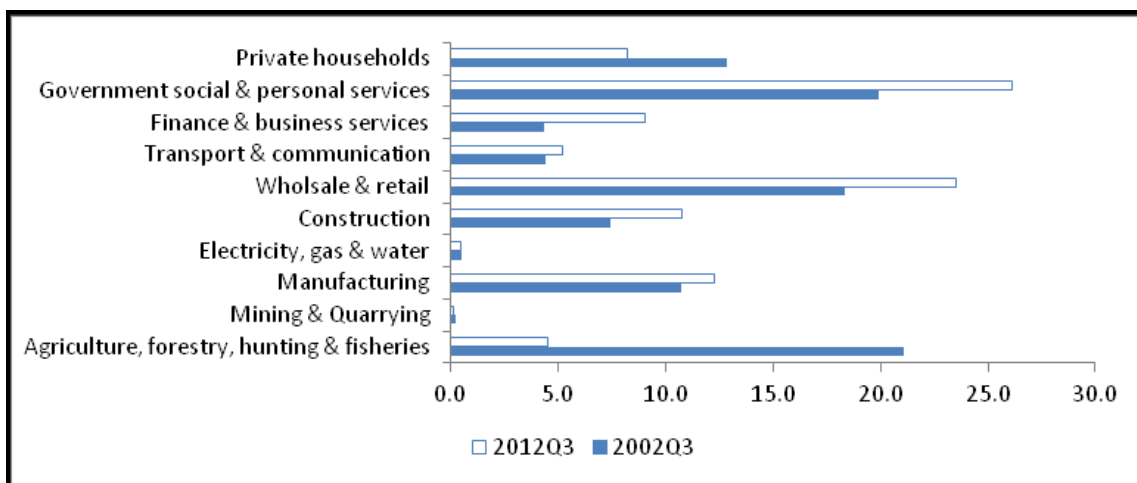
### Employment

In terms of employment, a total of 1.3 million people was employed in the Eastern Cape in 2011, which makes up 9.7% of the total number of people employed in the whole country. This makes the Eastern Cape the fourth largest employer after Gauteng (30.7%), KwaZulu-Natal (18.6%), and the Western Cape (13.2%) (Eastern Cape Socio-economic Review and Outlook, 2013).

The rate of unemployment in the province increased from 28.2% in the 3rd Quarter of 2011 to 30% in the 3rd Quarter of 2012, an increase of 1.8 percentage points. This is despite a 2.5% increase in employment. This simultaneous increase in both the unemployment rate and employment levels is explained by an increase in the total size of the labour force (by 5%), in excess of the increase in the total number of new jobs (Eastern Cape, Socio-economic Review and Outlook, 2013).

The majority of the employed (68%) were between the ages of 30 and 55. However, the youth defined as people between the ages between 15 and 30 years accounted for only 21.3% of the total number of employed people. This is despite the situation where this group make the majority of the working-age population in the Province (51%).

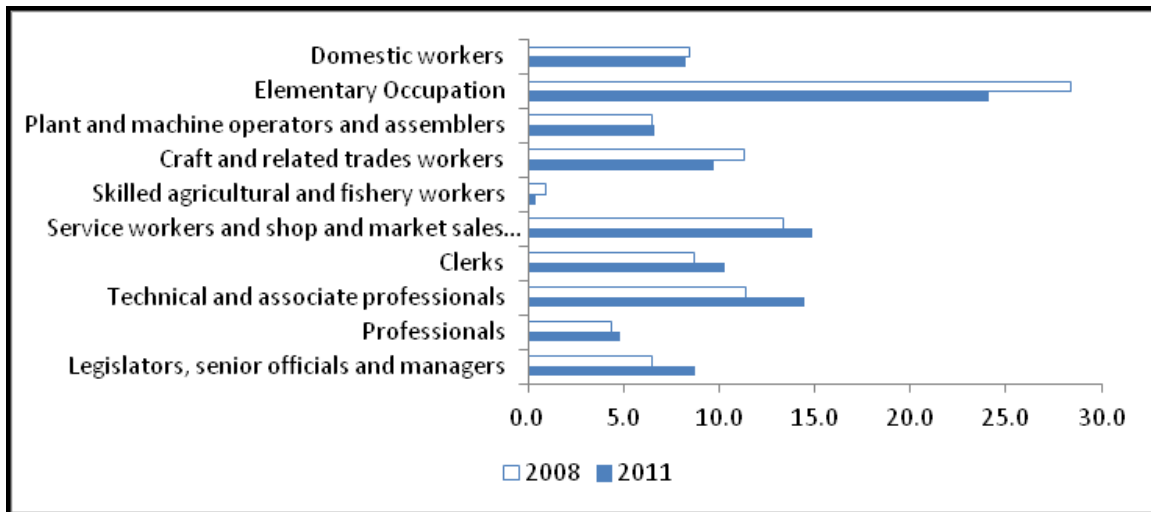
In terms of key sectors, more than 60% of the 1.3 million people employed in the province in the third quarter of 2012 were employed in three sub-sectors, namely, government social and personal services (26.1%), wholesale and retail (23.5%), and manufacturing (12.2%). The primary sectors, comprising mining and quarrying (0.1%) and agriculture, forestry, hunting and fisheries (4.5%) employed far fewer numbers of people. As indicated in Figure 3.11, the role of the agriculture, forestry, hunting and fisheries sub-sector in terms of employment has fallen significantly since 2002. The share of Agriculture, forestry, hunting and fisheries declined to 4.5% from 21.1%, a significant decline of 16.6 %. During the same period, all of the other sub-sectors reported an increase in their contribution to employment (Eastern Cape, Socio-economic Review and Outlook, 2013).



**Figure 3.11: Employment by sector**

Source: Eastern Cape, Socio-economic Review and Outlook, 2013

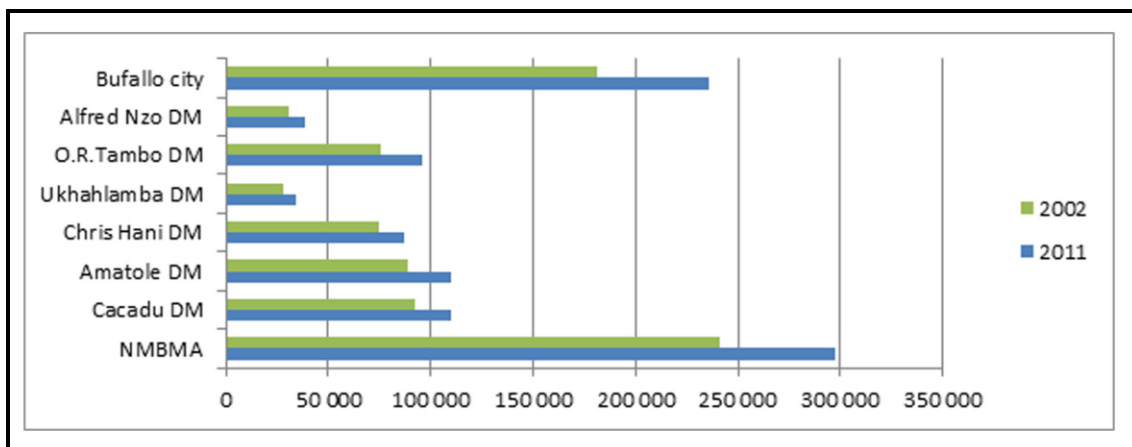
In terms of employment by occupation category, in 2008, elementary occupations made up of 28.4% of total employment, followed by service workers and shop and market sales at 13.4% and technical and associate professionals at 11.4%. In 2011, elementary activities decreased to 24.1% while employment in service workers and shop and market sales workers, as well as technical and associate professionals increased respectively to 14.9% and 14.4% (Figure 3.12). Between the two years, employment declined in the unskilled job categories while employment in the semi-skilled and skilled categories increased – evidence of skill-biased employment growth. This reflects the decrease in the contribution of the agriculture, forestry, hunting and fisheries sectors which would have employed a large number of unskilled workers.



**Figure 3.12: Employment by Occupation**

Source: Eastern Cape, Socio-economic Review and Outlook, 2013.

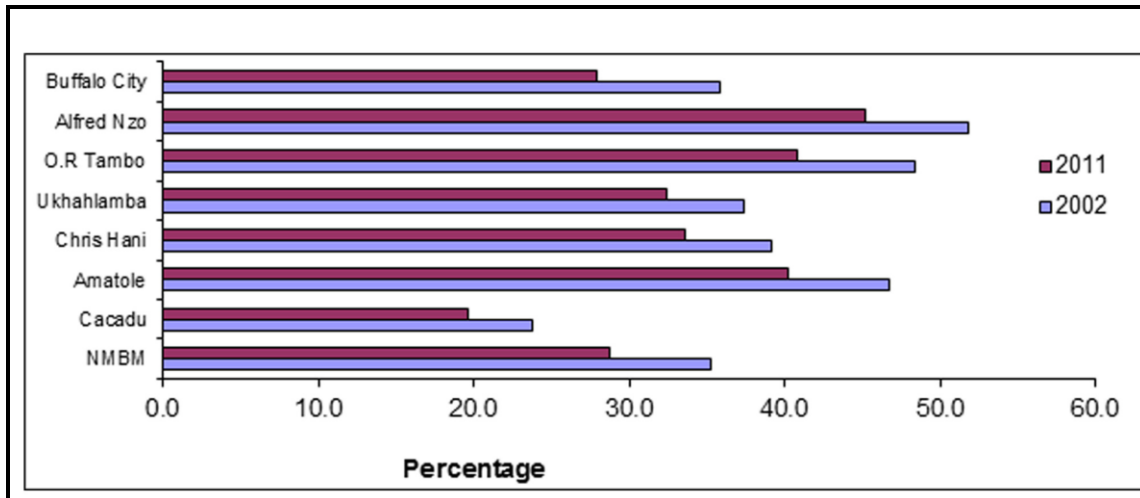
In terms of employment in the DMs, over 50% of the 1.3 million people employed in the province were employed in the NMBM and Buffalo City Metropoles. These two areas accounted for 30% and 23% of the total provincial employment, respectively. The Chris Hani DM accounted for approximately 7% (Figure 3.13).



**Figure 3.13: Employment in the District Municipalities**

Source: Eastern Cape, Socio-economic Review and Outlook, 2013.

While all of the DMs and the Metros managed to reduce the rate of unemployment over the period 2002-2011, the average rate of unemployment the ECP in 2011 (31%), remained higher than the national rate of 24.7%. The rate for the Chris Hani DM was around 35% (Figure 3.14).



**Figure 3.14: Unemployment rate in District Municipalities**

Source: Eastern Cape, Socio-economic Review and Outlook, 2013.

In terms of employment, the most important sector in all of the DMs and Metros is Community Services. In the Alfred Nzo and Amatole DMs, the Community Services sector accounted for 45% of total employment. The figures for the O.R Tambo, Chris Hani, Cacadu, NMB, and Buffalo City Metro were 43%, 42%, 22%, 26%, and 32% respectively. Trade and Agriculture are the next two most important sectors in terms of employment. The share of agriculture in total employment declined in all the metros and DMs from 2002 to 2011. The Manufacturing sector also accounted for a sizable proportion of employment in the province. However, total employment in manufacturing significantly declined in the metros between 2002 and 2011.

### 3.5 INXUBA YETHEMBA LOCAL MUNICIPALITY

#### 3.5.1 Demographic Overview

According to Census 2011, the IYLM has a population of 65 560 and represented 8.2% of the Chris Hani DM's population (795 461) (Table 3.8). Census 2011 indicates that 84.4% of the IYLM population is urbanised. Commercial farms account for the balance (15.6%), with none of the population classified as living in traditional areas. Ligelihle (18 966), Middelburg (12 523) and Cradock (12 327) are the most populous towns in the IYLM, accounting for the bulk of the LMs population.

The IYLM population increased from 60 364 in 2001 - an increase of 5 196 or ~8.6%. As may be seen in Table 3.6, the population age structure has remained more or less the same, with the 15-64 age group remaining a constant 64.6%, while the youthful group's share decreased slightly by 1%, and that of the aged slightly increased by 0.3%. As may be expected from the increased population, the number of IYLM households also increased between 2001 and 2011. In this regard, the



number of households increased by 2 461 (15.3%) during this period. The disparity in growth rates between population and households is reflected in the decrease in household size over the period, namely from 3.6 (2001) to 3.4 (2011).

The majority of the population in the IYLM is Black African (56.2%), followed by Coloured (32.2%), and Whites (10.5%). Other groups accounted for less than 1% (Census, 2011). The dominant language within the Municipality is isiXhosa (~48.9%), followed by Afrikaans (~43.6%), and English (~3%) (Census 2011).

