# SAN SOLAR PV FACILITY AND ASSOCIATED INFRASTRUCTURE

Northern Cape Province

Social Impact Assessment

August 2022

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# REPORT DETAILS

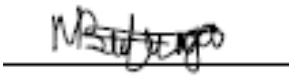
| | | |
|---|---|---|
| **Title** | : | Social Impact Assessment (SIA) Scoping Report: San Solar PV Facility and associated Infrastructure |
| **Authors** | : | Savannah Environmental (Pty) Ltd<br>Nondumiso Bulunga |
| **External Peer Review** | : | Tony Barbour |
| **Client** | : | San Solar Energy (Pty) Ltd |
| **Report Revision** | : | Revision 0 |
| **Date** | : | August 2022 |

**When used as a reference this report should be cited as:** Savannah Environmental (2022) Social Impact Assessment (SIA) Report for the San Solar PV Facility, Northern Cape Province.

# SPECIALIST DECLARATION OF INTEREST

I, Nondumiso Bulunga, 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.
- 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.



Nondumiso Bulunga
Name

Signature

03 August 2022
Date

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# FIGURES

# ACRONYMS

| | |
|---|---|
| B-BBEE | Broad-Based Black Economic Empowerment |
| CLO | Community Liaison Officer |
| DFFE | Department of Forestry, Fisheries and the environment |
| DENC | Department of Environment and Nature Conservation (Northern Cape Provincial) |
| DoE | Department of Energy |
| DM | District Municipality |
| EA | Environmental Authorisation |
| EAP | Economically Active Population |
| ECA | Environment Conservation Act (No. 73 of 1989) |
| ECO | Environmental Control Officer |
| EHS | Environmental, Health and Safety |
| EIA | Environmental Impact Assessment |
| EMPr | Environmental Management Programme |
| EPC | Engineering, Procurement and Construction |
| GDP | Gross Domestic Product |
| GDP-R | Gross Domestic Product per Region |
| GGP | Gross Geographic Product |
| GHG | Greenhouse Gas |
| GNP | Gross National Product |
| GNR | Government Notice |
| HDI | Historically Disadvantaged Individuals |
| I&AP | Interested and Affected Party |
| IDC | Industrial Development Corporation |
| IDP | Integrated Development Plan |
| IEP | Integrated Energy Plan |
| IFC | International Finance Corporation |
| IRP | Integrated Resource Plan |
| km | Kilometre |
| kV | Kilovolt |
| LED | Local Economic Development |
| LM | Local Municipality |
| NEMA | National Environmental Management Act (No. 107 of 1998) |
| NDP | National Development Plan |
| O&M | Operation and Maintenance |
| PGDS | Provincial Growth and Development Strategy |
| PICC | Presidential Infrastructure Coordinating Committee |
| PSDF | Provincial Spatial Development Framework |
| SDF | Spatial Development Framework |
| SED | Smart Energy Design |
| SIA | Social Impact Assessment |
| SIP | Strategic Infrastructure Project |
| SKA | Square Kilometre Array |
| SWOT | Strengths, Weaknesses, Opportunities and Threats |

| | |
|---|---|
| UNESCO | United Nations Educational, Scientific and Cultural Organisation |

# 1. INTRODUCTION AND PROJECT DESCRIPTION

San Solar Energy (Pty) Ltd proposes the development of the San Solar PV facility, a photovoltaic (PV) solar energy facility and associated infrastructure, on a site located approximately 16km north west of Kathu in the Northern Cape Province. The solar PV facility will be developed on the Remaining extent of the Farm Wincanton 472 and comprise several arrays of PV panels and associated infrastructure with a contracted capacity of up to 100MW. The study area[1] falls within the Gamagara Local Municipality within the John Taolo Gaetsewe District Municipality. The site is located east of Deben and is accessible via the R380 provincial route which branches off the N14 National Road, approximately 3km south of Kathu.

The development of the PV Facility and associated infrastructure requires Environmental Authorisation (EA) from the national Department of Forestry, Fisheries and the Environment (DFFE) in accordance with the National Environmental Management Act (No. 107 of 1998) (NEMA), and the Environmental Impact Assessment (EIA) Regulations, 2014 (GNR 326), as amended, subject to the completion of an Environmental Impact Assessment (EIA) process.

Nondumiso Bulunga of Savannah Environmental (Pty) Ltd has been appointed as the independent social consultant responsible for undertaking a Social Impact Assessment (SIA) as part of the EIA process being conducted for the project.