**Table 3.8: Overview of key demographic indicators for Inxuba Yethemba LM**

ASPECT	2001	2011
<b>Population</b>	60 364	65 560
<b>% Population &lt;15 years</b>	30.1%	29.1%
<b>% Population 15-64</b>	64.6%	64.6%
<b>% Population 65+</b>	5.9%	6.2%
<b>Households</b>	16 002	18 463
<b>Household size (average)</b>	3.6	3.4
<b>Formal Dwellings %</b>	97.1%	97%
<b>Dependency ratio per 100 (15-64)</b>	56.1	54.7
<b>Unemployment rate (official) - % of economically active population</b>	43.2%	25.7%
<b>Youth unemployment rate (official) - % of economically active population 15-34</b>	53.7%	33.2%
<b>No schooling - % of population 20+</b>	17%	10.7%
<b>Higher Education - % of population 20+</b>	6.2%	8.8%
<b>Matric - % of population 20+</b>	14.4%	20%

*Source: Compiled from StatsSA Census 2001 and 2011 Municipal Fact Sheets*

The dependency ratio in the IYLM decreased from 56.1 to 54.7. As indicated, this decrease represents a positive socio-economic improvement by indicating that there are a decreasing number of people dependent on the economically active age group.

The number of formal dwellings in the IYLM slightly decreased (by 0.1%) over the ten-year period 2001 to 2011. The decrease was however from a high base (97.1%), and at a 15.3% increase in the number of households.

### **Employment**

The official unemployment rate has dramatically decreased between the two Censuses, namely from 43.2% (2001) to 25.7% (2011), and with the latter figure more or less on par with the 2011 national unemployment rate. The IYLM's youthful unemployment rate also witnessed a significant decrease over the period, namely from 53.7% in 2001 to 33.2% in 2011. While these decreases are impressive, it should be noted that both the official unemployment and youthful unemployment rates are still very high.

### **Household income**

According to Census 2011, 10.8 % of the IYLM population have no formal income, 4.1% earn between 1 and R 4 800, 6.5% earn between R 4 801 and R 9 600 per annum, 21.1% between R 9 601 and 19 600 per annum and 22.4% between R 19 600 and R 38 200 per annum (Census 2011). Based on the World Bank

Development Research Group poverty measure, 64.9% of the ULMs population live below the poverty line. As with the ULM, these low-income levels reflect the reliance on an extensive agricultural sector and limited formal local employment opportunities. As noted, such low-income levels are a major concern given the link with dependency on social grants. Low-income levels also result in reduced local spending and rates revenue for the municipality.

### **Education**

IYLM education levels also showed improvement across all three measured indices. In this regard, the percentage of the population 20+ with no schooling decreased from 17% to 10.7%, and the percentage of the population 20+ with matric increased from 14.4% to 20%. Tertiary education levels witnessed a more modest increase, namely from 6.2% to 8.8%.

### **3.5.2 Municipal Services**

According to StatsSA, service levels in the IYLM increased for all four relevant indices over the period 2001 to 2011 (Table 3.9). Significant progress was made with regard to access to waterborne sewerage (+21.5%) as well as the provision of potable water inside dwellings (+20.6%). Gains in terms of electricity for lighting (13%) and weekly refuse removal (+6.9%) were more modest, but still significant.

**Table 3.9: Overview of access to basic services in the IYLM**

<b>Municipal Services</b>	<b>IYLM</b>	
	<b>2001</b>	<b>2011</b>
<b>% households with access to flush toilet</b>	65.8	87.3
<b>% households with weekly municipal refuse removal</b>	76.3	83.2
<b>% households with piped water inside dwelling</b>	47.6	68.2
<b>% households which uses electricity for lighting</b>	82.6	95.6

*Source: Compiled from StatsSA Census 2001 and 2011 Municipal Fact Sheets*

### **3.5.3 Social Services**

#### **Education**

According to the 2014/2015 IDP, the IYLM has a total of 52 education facilities (Table 3.10). Of these, nearly half (24) are crèches, and 16 are primary schools. Seven secondary schools are located in the IYLM's towns, while the LM has only one tertiary educational facility, namely the Grootfontein Agricultural Development Institute near Middelburg. Ward 9 within which the San Kraal WEF site falls is represented by one crèche, two primary schools and one secondary school.

Key challenges identified in the IDP include:

- The facilities are not evenly spread throughout the municipality
- Rural earners have to travel long distances to reach nearest schools
- Crèches are unevenly spread throughout the municipality; and
- Unregulated crèches are mushrooming at an alarming rate.

**Table 3.10: Education Facilities Inxuba Yethemba LM.**

Ward	Crèche	Pre-primary	Primary	Secondary	Tertiary	Grand Total
1	5	1	1	0	0	7
2	3	0	2	1	0	6
3	4	0	2	1	0	7
4	5	1	1	1	0	8
5	3	2	1	1	0	7
6	1	0	4	0	0	5
7	1	0	1	1	0	3
8	1	0	2	1	1	5
9	1	0	2	1	0	4
<b>IYLM Total</b>	<b>24</b>	<b>4</b>	<b>16</b>	<b>7</b>	<b>1</b>	<b>52</b>

Source: Inxuba Yethemba 2014/2015 IDP.

### Health

According to the 2014/2015 IDP, the IYLM has a grand total of 10 health care facilities (Table 3.11). Of these, only one is a hospital, namely the Wilhelm Stahl Hospital in Middelburg. The large rural Ward 9 is serviced by two clinics.

**Table 3.11: Health Facilities Inxuba Yethemba LM.**

Ward	Hospital	Clinic	Grand Total
1	0	0	0
2	0	1	1
3	0	1	1
4	0	1	1
5	1	1	2
6	0	0	0
7	0	1	1
8	1	2	2
9	0	2	2
<b>IYLM Total</b>	<b>1</b>	<b>9</b>	<b>10</b>

Source: Inxuba Yethemba 2014/2015 IDP

The 2014/2015 IDP notes that health care provision conditions for the IYLM are on average at best fair. Key challenges identified in the IDP include:

- The long distances travelled by vulnerable groups such as the elderly to access health care facilities;
- The need for mobile clinics in some parts of the LM;
- The lack of clinic staff; and
- Under stocked clinics (medication); and
- HIV/ Aids.

With regard to HIV/ AIDS, the 2014/2015 IDP indicates that, while the HIV+ caseload, as well as the number of HIV-related deaths, have declined – the latter significantly - from 2009 to 2012, by 2012 ~8.4% of the IYLM's population was diagnosed as HIV+, and ~0.45% was dying as a result of HIV-related causes (Table 3.12).

**Table 3.12: HIV+ caseload and HIV-related deaths for IYLM 2009-2012**

<b>YEAR</b>	<b>HIV+ CASES</b>	<b>HIV-RELATED DEATHS</b>
2009	6 440	498
2010	5 370	252
2011	5 495	273
2012	5 559	291

Source: *Inxuba Yethemba 2014/2015 IDP*.

### **3.6 PROJECT LOCATION AND SURROUNDING LAND USES<sup>17</sup>**

The study area is located near the small Karoo town of Noupoot (population 7848, Census 2011). Noupoot is located adjacent to the west of the N9 (Colesberg–Middelburg route). The town of Middelburg (~19 000) is located ~20 km to the south-east of the study area, also along the N9. The town of Colesberg (~17 500), located at the northern terminus of the N9, is located ~50 km north of the study area.

The bulk of the site and proposed infrastructure is located in the Umsobomvu Local Municipality (LM) of the Pixley ka Seme District Municipality (DM) in the Northern Cape Province (NCP). The southernmost portion of the site (Beskuitfontein farm) and the terminal portions of all three proposed 132 kV transmission line (Tx line) Alternatives are located in the Inxuba Yethemba LM in the Chris Hani DM in the Eastern Cape Province (ECP). Noupoot is one of three towns in the Umsobomvu LM, the other being Colesberg (municipal seat and leader town) and the small town of Norvalspont. De Aar is the administrative seat of the Pixley ka Seme DM. The towns of Middelburg and Cradock (municipal seat) are the key settlements in the Inxuba Yethemba LM. Queenstown is the administrative seat of the Chris Hani DM.

Via links with the N1 in Colesberg and the N10 (south) in Middelburg, the N9 provides a direct link from Port Elizabeth to Bloemfontein, Gauteng and beyond. SANRAL is currently upgrading the portion of the N9 between Carlton Heights (south-west of the site) and Middelburg.

The N10 (north) intersects with the N9 ~3 km south-east of the study area near Carlton Heights. The N10 provides a direct link to the N1 (at Hanover), and the key NCP towns of De Aar, Kimberley and Upington (Photograph 3.1).

<sup>17</sup> A detailed review of the study area and the land uses is contained in the SIAs undertaken for the San Kraal and Phezukomoya WEFs (Barbour and van der Merwe, January 2018).



**Photograph 3.1: The N10, looking east towards the Carlton Hills**

The Oorlogspoort gravel road intersects with the N9 in the extension of Murray Road to the east of Noupoort (Photograph 3.2). The Oorlogspoort Road provides access to the farming area in the mountainous Kikvorsberge area north-east of Noupoort (Photograph 3.3). The road runs eastward, northward, and then loops back west to the N9 at Arundel near Colesberg.



**Photograph 3.2: The intersection of the Oorlogspoort Road with the N9 east of Noupoort (Murray Street)**



**Photograph 3.3: Looking towards Noupoort along the Oorlogspoort Road from ~1 km west of the entrance to the Noupoort WEF**

### **3.6.1 Noupoort**

The town of Noupoort originated around a railway station, and its fortunes have always been closely linked to the railways. Naauwpoort station was established in 1884 on a portion of the farm Hartebeeshoek on the first sizeable flat area north of the defile on the line from Port Elizabeth to the Rand (via Bloemfontein) then under construction. The town gradually developed on both sides of the north-south aligned railway corridor (Photograph 3.4). The lines continue to serve as a barrier to spatial and socio-economic integration in Noupoort.



**Photograph 3.4: Noupoort station seen from the train bridge in Noupoort**

During the Second Anglo-Boer War (1899-1902) a garrison of British troops was based in Noupoot to protect this strategic point along the railway line. In Noupoot itself, two existing structures bear witness to the War, namely a well-preserved blockhouse to the east of the Bloemfontein line in the Kwazamuxolo suburb of Noupoot, and the All Souls Anglican Chapel in Shaw St opposite the Municipal offices, built by masons stationed at the British garrison (Photograph 3.5).



**Photograph 3.5: All Souls Chapel, opposite the municipal and SASSA offices in Shaw Street**

The Bloemfontein-Port Elizabeth line was later supplemented by a line from De Aar to Port Elizabeth, thus transforming Noupoot into a key railway junction. A rail yard and workshops were established at Midlandia, ~1km south of Noupoot. During its heyday a few decades ago, up to 100 trains, a day used to pass through Noupoot station. Due to various factors such as a shift from steam to diesel and then electricity, as well as decreased freight volumes, Noupoot has witnessed a steady disinvestment over the last 20 or so years. As a result, most shops, businesses and local services closed down, and many owners relocated. In total, during the 1990s, an estimated 300 middle-class households moved out of Noupoot (Gillmer, pers. comm). Many houses were abandoned, and later torn down or vandalised (Photograph 3.6).



**Photograph 3.6: Torn down building in historic part of Noupoort**

At the same time, Noupoort attracted unskilled farmworker households from the region in response to the roll-out of RDP housing and other government programmes and facilities, such as municipal and grant offices (Photograph 3.7). The lack of economic activities in the town and surrounds has led to very high local unemployment levels. The lack of significant local retail and business in the town also means that little of locally generated income is spent in Noupoort.



**Photograph 3.7: Southernmost portion of Noupoort with RDP houses viewed from N9**

Given the proximity of Middelburg, Colesberg and De Aar, Noupoort does not function as a major service centre for local farmers. A Lewis Stores, an Agricultural Hardware store, a small fuel station, a large SAPS station, the station, and a few small general dealers are located in Noupoort, but virtually no other retail or services. Noupoort residents typically travel to Middelburg or Colesberg for shopping



and services, including private health care. Higher-order needs require travelling to Graaff-Reinet, De Aar or Bloemfontein.

Two secondary schools and two primary schools are located in Noupoot. The Noupoot Christian Care Centre has been running a well-known drug rehabilitation centre in Noupoot since the 1990s. The Centre runs 1 and 2-year programmes, with wards and staff resident at the facility year-round. The Centre has also been running a number of local community outreach programmes in and around Noupoot. According to a local Municipal official, this has contributed to keeping Noupoot relatively drug-free. Tik and other hard drugs are currently not considered a major problem in the Noupoot community (Majuba, pers. comm).

Over the past 5 years, things have started to improve somewhat for Noupoot. Back to back construction projects associated with the upgrading of the N10 and N9, the recent construction of the Noupoot WEF north-east of Noupoot and the current construction of a large stadium in Noupoot, have created significant employment and skills training opportunities to the Noupoot community. The Noupoot WEF currently also makes use of local community members as security personnel. Since the authors last visited Noupoot in November 2012, the number of in-town accommodation facilities have increased from 2 to at least 6, apparently in response to the demand for long-stay accommodation amongst contractors.

The government has also invested in at least three agriculture-based projects in Noupoot, namely a broiler farm, an olive planting scheme (aimed at producing oil-bearing fruit), and a wool and craft project. None of the projects are currently functional. This appears to be linked to the lack of local management expertise. The broiler farm structures located on Hartebeeshoek in the extreme north-eastern portion of the WEF site, are intact, and will likely be used for the intended purpose in the future (Majuba, Mgcineni, pers. comm).

Noupoot station and railway facilities are also set to benefit from the upgrades associated with the relocation of Port Elizabeth manganese ore line terminal to the new deep-water port of Ngqura in the Coega Industrial Development Zone. This will result in increased volumes of ore traffic and upgrading of the railway route from Postmasburg to Port Elizabeth, including the Noupoot area. The Umsobomvu LM is currently lobbying for the revival of some Transnet functions in Noupoot and the revitalizing the station compound (Mgcineni, pers. comm).

### **3.6.2 Noupoot rural area**

Livestock farming is the predominant and almost exclusive land use in the Noupoot rural area. The area is too dry to sustain dryland cropping and lacks significant water sources to sustain commercial-scale irrigated cropping. The area is too arid to sustain significant dairy operations. Most of the farms in the area are actively farmed as commercial operations. Hartebeeshoek (site farm) east of Noupoot is farmed by an informal collective of communal farmers from the local community.

In terms of the grazing resource, Noupoot is located in the transition zone from scrub-dominated Karoo bossiesveld to grassveld more typical of the Southern Free State Highveld (Photograph 3.8). For this reason, the area is colloquially known as 'skyn-Karoo' (pseudo-Karoo) to local farmers (Visser, pers. comm). Around Noupoot, the N9 is said to provide a rough demarcation line between progressively more bossiesveld towards its west, and progressively more grassveld towards its east (van der Walt, pers. comm).



**Photograph 3.8: Mixed veld on Kleinfontein west of the farmstead**

This mixed veld enables Noupoot farmers to farm with both sheep and cattle – typically wool or dual-purpose sheep, and beef cattle (Photograph 3.9 and 3.10). This mixture of scrub and grass also allows for year-round grazing, as the scrub provides food during the winter when the grass component dies back (de Villiers, pers. com).



**Photograph 3.9: Wool sheep grazing in area north of the N10**



**Photograph 3.10: Beef cattle grazing east of the N9**

Carrying capacities are around 4 hectares per 1 sheep (or 18 ha per head of cattle) (de Villiers, Visser, pers. comm). Large, multi-unit operations are typical. In the area immediately to the west of Noupoort, most farms are used as stock posts in operations based on farms elsewhere in the Noupoort district (Gillmer, pers. comm). These stock posts are typically near enough from main operations to be visited regularly by their owners. Supervising staff reside on a few properties.

Irrigated fodder-cropping for own use is associated with most operations. Cropping activities are typically in proximity to the historical farm erf on farms and stock posts on flat, low-lying areas. Irrigation for fodder plantings is from boreholes and earthen farm dams, some of which fed by fountains (Photograph 3.11).



**Photograph 3.11: Irrigated fodder cropping area on Beskuitfontein farm to the south of the study area**

In the hilly area to the east of the N9 along the Oorlogspoort Road, most of the farms are inhabited by their owners. Those which are not, typically form part of adjacent or near-adjacent inhabited farms, and effectively function as stock posts (van der Walt, pers. comm). The Municipally owned Hartebeeshoek is an exception. The property is uninhabited and used by members of the adjacent Noupoot urban community.

The settlement pattern south of Carlton Heights towards Middelburg is largely determined by the natural topography. Clusters of farmsteads are located on the available flat, lower-lying areas, often separated from the next cluster by broken terrain and accessed by different roads from the N9 or Middelburg. The majority of these farms are inhabited and actively farmed or used as stock posts by nearby farmers (John Moore, pers. comm).

Extensive livestock farming provides limited employment opportunities. Most farms in the study area have retained a resident labour force component, supplemented by workers driven in daily from Noupoot. Workers residing on farms typically reside on the main farms, i.e. those inhabited by the owner. Seasonal opportunities are mainly associated with annual shearing, typically done by travelling professional shearers from outside the area.

As in other stock farming areas, predators, stock theft and veld fires constitute major operational risks. Stock theft is an on-going concern, with proximity to urban Noupoot and exposure to and isolation from major roads seen as key risk factors. The major threat is to sheep, and at least one operation (Arbeidsgenot) on the outskirts of Noupoot has shifted from sheep to cattle to reduce the risk. Interviewees have however indicated that incidents of stock theft are currently limited, and mainly small-scale in nature. No syndicates are currently thought to operate in the area.

Veld fires remain an on-going concern on all operations due to the threat posed to grazing resources. While regrowth in grass species is generally stimulated by veld fires, the Karroid scrub 'bossiesveld' component may take years to recover. Farmers are reliant on the bossiesveld component for high-value winter grazing. Most interviewees indicated that veld fires are rare, with the exception of the Municipally owned Hartebeeshoek and its neighbours. This seems linked to the property's proximity to Noupoot and many people informally using the property for grazing and other purposes (fuel collection, hunting, etc.).

Game occurs on most farms in the study area, typically plains antelope, Kudu and Ribbok, but commercial hunting and eco-wildlife tourism activities are currently limited in the Noupoot area. Key exceptions are Brulberg, located 40 km east of Noupoot along the Oorlogspoort Road, and Wildberg, located ~6 km to the south of the Phezukomoya WEF site. Vrede (site farm) may be revived as an accommodation facility with paid hunting opportunities in future (Gillmer, pers. comm).

As in Noupoot town, the local guest farms are largely geared to passing travellers, and more recently, long-stay contractors. At least four guest farms are located in proximity to Noupoot, all of which accessed directly off the N9. All four are located on working farms – The Dairy on Arbeidsgenot Farm (Photograph 3.12), Carlton Heights Lodge on Vlakfontein Farm, Sherboure on Wolwekop Farm, and Welvanpas on Welvanpas Farm). None of the operations are geared at destination-tourism. All of them seem to have expanded in response to the demand for long-stay opportunities for contractors working in the area over the past few years, and specifically the

construction of the Noupoort WEF (Pieter Erasmus, Annatjie Moore, van Huyssteen, pers, comm).



**Photograph 3.12: Guest accommodation on The Dairy, with extensions in progress. A Noupoort WEF turbine is just visible between the buildings**

The area's sense of place is dominated by the arid climate and hilly topography. The area to the east and south of Noupoort town is broken, consisting of a series of large hills. West of Noupoort, towards Hannover, the area is generally flatter, punctuated by Karoo koppies. This is locally referred to as 'die Vlak' (the Flats). As indicated above, the local veld consists of Karroid scrub and grassveld. The natural tree component is limited and mainly restricted to drainage lines and on hills. Large trees are mainly associated with farmyards (alien eucalyptus, pines, ashes, poplars) and watercourses (alien willows, poplars).

The narrow gorge after which the town of Noupoort is named has had the effect of concentrating rail, road and transmission line corridors in the area south of Noupoort up to Carlton Heights. As a result, the portion of the N9 between Carlton Heights and Noupoort is not pristine with regard to existing service industrial infrastructure. The Port Elizabeth railway line is located roughly parallel and in proximity to this stretch of the N9. The operational line consists of above ground and below ground portions – the latter largely coinciding with the De Rust farm, east of the N9 to the south of the Carlton Heights. The line re-emerges west of the N9 near Edendale farmstead and runs north to the west of the N9 via Barredeel siding to Noupoort station. The original railway line (1880s), now defunct, also traverses De Rust. The old line is entirely above ground and located slightly to the east of the operational line. The cottages on De Rust farmyard is associated with the old De Rust siding.

At least 4 existing 132 kV Transmission line corridors are located in the Noupoort area. All are essentially located in proximity to the N9 corridor to the east of the San Kraal site. None traverse the site. The site is also not traversed by any rail corridors nor, apart from a small portion of the Oorlogspoort Road, any public roads.

The narrow kloof which had given Noupoort its name has had the effect of concentrating rail, road and transmission line corridors in the area south of Noupoort

up to Carlton Heights. The rail corridor is located parallel to the west of the N9 (Photograph 3.13). As a result, the portion of the N9 from around Carlton Heights to Noupoort is visibly transformed by industrial service infrastructure. This area is affected by the proposed 132 kV by-pass option.

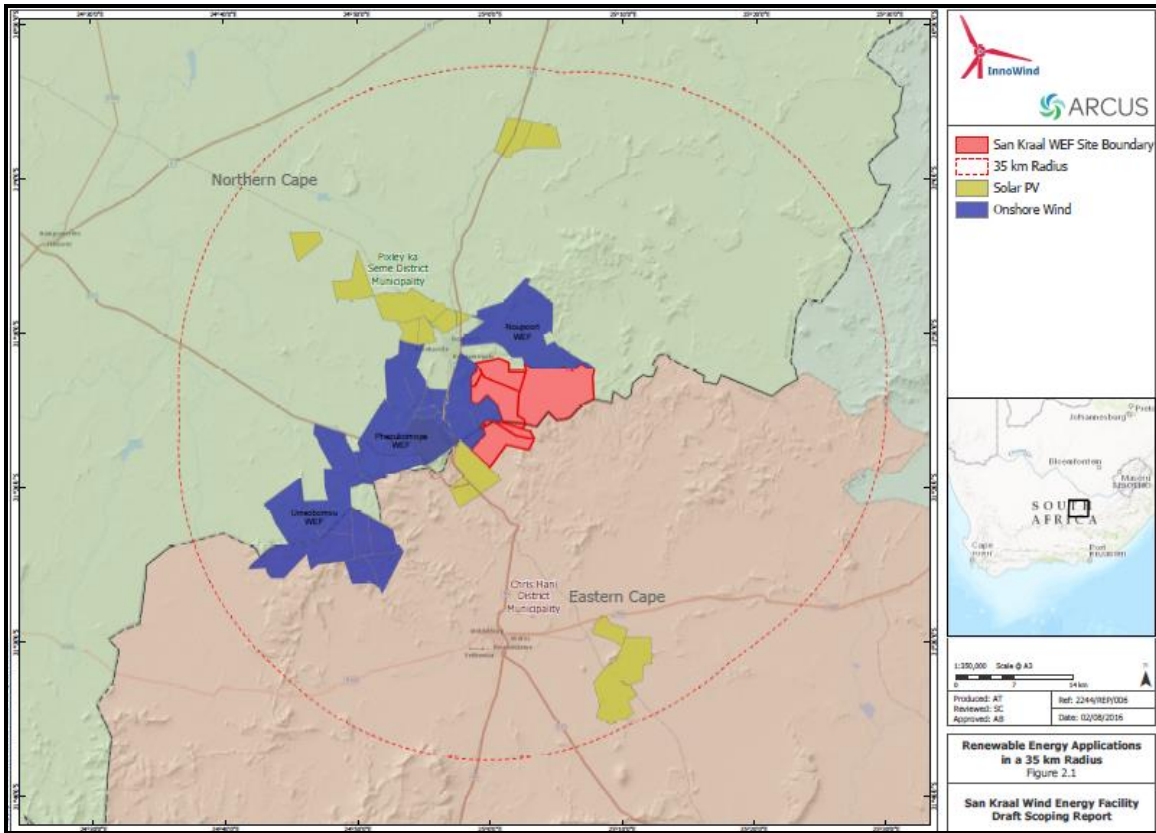


**Photograph 3.13: Railway line 4.5 km south-east of the site looking towards Beskuitfontein from the N10 rail bridge.**

The operational Noupoort WEF (35 turbines) to the east of Noupoort is clearly visible from the N9 and Noupoort. Many interviewees indicated that Noupoort WEF had become part of Noupoort’s sense of place. Several telecommunication structures (towers, etc.) are located on the Carlton Hills to the south of the site and are readily visible from both the N9 and N10. With the exception of the rail corridor which traverses the N10 just to the west of the N10-N9 intersection, the stretch of N10 south of Noupoort is not currently traversed by or aligned in proximity to any significant service industrial infrastructure. This is the area that would be affected by the proposed 132 kV HBH corridor option.

### **1.7.1 Other renewable energy facilities**

Based on the information provided by Arcus, there are eleven approved renewable energy projects located within a 35 km radius of the site. These include 3 wind and 8 solar energy projects (Figure 3.14). It would appear that only one wind farm, the Mainstream Noupoort WEF, and two solar projects, have been established to date. The remaining sites have not been developed as yet. The 80 MW Noupoort WEF is located east of Noupoort and was completed in mid-2016. The facility consists of 35 turbines and is accessed off the Oorlogspoort Road.