## 1.1. Project Description

The San Solar Energy PV Facility is located on the following properties:

| | |
|---|---|
| **PV Facility, including associated facility and proposed grid connection infrastructure** | Remainder of the Farm Wincanton 472 |

A facility development area[2], which will include the PV facility, BESS and a 132kV facility substation to be connected via a Loop-in-Loop out (LILO) connection to the Umtu 132kV overhead power line will be identified within the study area considered in the Scoping phase. The infrastructure associated with this 100MW PV facility includes:

- PV modules and mounting structures
- Inverters and transformers
- Cabling between the panels, to be laid underground where practical.
- Battery Energy Storage System (BESS)
- Site and internal access roads (up to 8m wide)
- Laydown area.
- Operation and Maintenance buildings including a gate and security building, control centre, offices, warehouse, and workshop areas for maintenance and storage.
- Grid connection solution including a 132kV facility substation to be connected via a Loop-in-Loop out (LILO) connection to the Umtu 132kV overhead power line (located ~5km east of the site).

The development area will be larger than the area needed for the construction of a 100MW PV facility and will provide the opportunity for the optimal placement of the infrastructure, ensuring avoidance of major

[1] The study area is defined as the Remaining extent of the Farm Wincanton 472, which has the extent of ~ 1000ha.
[2] The development area is that identified area (located within the study area) where the San Solar PV facility would be located.

identified environmental sensitivities by the development footprint[3]. To avoid areas of potential sensitivity and to ensure that potential detrimental environmental impacts are minimised as far as possible, the development footprint within which the infrastructure of San Solar PV facility and its associated infrastructure will be located will be fully assessed during the EIA Phase.

Three (3) solar facilities have been constructed in the broader area. These include the Sishen Solar PV and Kathu Solar PV facilities located immediately west of the farm Remaining extent of the Farm Wincanton 472. The Kathu Solar facility is a CSP facility located to the east of the study area.

## 1.2. Details of the Independent Specialist

This SIA Report has been undertaken by Nondumiso Bulunga of Savannah Environmental.

» **Nondumiso Bulunga** – holds a master's degree in advanced Geographical Information System and has eight years of experience in the environmental field. Her key focus is on environmental and social impact assessments, public participation, stakeholder engagement environmental management screening as well as mapping using ArcGIS for a variety of environmental projects.

» **Tony Barbour** has as 30 years' experience in the environmental consulting sector. His experience includes ten years as an environmental consultant in the private sector in South Africa followed by four and a half years at the University of Cape Town's Environmental Evaluation Unit.

Tony Barbour's has undertaken an external review of this SIA and has provided an external reviewer's letter. This letter is attached as **Appendix I2.**

[3] The development footprint is the defined area (located within the development area) where the PV panel array and other associated infrastructure for San Solar PV will be planned to be constructed. This will be the actual footprint of the facility, and the area which would be disturbed. The extent of the development footprint will be determined in the EIA Phase.