**Figure 3.14: Location of renewable energy projects within 35 km radius of site**

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## **SECTION 4: ASSESSMENT OF SOCIAL ISSUES**

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### **4.1 INTRODUCTION**

Section 4 provides an assessment of the key social issues identified during the study. The identification of key issues was based on:

- Review of project related information;
- Interviews with key interested and affected parties;
- Experience/ familiarity of the authors with the area and local conditions;
- Findings of the SIAs undertaken for the San Kraal and Phezukomoya WEFs in 2017 and finalised in 2018;
- Experience with similar projects.

The assessment section is divided into the following sections:

- Assessment of compatibility with relevant policy and planning context (“planning fit”);
- Assessment of social issues associated with the construction phase;
- Assessment of social issues associated with the operational phase;
- Assessment of social issues associated with the decommissioning phase.
- Assessment of the “no development” alternative;
- Assessment of cumulative impacts.

The findings of the SIA indicate that the social impacts associated with the new collector substation located 5 km from the existing Eskom Hydra D substation and the new proposed substations associated with the Part 2 Amendment will be limited. In addition, all of these facilities are located with the approved on-site overhead grid corridor. The impacts associated with these grid infrastructure components will, therefore, have a material bearing on the decision-making process. The focus of the SIA is on the proposed 132 kV overhead line by-pass corridor located to the south of approved on-site grid corridor for the San Kraal and Phezukomoya WEFs.

### **4.2 ASSESSMENT OF POLICY AND PLANNING FIT**

The findings of the review indicated that renewable energy is strongly supported at a national, provincial and local level. The development of and investment in renewable energy is supported by the National Development Plan (NDP), New Growth Path Framework and National Infrastructure Plan, which all make reference to renewable energy. At a provincial level, the development of renewable energy is supported by the Northern Cape Provincial Growth and Development Strategy and Northern Cape Provincial Spatial Development Framework<sup>18</sup>. The PKSDM IDP also highlights the importance of renewable energy for the area.

However, the provincial and local policy and planning documents also make reference to the importance of tourism and the region’s natural resources. Care,

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<sup>18</sup> The majority of the site is located in the Northern Cape Province. The focus of the review, was therefore on the Northern Cape.



therefore, needs to be taken to ensure that the development of large renewable energy projects, such as the proposed facility, does not impact on the region's natural resources and the tourism potential of the Province.

### **4.3 CONSTRUCTION PHASE SOCIAL IMPACTS**

The key social issues associated with the construction phase of the grid infrastructure will be the same as the issues associated with the establishment of the proposed WEFs. In this regard, the construction activities associated with the establishment of the grid infrastructure are likely to overlap with and be undertaken at the same time as the construction activities associated with the establishment of the proposed WEFs. It is also reasonable to assume that the majority of construction-related activities associated with the construction of the grid infrastructure will be undertaken by the same team of construction workers appointed to establish the proposed WEFs. It is therefore not possible to fully separate and distinguish between the social impacts associated with the construction phase of the proposed WEFs and the associated grid infrastructure. In addition, one must also be aware of double counting.

The key social issues associated with the construction phase apply to all components of the grid infrastructure and include:

#### **Potential positive impacts**

- Creation of employment opportunities.

#### **Potential negative impacts**

- Impacts associated with the presence of construction workers on local communities;
- Impacts related to the potential influx of jobseekers;
- Increased risks to livestock and farming infrastructure associated with the construction-related activities and presence of construction workers on the site;
- Increased risk of grass fires associated with construction-related activities;
- Noise, dust and safety impacts of construction-related activities and vehicles;
- Impact on productive farmland.

#### **4.3.1 Creation of local employment opportunities**

Given the nature of the project, the employment opportunities associated with the construction of the transmission lines and substations will be limited and are likely to benefit the contractors appointed to undertake the work required. The potential opportunities for local members from the community may, therefore, be limited unless a local contractor is appointed.

**Table 4.1: Impact assessment of employment opportunities during the construction phase**

<b>Impact Phase: Construction</b>							
<b>Potential impact description:</b> Creation of employment opportunities during the construction phase							
	<b>Extent</b>	<b>Duration</b>	<b>Intensity</b>	<b>Status</b>	<b>Significance</b>	<b>Probability</b>	<b>Confidence</b>
<b>Without Mitigation/Enhancement</b>	M	L	L	Positive	Low	M	High
<b>With Mitigation/Enhancement</b>	M	L	M	Positive	Medium	H	High
Can the impact be reversed?			Yes: By not implementing the project				
Will impact cause irreplaceable loss or resources?			No				
Can impact be avoided, managed, enhanced and or mitigated?			Yes, see measures below.				

### **Assessment of No-Go option**

There is no impact, as the current status quo will be maintained. The potential employment benefits associated with the construction of the proposed project would, however, be forgone.

### **Recommended enhancement measures**

In order to enhance local employment and business opportunities associated with the construction phase, the following measures should be implemented.

### **Employment**

- Where reasonable and practical the proponent should appoint local contractors and implement a 'locals first' policy, especially for semi and low-skilled job categories. Due to the low skills levels in the area, the majority of skilled posts are likely to be filled by people from outside the area;
- Where feasible, efforts should be made to employ local contractors that are compliant with Broad-Based Black Economic Empowerment (BBBEE) criteria;
- Before the construction phase commences the proponent should meet with representatives from the ULM and IYLM to establish the existence of a skills database for the area. If such a database exists, it should be made available to the contractors appointed for the construction phase;
- The local authorities, relevant community representatives and local farmers should be informed of the final decision regarding the project and the potential job opportunities for locals and the employment procedures that the proponent intends following for the construction phase of the project;
- Where feasible training and skills development programmes for local workers should be initiated prior to the initiation of the construction phase;
- The recruitment selection process should seek to promote gender equality and the employment of women wherever possible.

## Business

- The proponent should liaise with the ULM and IYLM with regards the establishment of a database of local companies, specifically BBBEE companies, which qualify as potential service providers (e.g. construction companies, catering companies, waste collection companies, security companies etc.) prior to the commencement of the tender process for construction contractors. These companies should be notified of the tender process and invited to bid for project-related work;
- Where possible, the proponent should assist local BBBEE companies in completing and submitting the required tender forms and associated information.
- The ULM and IYLM, in conjunction with the local business sector and representatives from the local hospitality industry, should identify strategies aimed at maximising the potential benefits associated with the project.

Note that while preference to local employees and companies is recommended, it is recognised that a competitive tender process may not guarantee the employment of local labour for the construction phase.

### 4.3.2 Potential impact of construction workers on affected landowners

The presence on and movement of construction workers on and off the site may pose a potential safety threat to local farmers in the vicinity of the site threat. In addition, farm infrastructure, such as fences and gates, may be damaged and stock losses may also result from gates being left open and/or fences being damaged or stock theft linked either directly or indirectly to the presence of farmworkers on the site.

The local farmers in the area interviewed indicated that the presence of construction workers on the site increased the exposure of their farming operations and livestock to the outside world, which, in turn, increased the potential risk of stock theft and crime. The findings of the SIA indicate that stock theft is regarded as a key concern. The farms located closest to Noupport are at greatest risk. The local farmers interviewed did, however, indicate that the potential risks (safety, livestock and farm infrastructure) can be effectively mitigated by careful planning and managing the movement of construction on the site workers during the construction phase.

**Table 4.2: Assessment of risk to safety, livestock, infrastructure and farming operations**

Impact Phase: Construction							
<b>Potential impact description:</b> Potential risk to the safety of farmers and farmworkers, livestock and damage to farm infrastructure associated with the movement of construction workers in and to the site							
	Extent	Duration	Intensity	Status	Significance	Probability	Confidence
<b>Without Mitigation/Enhancement</b>	M	L	M	Negative	Medium	M	High
<b>With Mitigation/Enhancement</b>	M	L	L	Negative	Low	M	High
Can the impact be reversed?			Yes: By repairing damage and compensating for stock losses etc.				
Will impact cause irreplaceable loss or resources?			No				
Can impact be avoided, managed, enhanced and or mitigated?			Yes, see measures below.				

### **Assessment of No-Go option**

There is no impact as it maintains the current status quo.

### **Recommended mitigation measures**

Key mitigation measures include:

- The proponent should enter into an agreement with the local farmers in the area whereby damages to farm property etc. during the construction phase proven to be associated with the construction activities will be compensated for. The agreement should be signed before the construction phase commences;
- Contractors appointed by the proponent should provide daily transport for workers to and from the site. This would reduce the potential risk of trespassing on the remainder of the farm and adjacent properties;
- The proponent should consider the option of establishing an MF (see above) that includes local farmers and develop a Code of Conduct for construction workers. This committee should be established prior to the commencement of the construction phase. The Code of Conduct should be signed by the proponent and the contractors before the contractors move onto the site;
- The proponent should hold contractors liable for compensating farmers in full for any stock losses and/or damage to farm infrastructure that can be linked to construction workers. This should be contained in the Code of Conduct to be signed between the proponent, the contractors and neighbouring landowners. The agreement should also cover losses and costs associated with fires caused by construction workers or construction-related activities (see below);
- The Environmental Management Programme (EMP) should outline procedures for managing and storing waste on-site, specifically plastic waste that poses a threat to livestock if ingested;
- Contractors appointed by the proponent must ensure that all workers are informed at the outset of the construction phase of the conditions contained in the Code of Conduct, specifically consequences of stock theft and trespassing on adjacent farms.
- Contractors appointed by the proponent must ensure that construction workers who are found guilty of trespassing, stealing livestock and/or damaging farm infrastructure are dismissed and charged. This should be contained in the Code of Conduct. All dismissals must be in accordance with South African labour legislation;
- The housing of construction workers on the site should be limited to security personnel.

#### **4.3.3 Increased fire risk**

The presence of construction workers and construction-related activities poses an increased fire risk, which could, in turn, pose a threat to crops, livestock, and farmsteads in the area. In the process, farm infrastructure may also be damaged or destroyed, and human lives threatened. Grass fires would pose a threat to grazing and livestock, which, in turn, would have a significant impact on the livelihoods of local farmers who are affected.

While the grass component is likely to recover relatively quickly, the bossiesveld component would take much longer. The bossiesveld component is crucial to year-round grazing as it provides nutritious winter fodder. According to interviewees, veld fires are currently rare (Gillmer, pers. comm). However, the owners on Beskuitfontein indicated that their property is regularly at risk from fires originating in the Municipal owned site farm Hartebeeshoek (Pieter and Stefan Erasmus, pers.

comm). The potential fire risk of grass fires is highest towards the end of the winter months (October-November). This period also coincides with dry, windy conditions in the area.

**Table 4.3: Assessment of impact of increased risk of fires**

<b>Impact Phase: Construction</b>							
<b>Potential impact description:</b> Potential loss of livestock, crops and houses, damage to farm infrastructure and a threat to human life associated with an increased incidence of grass fires							
	<b>Extent</b>	<b>Duration</b>	<b>Intensity</b>	<b>Status</b>	<b>Significance</b>	<b>Probability</b>	<b>Confidence</b>
<b>Without Mitigation/Enhancement</b>	M	L	M	Negative	Medium	M	High
<b>With Mitigation/Enhancement</b>	M	L	L	Negative	Low	M	High
Can the impact be reversed?			Yes: By repairing damage and compensating for damages and losses				
Will impact cause irreplaceable loss or resources?			No				
Can impact be avoided, managed, enhanced and or mitigated?			Yes, see measures below.				

#### **Assessment of No-Go option**

There is no impact as it maintains the current status quo.

#### **Recommended mitigation measures**

The mitigation measures include:

- The proponent should enter into an agreement with the local farmers in the area whereby losses associated with fires that can be proven to be associated with the construction activities will be compensated for. The agreement should be signed before the construction phase commences;
- Contractor should ensure that open fires on the site for cooking or heating are not allowed except in designated areas;
- No smoking should be permitted on-site, except in designated areas;
- Contractor should ensure that construction-related activities that pose a potential fire risk, such as welding, are properly managed and are confined to areas where the risk of fires has been reduced. Measures to reduce the risk of fires include avoiding working in high wind conditions when the risk of fires is greater. In this regard special care should be taken during the high risk dry, windy summer months;
- Contractor to provide adequate fire-fighting equipment on-site;
- Contractor to provide fire-fighting training to selected construction staff;
- No construction staff, with the exception of security staff, to be accommodated on-site overnight;
- As per the conditions of the Code of Conduct, in the event of a fire proven to be caused by construction workers and or construction activities, the appointed contractors must compensate farmers for any damage caused to their farms. The contractor should also compensate for the fire-fighting costs borne by farmers and local authorities.

#### 4.3.4 Impacts associated with construction vehicles

The movement of construction vehicles during the construction phase has the potential to damage local farm roads and create dust and safety impacts for other road users in the area and also impact on farming activities. The potential damage to grazing areas and local roads and the impacts associated with dust etc. can be effectively mitigated through the implementation of an effective EMP.