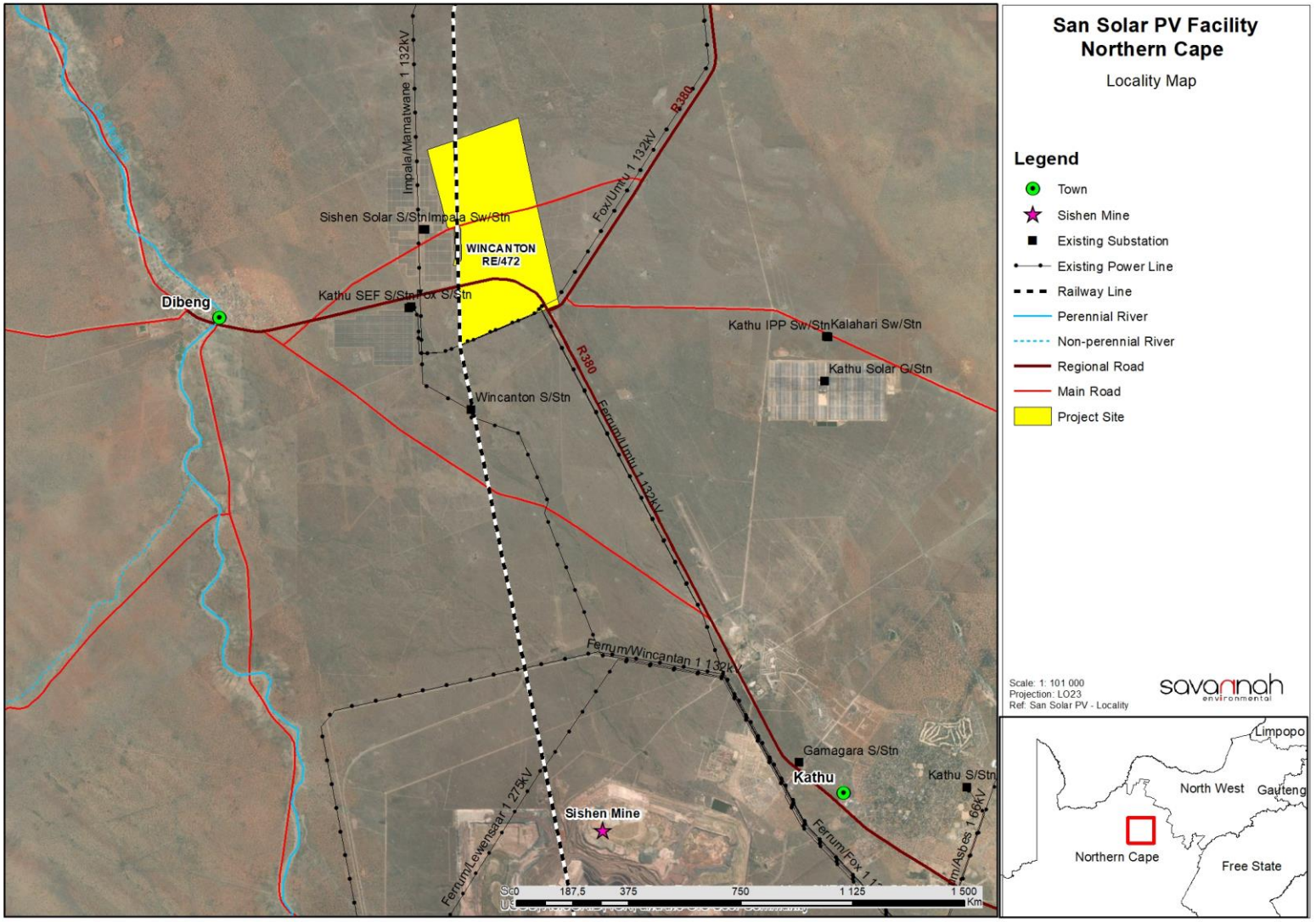



**Figure 1.1: Locality map illustrating the location of the San Solar PV facility, Northern Cape Province.**

## 1.3. Structure of the SIA Report

This SIA Report has been prepared in accordance with the requirements of Appendix 6 of the 2014 EIA Regulations, as amended. An overview of the contents of this SIA Report, as prescribed by Appendix 6 of the 2014 EIA Regulations (GNR 326), and where the corresponding information can be found within the report is provided in **Table 1-1**.

**Table 1-1: Summary of where the requirements of Appendix 6 of the 2014 NEMA EIA Regulations (GNR 326), as amended, are provided within this Specialist Report.**

| | Requirement | Location in Report |
|---|---|---|
| (a) | Details of –<br>(i) The specialist who prepared the report.<br>(ii) The expertise of that specialist to compile a specialist report including a curriculum vitae. | Section 1 |
| (b) | A declaration that the specialist is independent in a form as may be specified by the competent authority. | Specialist Declaration of Interest |
| (c) | An indication of the scope of, and the purpose for which, the report was prepared. | Section 2 |
| (cA) | An indication of the quality and age of base data used for the specialist report. | Section 4 |
| (cB) | A description of existing impacts on the site, cumulative impacts of the proposed development and levels of acceptable change. | Section **Error! Reference source not found.** |
| (d) | The duration, date and season of the site investigation and the relevance of the season to the outcome of the assessment. | Section 2 |
| (e) | A description of the methodology adopted in preparing the report or carrying out the specialised process inclusive of equipment and modelling used. | Section 2 |
| (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<br>Section **Error! Reference source not found.** |
| (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 | N/A |
| (i) | A description of any assumptions made and any uncertainties or gaps in knowledge. | Section 2 |
| (j) | A description of the findings and potential implications of such findings on the impact of the proposed activity or activities. | Section **Error! Reference source not found.** |
| (k) | Any mitigation measures for inclusion in the EMPr. | Appendix A |
| (l) | Any conditions for inclusion in the environmental authorisation. | Section 6 |
| (m) | Any monitoring requirements for inclusion in the EMPr or environmental authorisation. | Appendix A |
| (n) | A reasoned opinion –<br>(i) Whether the proposed activity, activities or portions thereof should be authorised.<br>(iA) Regarding the acceptability of the proposed activity or activities.<br>(ii) If the opinion is that the proposed activity, activities or portions thereof should be authorised, any avoidance, management and mitigation measures. | Section 6 |
| (o) | A description of any consultation process that was undertaken during the course of preparing the specialist report. | Section 2 |

| | Requirement | Location in Report |
|---|---|---|
| (p) | A summary and copies of any comments received during any consultation process and where applicable all responses thereto. | N/A |
| (q) | Any other information requested by the competent authority. | N/A |
| 2. | 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. | N/A |