**Table 4.4: Assessment of the impacts associated with construction activities**

<b>Impact Phase: Construction</b>							
<b>Potential impact description:</b> Potential dust and safety impacts and damage to road surfaces associated with the movement of construction-related traffic to and from the site							
	<b>Extent</b>	<b>Duration</b>	<b>Intensity</b>	<b>Status</b>	<b>Significance</b>	<b>Probability</b>	<b>Confidence</b>
<b>Without Mitigation/Enhancement</b>	M	L	M	Negative	Medium	M	High
<b>With Mitigation/Enhancement</b>	M	L	L	Negative	Low	M	High
Can the impact be reversed?			Yes, by rehabilitating disturbed areas				
Will impact cause irreplaceable loss or resources?			No				
Can impact be avoided, managed, enhanced and or mitigated?			Yes, see measures below.				

#### Assessment of No-Go option

There is no impact as it maintains the current status quo.

#### Recommended mitigation measures

The potential impacts associated with heavy vehicles can be effectively mitigated. The mitigation measures include:

- The contractor must ensure that damage caused by construction-related traffic to internal farm roads is repaired on a regular basis throughout the construction phase. The costs associated with the repair must be borne by the contractor;
- Dust suppression measures must be implemented for heavy vehicles such as wetting of gravel roads on a regular basis, adhering to speed limits and ensuring that vehicles used to transport sand and building materials are fitted with tarpaulins or covers;
- All vehicles must be road-worthy, and drivers must be qualified and made aware of the potential road safety issues and need for strict speed limits;
- The Contractor should ensure that workers are informed that no waste can be thrown out of the windows while being transported to and from the site. Workers who throw waste out windows should be fined;
- The Contractor should be required to collect waste generated on-site. All waste should be transported to the local landfill site.
- EMP measures (and penalties) should be implemented to ensure farm gates are closed at all times;
- EMP measures (and penalties) should be implemented to ensure speed limits are adhered to at all times.

## **4.4 OPERATIONAL PHASE SOCIAL IMPACTS**

The social issues related to the operational phase include:

### **Potential positive impacts**

- Creation of employment opportunities.

The benefits of the proposed San Kraal and Phezukomoya WEFs and the associated splits are dependent upon being able to connect to the national grid via the establishment of the grid infrastructure. Likewise, the benefits associated with the establishment of a Community Trust are also dependent upon the ability to generate revenue from the sale of renewable energy, which in turn is dependent upon being able to connect to the national grid.

The benefits associated with the establishment of renewable energy infrastructure (including grid infrastructure) and Community Trust have been assessed as part of the SIAs for the proposed San Kraal and Phezukomoya WEFs. In order to avoid double-counting, they have therefore not been assessed as part of the SIA for the grid infrastructure. However, it is recognised that grid infrastructure is integral to the overall success of the proposed WEFs.

### **Potential negative impacts**

- The visual impacts and associated impact on the sense of place;
- Impact on tourism;
- Impact on property values.

As indicated above, the potential negative social impacts associated with the new collector substation located 5 km from the approved Eskom Hydra D substation and the approved substations associated with the Part 2 Amendment will be limited. The impacts associated with these grid infrastructure components will, therefore, not have a material bearing on the decision-making process.

The location of the proposed 132 kV overhead line by-pass corridor to the south of approved on-site grid corridor for the San Kraal and Phezukomoya WEFs is however likely to have a visual impact on the area. This is discussed in more detail below.

### **4.4.1 Creation of employment opportunities**

The potential employment opportunities associated with grid infrastructure component of the proposed WEFs will be limited and largely confined to periodic maintenance and repairs. The potential socio-economic benefits will, therefore, be limited.

**Table 4.5: Creation of employment opportunities**

<b>Impact Phase: Operational</b>							
<b>Potential impact description:</b> Creation of employment opportunities							
	<b>Extent</b>	<b>Duration</b>	<b>Intensity</b>	<b>Status</b>	<b>Significance</b>	<b>Probability</b>	<b>Confidence</b>
<b>Without Mitigation/Enhancement</b>	M	L	L	Negative	Low	M	High
<b>With Mitigation/Enhancement</b>	M	L	L	Negative	Low	M	High
Can the impact be reversed?			Yes, by rehabilitating disturbed areas				
Will impact cause irreplaceable loss or resources?			No				
Can impact be avoided, managed, enhanced and or mitigated?			Yes, see measures below.				

**Assessment of No-Go option**

The No-Development option would represent a lost opportunity for South Africa to supplement its current energy needs with clean, renewable energy. This would represent a negative opportunity cost.

**Recommended mitigation measures**

See 4.3.1-Construction Phase.

**4.4.2 Impact on sense of place and rural character of the landscape**

The potential visual impact on the area's sense of place associated with the new collector substation and proposed substations associated with the Part 2 Amendment will be limited. The location of the proposed 132 kV overhead line HBH Corridor to the south of approved on-site grid corridor for the San Kraal and Phezukomoya WEFs is however likely to have a more significant visual impact on the area. Of specific relevance to the proposed HBH Corridor Option, the owner of Beskuitfontein, Mr Pieter Erasmus, noted that Alternative 1 associated with the San Kraal and Phezukomoya WEFs (the southern-most alternative) was located with the view-shed of the access road to Beskuitfontein and adjacent Vlakfontein. Alternative 1 also impacted on Charlton Heights Guest Farm. The proposed HBH Corridor Option is also located on Beskuitfontein and is located further to the south and closer to the Beskuitfontein farmhouse and Charlton Heights Guest Farm. The impact on the viewshed and sense of place will, therefore, be greater than Alternative 1.

In addition:

- The view from the N9 is also towards an amphitheatre created by the escarpment. While there is a transmission line that runs in an east-west direction and is visible from the Charlton Heights Guest Farm, the general view is relatively uninterrupted;
- The route affects properties that are not associated with any of the proposed WEFs. They will, therefore, bear the cost of the transmission line without any financial benefit. This raises an issue of impact equity, namely, some property owners, will be impacted without gaining any benefit from the proposed WEFs.



- Mr Erasmus has also indicated that he is concerned that the Part 2 Amendment has resulted in a reduced number of wind turbines on his property. The establishment of the proposed HBH Corridor Option will compound his concerns.

The findings of the VIA undertaken by SiVEST (July 2019) indicate that the visual impacts associated with the proposed power lines and substations are of moderate significance. Given the low level of human habitation and the absence of sensitive receptors, the project is deemed acceptable from a visual perspective, and the EA should be granted. The VIA does not, however, discuss and or assess the visual impact of the HBH Corridor Option separately. Instead, the transmission line is assessed together with the other components of the grid infrastructure. Given that a significant portion of the HBH Corridor Option is located outside of the WEF project area, it would have been preferable if a separate assessment had been undertaken.

However, as noted in the SIAs for the San Kraal and Phezukomoya WEFs (Barbour and van der Merwe, 2018), while certain stakeholders raised concerns about the potential visual impacts associated with the proposed WEF, others indicated that they did not regard the potential visual impacts as problematic. This highlights the nature of social impacts, namely that they can differ from person to person.

**Table 4.6: Assessment of visual impact of HBH Corridor Option**

<b>Impact Phase: Operational</b>							
<b>Potential impact description:</b> Visual impact associated with the proposed HBH Corridor Option on the areas rural sense of place.							
	<b>Extent</b>	<b>Duration</b>	<b>Intensity</b>	<b>Status</b>	<b>Significance</b>	<b>Probability</b>	<b>Confidence</b>
<b>Without Mitigation/ Enhancement</b>	M	M	M	Negative	Medium	M	Medium
<b>With Mitigation/ Enhancement</b>	M	M	M-L	Negative	Medium	M	Medium
Can the impact be reversed?			Yes, by removing turbines and grid infrastructure				
Will impact cause irreplaceable loss or resources?			No				
Can impact be avoided, managed, enhanced and or mitigated?			Yes, see measures below.				

#### **Assessment of No-Go option**

There is no impact as it maintains the current status quo.

#### **Recommended mitigation measures**

Based on the findings of the SIA, the HBH Corridor Option will have a higher social impact than the approved San Kraal/ Phezukomoya corridor, which is located within the site boundary. The approved San Kraal/ Phezukomoya corridor, therefore, remains the preferred option.

#### **4.4.3 Potential impact on property values**

The potential impact of the proposed WEFs and associated grid infrastructure on property values has been raised as a concern in other WEF projects. As indicated in Section 2, a literature review was undertaken as part of the SIA. It should be noted that the review does not constitute a property evaluation study and merely seeks to

comment on the potential impact of wind farms on property values based on the findings of studies undertaken overseas. The assessment rating is based on the findings of the review.

In total, five articles were identified and reviewed, namely:

- Stephen Gibbons (April 2014): Gone with the wind: Valuing the Visual Impacts of Wind turbines through house prices. London School of Economics and Political Sciences & Spatial Economics Research Centre, SERC Discussion Paper 159;
- Review of the Impact of Wind Farms on Property Values, Urbis Pty Ltd (2016): Commissioned by the Office of Environment and Heritage, NSW, Australia;
- Yasin Sunak and Reinhard Madlener (May 2012): The Impact of Wind Farms on Property Values: A Geographically Weighted Hedonic Pricing. School of Business and Economics / E.ON Energy Research Center, RWTH Aachen University. Model Working Paper No. 3/2012;
- Martin D. Heintzelman and Carrie M. Tuttle (March 3, 2011): Values in the Wind: A Hedonic Analysis of Wind Power Facilities. Economics and Financial Studies School of Business, Clarkson University;
- Ben Hoen, Jason P. Brown, Thomas Jackson, Ryan Wiser, Mark Thayer and Peter Cappers (August 2013): A Spatial Hedonic Analysis of the Effects of Wind Energy Facilities on Surrounding Property Values in the United States. Ernest Orlando Lawrence Berkeley National Laboratory.

The literature reviewed was based on an attempt by the authors of the SIA to identify what appear to be “academically and or scientifically” based studies that have been undertaken by reputable institutions post 2010. However, the literature review does not represent an exhaustive review. The most comprehensive study appears to be the study by Gibbons (2014), which found that “averaging over wind farms of all sizes” the price reduction was around 5-6% within 2km, falling to less than 2% between 2 and 4km, and less than 1% by 14km which is at the limit of likely visibility. While the focus of the Gibbons study was on residential properties, it does indicate that the larger the distance, the less the impact. The findings of the Urbis (2016) study indicate that “wind farms may not significantly impact rural properties used for agricultural purposes”.

Based on the outcome of the Urbis study (2016), the authors were of the opinion that wind farms might not significantly impact rural properties used for agricultural purposes. In conclusion, the authors of the Urbis study found that appropriately located wind farms within rural areas, removed from higher density residential areas, are unlikely to have a measurable negative impact on surrounding land values. Based on this information, the potential impact of the proposed WEF on the property values in the area is likely to be low.

**Table 4.7: Assessment of potential impact on property values**

<b>Impact Phase: Operational</b>							
<b>Potential impact description:</b> Potential impact on property values linked to the visual impact associated with the proposed WEF and associated infrastructure and the potential impact on the areas rural sense of place.							
	<b>Extent</b>	<b>Duration</b>	<b>Intensity</b>	<b>Status</b>	<b>Significance</b>	<b>Probability</b>	<b>Confidence</b>
<b>Without Mitigation/Enhancement</b>	M	M	M	Negative	Medium	M	Medium
<b>With Mitigation/Enhancement</b>	M	M	L	Negative	Low	M	Medium
Can the impact be reversed?			Yes, by removing turbines and grid infrastructure				
Will impact cause irreplaceable loss or resources?			No				
Can impact be avoided, managed, enhanced and or mitigated?			Yes, see measures below.				

**Assessment of No-Go option**

There is no impact as it maintains the current status quo.

**Recommended mitigation measures**

The recommendations contained in the VIA should be implemented.

**4.4.4 Potential impact on tourism**

The potential impact of the proposed WEFs and infrastructure on property values has been raised as a concern in other WEF projects. The concerns are typically linked to the visual impacts associated with wind turbines and impact that this would have on visitors and their decision to either visit the area and or return to the area.

The findings of the SIA indicate that Noupoot is not a recognised tourism destination. The local accommodation facilities – at least 6 in Noupoot and 4 on guest farms – mainly cater to overnight travellers and long-stay workers working in the area. Local accommodation facilities have increased and expanded in response to recent construction projects in the area, such as the Noupoot WEF and the upgrading of the N9. Of the three guest farm owners interviewed, none raised concerns about the potential impact on tourism associated with the impact on the proposed WEF on the area's sense of place (Pieter Erasmus, Annatjie Moore, van Huyssteen, pers. comm). The owner of the Diary on Arbeidsgenot also indicated that she considered the existing Noupoot WEF turbines a positive drawcard (van Huyssteen, pers. comm).

A review of international literature on the impact of wind farms was also undertaken as part of the SIA (Section 2.6). Three articles were reviewed, namely:

- Atchison, (April, 2012). Tourism Impact of Wind Farms: Submitted to Renewables Inquiry Scottish Government. University of Edinburgh
- Glasgow Caledonian University (2008). The economic impacts of wind farms on Scottish tourism. A report prepared for the Scottish Government
- Regeneris Consulting (2014). Study into the Potential Economic Impact of Wind Farms and Associated Grid Infrastructure on the Welsh Tourism Sector

The research by Aitchison (2012) found that that previous research from other areas of the UK has demonstrated that wind farms are very unlikely to have any adverse impact on tourist numbers (volume), tourist expenditure (value) or tourism experience (satisfaction) (Glasgow Caledonian University, 2008; University of the West of England, 2004). In addition, to date, there is no evidence to demonstrate that any wind farm development in the UK or overseas has resulted in any adverse impact on tourism. In conclusion, the findings from both primary and secondary research relating to the actual and potential tourism impact of wind farms indicate that there will be neither an overall decline in the number of tourists visiting an area nor any overall financial loss in tourism-related earnings as a result of a wind farm development.

In addition, all of the studies that have sought to predict impact have demonstrated that any negative impact of wind farms on tourism will be more than outweighed by the increase in tourists that are attracted by wind farms, by the increase in employment brought about by the development of wind farms and/or by the continuing growth of tourism. The study by the Glasgow Caledonian University (2008) found that only a negligible fraction of tourists will change their decision whether to return to Scotland as a whole because they have seen a wind farm during their visit. The study also found that 51.0% of respondents indicated that they thought wind farms could be tourist attractions. In this regard, the visitor centre at the Whitelee Wind Farm in east Ayrshire Scotland run by Scottish Power Renewables has become one of the most popular 'eco-attractions' in Scotland, receiving 200 000 visitors since it opened in 2009.

The study by Regeneris Consulting (2014) found that there was no evidence that wind farms would deter tourists from travelling along designated visitor or tourists routes. The study indicated that small minorities of visitors would be encouraged, whilst others would be discouraged. Overall, however, there was no evidence to suggest that there would be any significant change in visitor numbers using these routes to reach a destination elsewhere. The study also found that in more sensitive locations, the potential negative effect on visitor numbers may still be low overall, but in some circumstances could be moderate. The greatest concern exists amongst areas and businesses closest to wind farms and appealing to visitor markets most sensitive to changes in landscape quality.

Based on the findings of the literature review, there is limited evidence to suggest that the proposed WEFs and associated infrastructure would impact on the tourism in the ULM and IYLM.

**Table 4.8: Impact on tourism in the region**

<b>Impact Phase: Operational</b>							
<b>Potential impact description:</b> Potential impact of the WEF and associated infrastructure on local tourism							
	<b>Extent</b>	<b>Duration</b>	<b>Intensity</b>	<b>Status</b>	<b>Significance</b>	<b>Probability</b>	<b>Confidence</b>
<b>Without Mitigation/ Enhancement</b>	M	M	L	Negative	Low	M	High
<b>With Mitigation/ Enhancement</b>	M	M	L	Negative	Low	M	High
Can the impact be reversed?			Yes, by removing turbines				
Will impact cause irreplaceable loss or resources?			No				
Can impact be avoided, managed, enhanced and or mitigated?			Yes, see measures below.				

**Assessment of No-Go option**

There is no impact as it maintains the current status quo.

**Recommended mitigation/ enhancement measures**

- The recommendations contained in the VIA should be implemented;
- The proponent should consider the establishment of a visitor centre should the proposed WEF be approved.

**4.5 ASSESSMENT OF DECOMMISSIONING PHASE**

The number of people employed during the operational phase will be limited and linked to maintenance and repairs. The work is likely to be undertaken by contractors that are also employed on other projects. The social impacts associated with decommissioning will, therefore, be limited. The decommissioning phase will also create employment opportunities. This will represent a positive impact. These jobs will, however, be temporary.

**Table 4.9: Impacts associated with decommissioning**

<b>Impact Phase: Decommissioning</b>							
<b>Potential impact description:</b> Social impacts associated with the decommissioning phase are linked to the loss of jobs and associated income							
	<b>Extent</b>	<b>Duration</b>	<b>Intensity</b>	<b>Status</b>	<b>Significance</b>	<b>Probability</b>	<b>Confidence</b>
<b>Without Mitigation/Enhancement</b>	M	L	L	Negative	Low	M	High
<b>With Mitigation/Enhancement</b>	M	L	L	Negative	Low	M	High
Can the impact be reversed?			Yes, by removing infrastructure				
Will impact cause irreplaceable loss or resources?			No				
Can impact be avoided, managed, enhanced and or mitigated?			Yes, see measures below.				

#### **Assessment of No-Go option**

There is no impact as it maintains the current status quo.

#### **Recommended mitigation measures**

The following mitigation measures are recommended:

- The proponent should ensure that retrenchment packages are provided where applicable.
- All structures and infrastructure associated with the proposed facility should be dismantled and transported off-site on decommissioning.

#### **4.6 CUMULATIVE IMPACT ON SENSE OF PLACE**

The Australian Wind Farm Development Guidelines (Draft, July 2010) indicate that the cumulative impact of multiple wind farm facilities is likely to become an increasingly important issue for wind farm developments in Australia. The key concerns in terms of cumulative impacts are linked to visual impacts and the impact on rural, undeveloped landscapes. This is also likely to apply to South Africa and includes the associated grid infrastructure.

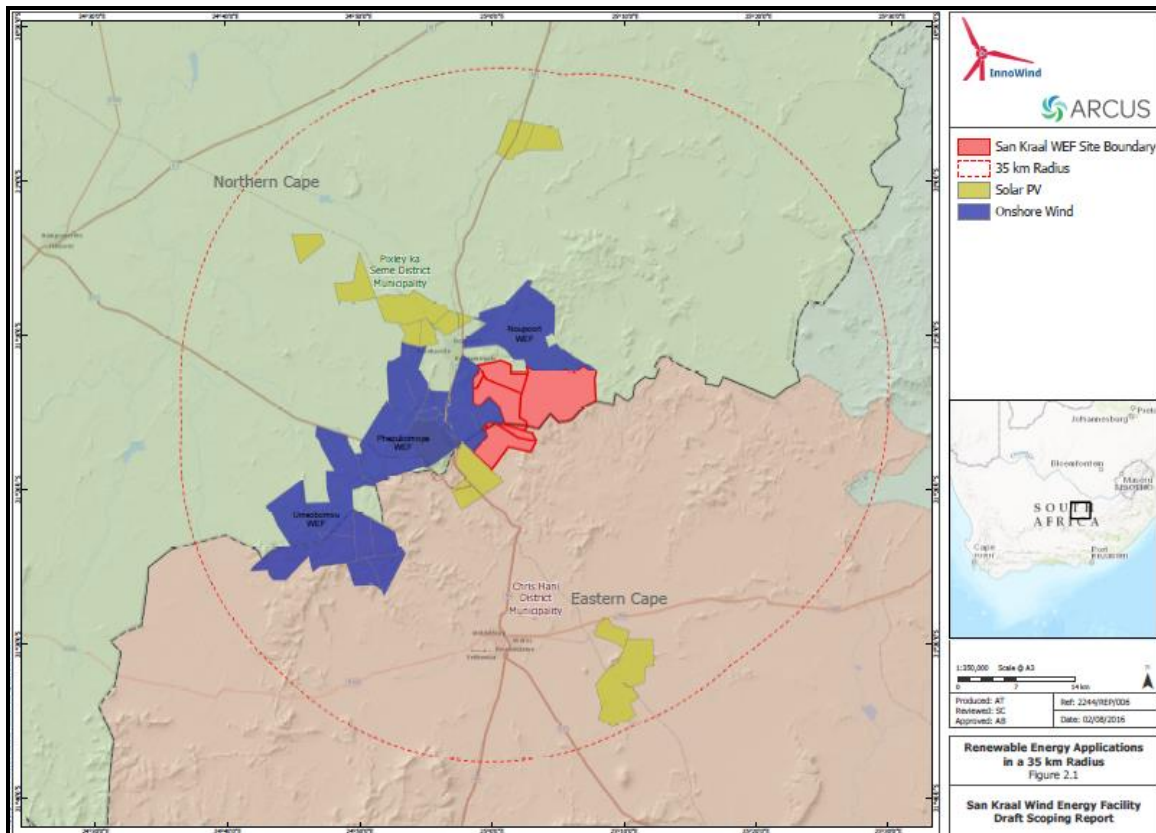
The Scottish Natural Heritage (2005) describes a range of potential cumulative landscape impacts associated with wind farms on landscapes. The relevant issues raised by the Scottish Natural Heritage Report include:

- Combined visibility (whether two or more wind farms will be visible from one location).
- Sequential visibility (e.g. the effect of seeing two or more wind farms along a single journey, e.g. road or walking trail).
- The visual compatibility of different wind farms in the same vicinity.
- Perceived or actual change in land use across a character type or region.
- Loss of a characteristic element (e.g. viewing type or feature) across a character type caused by developments across that character type.

The guidelines also note that cumulative impacts need to be considered in relation to dynamic as well as static viewpoints. The experience of driving along a tourist road, for example, needs to be considered as a dynamic sequence of views and visual impacts, not just as the cumulative impact of several developments in one location. The viewer may only see one wind farm at a time, but if each successive stretch of the road is dominated by views of a wind farm, then that can be argued to be a cumulative visual impact (National Wind Farm Development Guidelines, DRAFT - July 2010).

Research on wind farms undertaken by Warren and Birnie (2009) also highlights the visual and cumulative impacts on landscape character. The paper notes that given that aesthetic perceptions are a key determinant of people's attitudes, and that these perceptions are subjective, deeply felt and diametrically contrasting, it is not hard to understand why the arguments become so heated. Because landscapes are often an important part of people's sense of place, identity and heritage, perceived threats to familiar vistas have been fiercely resisted for centuries. The paper also identifies two factors that important in shaping people's perceptions of wind farms' landscape impacts. The first of these is the cumulative impact of increasing numbers of wind farms (Campbell, 2008). The research found that if people regard a region as having 'enough' wind farms already, then they may oppose new proposals. The second factor is the cultural context. This relates to people's perception and relationship with the landscape. In the South African context, the majority of South Africans have a strong connection with and affinity for the large, undisturbed open spaces that are characteristic of the South African landscape.

Based on the information provided by Arcus, there are eleven approved renewable energy projects located within a 35 km radius of the site. These include 3 wind and 8 solar energy projects. It would appear that only one wind farm, the Mainstream Noupoot WEF, and two solar projects, have been established to date. The remaining sites have not been developed as yet.



**Figure 4.1: Location of renewable energy projects within 35 km radius of site**

There is, therefore, the potential for cumulative visual impacts linked to combined visibility (whether two or more wind farms and the associated grid infrastructure will be visible from one location), and sequential visibility (e.g. the effect of seeing two or more wind farms along a single journey, e.g. road or walking trail), and the potential loss of a characteristic element, namely a relatively undisturbed Karoo type landscape.

However, as indicated above, a number of stakeholders interviewed indicated that they were not concerned about the potential visual impacts associated with the proposed WEF and the associated impact on the area's sense of place. In this regard, some stakeholders viewed the turbines associated with the existing Noupport WEF in a positive manner. These comments also apply to the associated grid infrastructure. This will also have implications for the perceptions of different people towards the nature and significance of the cumulative impacts associated with wind and solar farms on the area's sense of place.

However, the potential impact of wind energy facilities on the landscape and the associated grid infrastructure is an issue that does need to be considered, specifically given South African's strong attachment to the land and the growing number of wind facility applications. With regard to the area, a number of WEFs have been proposed in the Northern and Eastern Cape Province. The Environmental Authorities should, therefore, be aware of the potential cumulative impacts when evaluating applications, and the potential implications for other land uses, specifically game farming and associated tourist activities.



The findings of the VIA (Sivest 2019) indicated that the cumulative impacts are not significant enough to prevent the proposed WEFs from being approved.

**Table 4.10: Cumulative impacts on sense of place and the landscape<sup>19</sup>**

<b>Impact Phase: Operational</b>							
<b>Potential impact description:</b> Cumulative visual impact associated with the establishment of a WEF on the areas rural sense of place and character of the landscape							
	<b>Extent</b>	<b>Duration</b>	<b>Intensity</b>	<b>Status</b>	<b>Significance</b>	<b>Probability</b>	<b>Confidence</b>
<b>Without Mitigation/Enhancement</b>	M	H	M	Negative	Medium	M	Medium
<b>With Mitigation/Enhancement</b>	M	M	M	Negative	Medium	M	Medium
Can the impact be reversed?			Yes, by removing turbines				
Will impact cause irreplaceable loss or resources?			No				
Can impact be avoided, managed, enhanced and or mitigated?			Yes, see measures below.				

#### **Assessment of No-Go option**

There is no impact as it maintains the current status quo.

#### **Recommended mitigation measures**

- The final placement of wind turbines associated with the proposed WEF should be discussed with the affected landowners;
- The recommendations of the VIA should be implemented;

### **4.7 CUMULATIVE IMPACT ON LOCAL SERVICES AND ACCOMMODATION**

The SIAs for the proposed WEFs assessed the potential cumulative impact of the establishment renewable energy facilities, including the associated grid infrastructure on local services in nearby towns, specifically services such as medical, education and accommodation. The significance of this impact with mitigation was rated as **Low Negative**.

### **4.8 CUMULATIVE IMPACT ON LOCAL ECONOMY**

The SIAs for the proposed WEFs assessed the potential cumulative impact of the establishment of renewable energy facilities, including the associated grid infrastructure, on the local economy. The significance of this impact with enhancement was rated as **High Positive**.

<sup>19</sup> Based on findings of the VIA

## 4.9 ASSESSMENT OF NO-DEVELOPMENT OPTION

As indicated above, South Africa currently relies on coal-powered energy to meet more than 90% of its energy needs. As a result, South Africa is one of the highest per-capita producers of carbon emissions in the world and Eskom, as an energy utility, has been identified as the world's second-largest producer carbon emissions. The No-Development option would represent a lost opportunity for South Africa to supplement current energy needs with clean, renewable energy. Given South Africa's position as one of the highest per capita producer of carbon emissions in the world, this would represent a significant negative social cost.

However, at a provincial and national level, it should be noted that the proposed WEFs and associated grid infrastructure development is not unique. In this regard, a significant number of other renewable energy developments are currently proposed in the Northern and Eastern Cape and other parts of South Africa. Foregoing the proposed establishment of WEFs would therefore not necessarily compromise the development of renewable energy facilities in the Northern and Eastern Cape Province and or South Africa. However, the socio-economic benefits for local communities in the ULM and IYLM would be forfeited.

**Table 4.11: Assessment of no-development option**

<b>Impact Phase: No Development Option</b>							
<b>Potential impact description:</b> The no-development option would result in the lost opportunity for South Africa to supplement is current energy needs with clean, renewable energy and a lost opportunity for the towns of Noupoort, Colesberg and Middelburg							
	<b>Extent</b>	<b>Duration</b>	<b>Intensity</b>	<b>Status</b>	<b>Significance</b>	<b>Probability</b>	<b>Confidence</b>
<b>Without Mitigation/Enhancement</b>	M	H	L	Negative	Medium	M	High
<b>With Mitigation/Enhancement<sup>20</sup></b>	H	H	L	Positive	Medium	M	High
Can the impact be reversed?			Yes, by not implementing the project				
Will impact cause irreplaceable loss or resources?			No				
Can impact be avoided, managed, enhanced and or mitigated?			Yes, see measures below.				

### **Recommended enhancement measures**

The proposed establishment of suitably sited renewable energy facilities within the ULM and IYLM should be supported.

<sup>20</sup> Assumes establishment of a Community Trust that is well managed

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## **SECTION 5: KEY FINDINGS AND RECOMMENDATIONS**

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### **5.1 INTRODUCTION**

Section 5 lists the key findings of the study and recommendations. These findings are based on:

- A review of the issues identified during the Scoping Process;
- A review of key planning and policy documents pertaining to the area;
- Semi-structured interviews with interested and affected parties;
- A review of social and economic issues associated with similar developments;
- A review of selected specialist studies undertaken as part of the EIA;
- A review of relevant literature on social and economic impacts;
- The experience of the authors with other wind energy projects in South Africa

### **5.2 SUMMARY OF KEY FINDINGS**

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

- Fit with policy and planning;
- Construction phase impacts;
- Operational phase impacts;
- Cumulative Impacts;
- Decommissioning phase impacts;
- No-development option.

#### **5.2.1 Policy and planning issues**

The findings of the review indicated that renewable energy and associated grid infrastructure is strongly supported at a national, provincial and local level. The development of and investment in renewable energy is supported by the National Development Plan (NDP), New Growth Path Framework and National Infrastructure Plan, which all make reference to renewable energy. At a provincial level, the development of renewable energy is supported by the Northern Cape Provincial Growth and Development Strategy and Northern Cape Provincial Spatial Development Framework<sup>21</sup>. The PKSDM IDP also highlights the importance of renewable energy for the area.

However, the provincial and local policy and planning documents also make reference to the importance of tourism and the region's natural resources. Care, therefore, needs to be taken to ensure that the siting of renewable energy facilities (including wind farms and the associated grid infrastructure) does not impact negatively on the areas tourism potential<sup>22</sup>.

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<sup>21</sup> The majority of the site is located in the Northern Cape Province. The focus of the review was therefore on the Northern Cape.

<sup>22</sup> The findings of the literature review indicate that the impact of wind farms impact on tourism is low to negligible

## 5.2.2 Construction phase impacts

The key social issues associated with the construction phase of the grid infrastructure will be the same as the issues associated with the establishment of the proposed WEFs. In this regard, the construction activities associated with the establishment of the grid infrastructure are likely to overlap with and be undertaken at the same time as the construction activities associated with the establishment of the proposed WEFs. It is also reasonable to assume that the majority of construction-related activities associated with the construction of the grid infrastructure will be undertaken by the same team of construction workers appointed to establish the proposed WEFs. It is therefore not possible to fully separate and distinguish between the social impacts associated with the construction phase of the proposed WEFs and the associated grid infrastructure. In addition, one must also be aware of double counting.

The key social issues associated with the construction phase apply to all components of the grid infrastructure and include:

### Potential positive impacts

- Creation of employment opportunities.

### Potential negative impacts

- Impacts associated with the presence of construction workers on local communities;
- Impacts related to the potential influx of jobseekers;
- Increased risks to livestock and farming infrastructure associated with the construction-related activities and presence of construction workers on the site;
- Increased risk of grass fires associated with construction-related activities;
- Noise, dust and safety impacts of construction-related activities and vehicles;
- Impact on productive farmland.

The findings of the SIA indicate that the significance of all the potential negative impacts with mitigation was **Low Negative**. The potential negative impacts can, therefore, be effectively mitigated if the recommended mitigation measures are implemented. Table 5.1 summarises the significance of the impacts associated with the construction phase.

**Table 5.1: Summary of impacts associated with construction phase**

Impact	Significance No Mitigation/ Enhancement	Significance With Mitigation/ Enhancement
<b>Creation of employment and business opportunities</b>	Low (+)	Medium (+)
<b>Presence of construction workers and potential impacts on family structures and social networks</b>	Medium (-)	Low (-)
<b>Influx of job seekers</b>	Low (-)	Low (-)
<b>Increased risks to livestock and farming infrastructure associated with the construction-related activities and presence of construction workers on the site</b>	Medium (-)	Low (-)
<b>Increased fire risk</b>	Medium (-)	Low (-)
<b>Impact of heavy vehicles and construction activities</b>	Medium (-)	Low (-)

### 5.2.3 Operational phase

The social issues related to the operational phase include:

#### **Potential positive impacts**

- Creation of employment opportunities.

The benefits associated with the establishment of renewable energy infrastructure (including grid infrastructure) and Community Trust have been assessed as part of the SIAs for the proposed San Kraal and Phezukomoya WEFs. In order to avoid double-counting, they have therefore not been assessed as part of the SIA for the grid infrastructure. However, it is recognised that grid infrastructure is integral to the overall success of the proposed WEFs.

#### **Potential negative impacts**

- The visual impacts and associated impact on sense of place;
- Impact on tourism;
- Impact on property values.

The potential negative social impacts associated with the new collector substation located 5 km from the approved Eskom Hydra D substation and the approved substations associated with the Part 2 Amendment will be limited. The impacts associated with these grid infrastructure components will, therefore, not have a material bearing on the decision-making process.

The location of the proposed 132 kV overhead line HBH Corridor to the south of approved on-site grid corridor for the San Kraal and Phezukomoya WEFs is however likely to have a visual impact on the area.

#### ***Visual impact associated with HBH Corridor Option***

The location of the proposed 132 kV overhead line HBH Corridor to the south of the approved on-site grid corridor for the San Kraal and Phezukomoya WEFs is likely to have a more significant visual impact on the area than the approved corridor. In this regard, the owner of Beskuitfontein, Mr Pieter Erasmus, noted that Alternative 1 associated with the San Kraal and Phezukomoya WEFs (the southern-most alternative) was located with the view-shed of the access road to Beskuitfontein and adjacent Vlakfontein.

The proposed HBH Corridor Option is also located on Beskuitfontein and is located further to the south and closer to the Beskuitfontein farmhouse and Charlton Heights Guest Farm. The impact on the viewshed and sense of place will, therefore, be greater than Alternative 1.

In addition:

- The view from the N9 is towards an amphitheatre created by the escarpment. While there is a transmission line that runs in an east-west direction and is visible from the Charlton Heights Guest Farm, the general view is relatively uninterrupted;
- The route affects properties that are not associated with any of the proposed WEFs. They will, therefore, bear the cost of the transmission line without any financial benefit. This raises an issue of impact equity, namely some property owners will be impacted without gaining any benefit from the proposed WEFs;

- Mr Erasmus indicated that he is concerned that the Part 2 Amendment has resulted in a reduced number of wind turbines on his property. The establishment of the proposed HBH Corridor Option is likely to compound his concerns.

Based on the findings of the SIA, the HBH Corridor Option will have a higher social impact than the approved San Kraal/ Phezukomoya corridor, which is located within the site boundary. The approved San Kraal/ Phezukomoya corridor, therefore, remains the preferred option.

***Impact on property values***

Based on the findings of the literature review, the potential impact of the proposed WEFs and the associated grid infrastructure on the property values in the area is likely to be low.

***Impact on tourism***

Based on the findings of the literature review, there is limited evidence to suggest that wind farms and the associated grid infrastructure impact on tourism. The findings also indicate that wind farms do not impact on tourist routes.

Table 5.2 summarises the significance of the impacts associated with the operational phase.

**Table 5.2: Summary of impacts associated with operational phase**

<b>Impact</b>	<b>Significance No Mitigation/ Enhancement</b>	<b>Significance With Mitigation/ Enhancement</b>
<b>Creation of employment opportunities</b>	Low (+)	Moderate (+)
<b>Visual impact and impact on sense of place associated with HBH Corridor Option</b>	Medium (-)	Medium (-)
<b>Impact on property values<sup>23</sup></b>	Low (-)	Low (-)
<b>Impact on tourism<sup>24</sup></b>	Low (- and +)	Low (- and +)

**5.2.4 Assessment of cumulative impacts**

***Cumulative impact on sense of place***

Based on the findings of the SIA and the VIA the overall cumulative impact of the area's sense of place does not represent a fatal flaw for the proposed WEFs and associated grid infrastructure.

***Cumulative impact on services***

The SIAs for the proposed WEFs assessed the potential cumulative impact of the establishment renewable energy facilities, including the associated grid infrastructure on local services in nearby towns, specifically services such as medical, education and accommodation. The significance of this impact with mitigation was rated as **Low Negative**.

***Cumulative impact on local economies***

The SIAs for the proposed WEFs assessed the potential cumulative impact of the establishment of renewable energy facilities, including the associated grid

<sup>23</sup> The rating applies to the impact on property prices in the broader area.

<sup>24</sup> The rating applies to the impact on tourism in the broader area.

infrastructure, on the local economy. The significance of this impact with enhancement was rated as **High Positive**.

### **5.2.5 Assessment of no-development option**

The No-Development option would represent a lost opportunity for South Africa to supplement its current energy needs with clean, renewable energy. Given South Africa's position as one of the highest per capita producer of carbon emissions in the world, this would represent a High negative social cost. The no-development option also represents a lost opportunity in terms of the employment and business opportunities (construction and operational phase) associated with the proposed WEFs and associated grid infrastructure and the benefits associated with the establishment of a Community Trust. This also represents a negative social cost.

However, at a provincial and national level, it should be noted that the proposed WEF developments are not unique. In this regard, a significant number of other renewable energy developments are currently proposed in the Northern and Eastern Cape and other parts of South Africa. Foregoing the proposed establishment of WEFs would therefore not necessarily compromise the development of renewable energy facilities in the Eastern Cape Province and or South Africa. However, the socio-economic benefits for local communities in the ULM and IYLM would be forfeited.

### **5.2.6 Decommissioning phase**

Given the relatively small number of people employed during the operational phase, the potential negative social impact on the local economy associated with decommissioning will be limited. In addition, the potential impacts associated with the decommissioning phase can also be effectively managed with the implementation of the retrenchment and downscaling programme. With mitigation, the impacts are assessed to be **Low Negative**.

## **5.3 CONCLUSIONS AND RECOMMENDATIONS**

The development of the grid infrastructure represents an integral part of the proposed WEFs associated with the Part 2 Amendment. The findings of the Part 2 Amendment Reports for the San Kraal and Phezukomoya WEFs (Barbour and van der Merwe, 2019) indicate that they will create employment and business opportunities for locals during both the construction and operational phase of the project. The benefits associated with the Part 2 Amendments are dependent upon being able to connect to the national grid via the establishment of the grid infrastructure.

The findings of the SIA for the grid infrastructure indicate that the significance of the potential negative impacts for both the construction and operational phase are, with the exception of the HBH Corridor Option, **Low Negative** with mitigation. The majority of the potential negative impacts can, therefore, be effectively mitigated if the recommended mitigation measures are implemented.

The establishment of the new collector substation located 5 km from the approved Eskom Hydra D substation and the approved substations associated with the Part 2 Amendment is therefore supported by the findings of the SIA. The proposed 132 kV overhead line HBH Corridor Option located to the south of approved on-site grid corridor for the San Kraal and Phezukomoya WEFs will, however, result in social impacts that have a bearing on the identification of a preferred option. In this regard,

the HBH Corridor Option will have a higher social impact than the approved San Kraal/ Phezukomoya corridor, which is located within the site boundary. The approved San Kraal/ Phezukomoya corridor, therefore, remains the preferred option.



## **ANNEXURE A**

### **INTERVIEWS**

The following people were interviewed during the SIAs undertaken for the grid infrastructure.

- Erasmus, Mr Stefan (23-05-2019). Beskuitfontein and Vlakfontein Farns.
- Erasmus, Ms Yolandi (23-05-2019). Beskuitfontein and Vlakfontein Farns.
- De Villiers, Mr Jim (24-05-2019). Kleinfontein Farm.
- Gillmer, Mr Jean (24-05-2019). Edendale and De Rust Farms.
- Taljard, Mr Gerhard (23-05-2019). RE 181.

The following people were interviewed during the SIAs undertaken for the San Kraal and Phezukomoya WEFs.

- De Villiers, Mr Jim (08-09-2017). Kleinfontein Farm.
- Erasmus, Ms Alet (07-09-2017). Carlton Heights Lodge.
- Erasmus, Mr Pieter (07-09-2017). Beskuitfontein and Vlakfontein Farns.
- Erasmus, Mr Stefan (07-09-2017). Beskuitfontein and Vlakfontein Farns.
- Erasmus, Ms Yolandi (07-09-2017). Beskuitfontein and Vlakfontein Farns.
- Gillmer, Mr Jean (08-09-2017). Edendale and De Rust Farms.
- Kapp, Mr Birtus (13-09-2017, e-mail). Umsovombo Municipality: Head Corporate Services.
- Majuba, Mr Lungile (07-09-2017). Umsobomvu Municipality: Special Projects Manager, Noupoot.
- Mgcinene, Mr George (07-09-2017). Umsobomvu Municipality: Head Community Development.
- Moore, Ms Annatjie (07-09-2017). Sherbourne Guest Farm.
- Moore, Mr John (07-09-2017). Wolwekop Farm.
- Nel, Ms Ilze (04-09-2017, telephonic). Minnaar De Kock Attorneys, Middelburg. Administrators of Ms Vivien van der Merwe's properties Winterhoek and Bergplaas.
- Van der Walt, Mr Kobie (08-09-2017). Kleinfontein Farm.
- Van Huyssteen, Ms Annatjie (07-09-2017). Arbeidsgenot Farm and The Dairy Guest Farm.
- Visser, Mr Frikkie (08-09-2017). Rents Winterhoek and Bergplaas from Ms Vivien van der Merwe.

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- NFO System Three (2002) Investigation into the Potential Impact of Windfarms on Tourism in Scotland (Edinburgh: VisitScotland);
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## ANNEXURE B

### ASSESSMENT METHODOLOGY

The evaluation method for determining the significance of impacts is shown below.<sup>25</sup>

Note that an adjustment was made, which involved changing the consequence column to the significance column, due to the fact that probably should not necessarily determine significance, as, for example, catastrophic events would be highly significant, even though the probability of such an event occurring is low.

Definitions of or criteria for environmental impact parameters

The significance of environmental impacts is a function of the environmental aspects that are present and to be impacted on, the probability of an impact occurring and the consequence of such an impact occurring before and after implementation of proposed mitigation measures.

#### Extent (spatial scale):

##### **Ranking criteria**

L	M	H
Impact is localised within site boundary	Widespread impact beyond site boundary; Local	Impact widespread far beyond site boundary; Regional/national

Take into consideration:

Access to resources; amenity

Threats to lifestyles, traditions and values

Cumulative impacts, including possible changes to land uses at and around the site.

#### Duration:

##### **Ranking criteria**

L	M	H
Quickly reversible, less than project life, short term (0-5 years)	Reversible over time; medium-term to life of project (5-15 years)	Long term; beyond closure; permanent; irreplaceable or irretrievable commitment of resources

Take into consideration:

Cost-benefit economically and socially (e.g. long- or short-term costs/benefits)

<sup>25</sup> (Adapted from T Hacking, AATS – Envirolink, 1998: An innovative approach to structuring environmental impact assessment reports. In: IAIA SA 1998 Conference Papers and Notes

**Intensity (severity):**

Type of Criteria	Negative			Positive		
	H-	M-	L-	L+	M+	H+
Qualitative	Substantial deterioration, death, illness or injury, loss of habitat/ diversity or resource, severe alteration or disturbance of important processes.	Moderate deterioration, discomfort, Partial loss of habitat/ biodiversity/ resource or slight or alteration	Minor deterioration, nuisance or irritation, minor change in species/habitat/ diversity or resource, no or very little quality deterioration.	Minor improvement, restoration, improved management	Moderate improvement, restoration, improved management, substitution	Substantial improvement, substitution
Qualitative	Measurable deterioration Recommended level will often be violated (e.g. pollution)	Measurable deterioration Recommended level will occasionally be violated	No measurable change; Recommended level will never be violated	No measurable change; Within or better than recommended level.	Measurable improvement	Measurable improvement
Community response	Vigorous	Widespread complaints	Sporadic complaints	No observed reaction	Some support	Favourable publicity

Take into consideration:

Cost-benefit economically and socially (e.g. high nett cost = substantial deterioration)

Impacts on human-induced climate change

Impacts on future management (e.g. easy/practical to manage with change or recommendation)

**Probability of occurrence:**

**Ranking criteria**

L	M	H
Unlikely; low likelihood; Seldom No known risk or vulnerability to natural or induced hazards.	Possible, distinct possibility, frequent Low to medium risk or vulnerability to natural or induced hazards.	Definite (regardless of prevention measures), highly likely, continuous High risk or vulnerability to natural or induced hazards.

The specialist study must attempt to quantify the magnitude of impacts and outline the rationale used. Where appropriate, international standards are to be used as a measure of the level of impact.

**Status of the impact:**

Describe whether the impact is positive, negative or neutral for each parameter. The ranking criteria are described in negative terms. Where positive impacts are identified, use the opposite, positive descriptions for criteria.

Based on a synthesis of the information contained in (a) to (e) above, the specialist will be required to assess the significance of potential impacts in terms of the following criteria:

**Significance: (Duration X Extent X Intensity)**

Intensity = L				
Duration	H			
	M			Medium
	L	Low		
Intensity = M				
Duration	H			High
	M		Medium	
	L	Low		
Intensity = H				
Duration	H			
	M			High
	L	Medium		
		L	M	H
		Extent		

Positive impacts would be ranked in the same way as negative impacts, but result in high, medium or low positive consequence.

Degree of confidence in predictions:

State the degree of confidence in the predictions, based on the availability of information and specialist knowledge.

**Significance Table Format:**

Example of how significance tables should be formatted.

	Extent	Duration	Intensity	Status	Significance	Probability	Confidence
Without Mitigation							
With Mitigation							

## **ANNEXURE C:**

### **CV**

**Tony Barbour**

### **ENVIRONMENTAL CONSULTING AND RESEARCH**

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(E-Mail) [tbarbour@telkomsa.net](mailto:tbarbour@telkomsa.net)

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

#### **EDUCATION**

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

#### **EMPLOYMENT RECORD**

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

#### **LECTURING**

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

#### **RELEVANT EXPERIENCE AND EXPERTISE**

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

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

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



## ANNEXURE D

### DECLARATION OF INDEPENDENCE

The specialist declaration of independence in terms of the Regulations\_

I, Tony Barbour \_\_\_\_\_, declare that --

General declaration:

I act as the independent specialist in this application;

I will perform the work relating to the application in an objective manner, even if this results in views and findings that are not favourable to the applicant;

I declare that there are no circumstances that may compromise my objectivity in performing such work;

I have expertise in conducting the specialist report relevant to this application, including knowledge of the Act, Regulations and any guidelines that have relevance to the proposed activity;

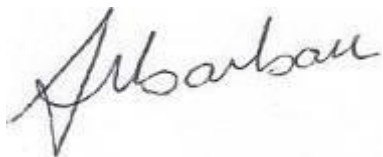
I will comply with the Act, Regulations and all other applicable legislation;

I have no, and will not engage in, conflicting interests in the undertaking of the activity;

I undertake to disclose to the applicant and the competent authority all material information in my possession that reasonably has or may have the potential of influencing - any decision to be taken with respect to the application by the competent authority; and - the objectivity of any report, plan or document to be prepared by myself for submission to the competent authority;

all the particulars furnished by me in this form are true and correct;  
and

I realise that a false declaration is an offence in terms of regulation 48 and is punishable in terms of section 24F of the Act.



---

Signature of the specialist:

Tony Barbour Environmental Consulting and Research

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Name of company (if applicable):

---

15 July 2019

Date:



## environmental affairs

Department:  
Environmental Affairs  
REPUBLIC OF SOUTH AFRICA

### DETAILS OF THE SPECIALIST, DECLARATION OF INTEREST AND UNDERTAKING UNDER OATH

File Reference Number:	(For official use only)
NEAS Reference Number:	DEA/EIA/
Date Received:	

Application for authorisation in terms of the National Environmental Management Act, Act No. 107 of 1998, as amended and the Environmental Impact Assessment (EIA) Regulations, 2014, as amended (the Regulations)

#### PROJECT TITLE

San Kraal and Phezukomoya Amendments Grid Connection Basic Assessment Application

#### Kindly note the following:

1. This form must always be used for applications that must be subjected to Basic Assessment or Scoping & Environmental Impact Reporting where this Department is the Competent Authority.
2. This form is current as of 01 September 2018. It is the responsibility of the Applicant / Environmental Assessment Practitioner (EAP) to ascertain whether subsequent versions of the form have been published or produced by the Competent Authority. The latest available Departmental templates are available at <https://www.environment.gov.za/documents/forms>.
3. A copy of this form containing original signatures must be appended to all Draft and Final Reports submitted to the department for consideration.
4. All documentation delivered to the physical address contained in this form must be delivered during the official Departmental Officer Hours which is visible on the Departmental gate.
5. All EIA related documents (includes application forms, reports or any EIA related submissions) that are faxed; emailed; delivered to Security or placed in the Departmental Tender Box will not be accepted, only hardcopy submissions are accepted.

#### Departmental Details

##### Postal address:

Department of Environmental Affairs  
Attention: Chief Director: Integrated Environmental Authorisations  
Private Bag X447  
Pretoria  
0001

##### Physical address:

Department of Environmental Affairs  
Attention: Chief Director: Integrated Environmental Authorisations  
Environment House  
473 Steve Biko Road  
Arcadia

Queries must be directed to the Directorate: Coordination, Strategic Planning and Support at:  
Email: [EIAAdmin@environment.gov.za](mailto:EIAAdmin@environment.gov.za)

## 1. SPECIALIST INFORMATION

Specialist Company Name:	Tony Barbour Environmental Consulting and Research		
B-BBEE	Contribution level (indicate 1 to 8 or non-compliant)	Level 4	Percentage Procurement recognition
Specialist name:	Tony Barbour		
Specialist Qualifications:	BSc, BEconomics (Honours), MSc Environmental Science		
Professional affiliation/registration:	IAIA		
Physical address:	10 Firs Avenue, Claremont, Cape Town		
Postal address:	10 Firs Avenue, Claremont, Cape Town		
Postal code:	7708	Cell:	0826008266
Telephone:	021-7612355	Fax:	
E-mail:	tbarbour@telkomsa.net		

## 2. DECLARATION BY THE SPECIALIST

I, Tony Barbour, declare that –

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



Signature of the Specialist

Tony Barbour Environmental Consulting and Research  
Name of Company:

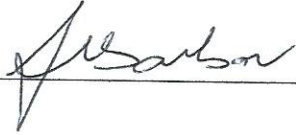
12 August 2019

Date

3. UNDERTAKING UNDER OATH/ AFFIRMATION

I, Tony Barbour, swear under oath / affirm that all the information submitted or to be submitted for the purposes of this application is true and correct.

Signature of the Specialist

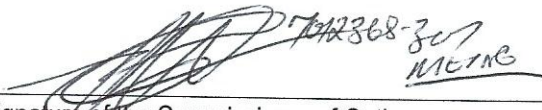


Tony Barbour Environmental Consulting and Research  
Name of Company

12 August 2019

Date

Signature of the Commissioner of Oaths



Date

2019/8/12