# 2. METHODOLOGY AND APPROACH

## 2.1. Purpose of the Study

The International Principles for Social Impact Assessment define SIA as:

"*The processes of analysing, monitoring and managing the intended and unintended social consequences, both positive and negative, of planned interventions (policies, programs, plans, projects) and any social change processes invoked by those interventions*".

The International Principles for Social Impact Assessment define social impacts as changes to one or more of the following:

- People's way of life – that is, how they live, work, play and interact with one another on a day-to-day basis.
- Their culture – that is, their shared beliefs, customs, values and language or dialect.
- Their community – its cohesion, stability, character, services and facilities.
- Their political systems – the extent to which people are able to participate in decisions that affect their lives, the level of democratisation that is taking place, and the resources provided for this purpose.
- Their environment – the quality of the air and water people use, the availability and quality of the food they eat, the level of hazard or risk, dust and noise they are exposed to, the adequacy of sanitation, their physical safety, and their access to and control over resources.
- Their health and wellbeing – health is a state of complete physical, mental, social and spiritual wellbeing and not merely the absence of disease or infirmity.
- Their personal and property rights – particularly whether people are economically affected, or experience personal disadvantage which may include a violation of their civil liberties.
- Their fears and aspirations – their perceptions about their safety, their fears about the future of their community, and their aspirations for their future and the future of their children.

The purpose of this SIA Report is therefore to:

- Provide baseline information describing the social environment within which the project is proposed, and which may be impacted (both positively and negatively) as a result of the proposed development.
- Identify, describe and assess possible social risks / fatal flaws and social impacts that may arise as a result of the proposed development (in terms of the detailed design and construction, operation, and decommissioning phases of the project).
- Recommend ways in which negative impacts can be avoided, minimised, or their significance reduced, and positive impacts maximised or enhanced.

## 2.2. Approach to the Study

This SIA Report provides a snapshot of the current social setting within which the San Solar PV facility is proposed. It provides an overview of the manner and degree to which the current status quo is likely to change or be impacted by the construction, operation and decommissioning of the project, as well as the manner in which the social environment is likely to impact on the development itself.

The SIA process comprised the following:

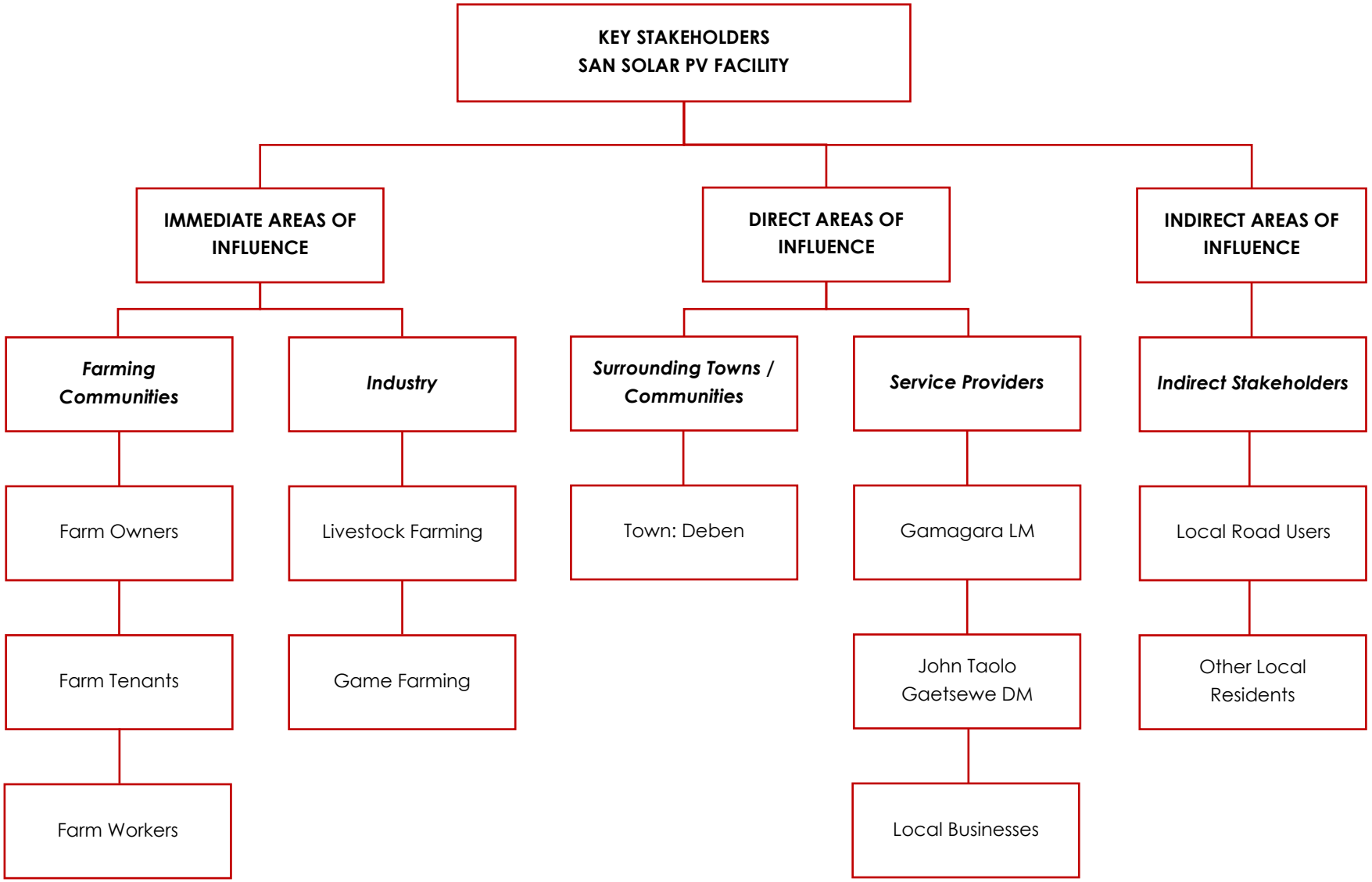
- Collection and review of existing information, including national, provincial, district, and local plans, policies, programmes, census data, and available literature from previous studies conducted within the area. Project specific information was obtained from the project proponent.
- Identification of potential direct, indirect and cumulative impacts likely to be associated with the construction, operation, and decommissioning of the proposed project. Impacts associated with construction can also be expected to be associated with the decommissioning phase (however, to a lesser extent as the project site would have previously undergone transformation and disturbance during construction)
- Preparation of a SIA Report for inclusion in the Scoping Report to be prepared for the project.

### 2.2.1. Stakeholder Idenitficaiton and Analysis

Stakeholders are defined as: "A*ny group or organisation which may affect or be affected by the issue under consideration*" (UN, 2001: 26).

These may be directly or indirectly impacted and may include organisations, institutions, groups of people or individuals, and can be at any level or position in society, from the international to regional, national, or household level (Franke & Guidero, 2012).

Stakeholder analysis involves the identification of affected or impacted people and their key grouping and sub-groupings (IFC, 2007). Identifying stakeholders that are directly and indirectly affected by the project is important to determine who might be impacted by the development and in what way. The key stakeholders in the area proposed for development have been identified, grouped / sub-grouped and described (as per Ilse Aucamp SIA methodology and Aucamp et al, 2011). There are immediate, direct and indirect areas of influence to the proposed development. Affected stakeholders comprise sensitive social receptors that may potentially be affected by the proposed development based on their location.


KEY STAKEHOLDERS
SAN SOLAR PV FACILITY
IMMEDIATE AREAS OF INFLUENCE
DIRECT AREAS OF INFLUENCE
INDIRECT AREAS OF INFLUENCE
Farming Communities
Industry
Surrounding Towns / Communities
Service Providers
Indirect Stakeholders
Farm Owners
Livestock Farming
Town: Deben
Gamagara LM
Local Road Users
Farm Tenants
Game Farming
John Taolo Gaetsewe DM
Other Local Residents
Farm Workers
Local Businesses

A description of each of the stakeholders' groups in relation to the proposed PV Facility and associated infrastructure is discussed in detail below:

- **Farming community:** The farming community can be grouped into three categories, namely farm owners, farm tenants, and farm workers. Farm owners comprise individuals who own and make a living off of their properties. Farm tenants are people who rent land and work on the land to earn an income. Farm workers are people who work, and also often reside on the farm with their families and are seen as a vulnerable community.
- **Farming industry:** There are potentially vulnerable farming activities in the broader study area of the project. Agriculture is one of the main economic activities within the area, and the primary agricultural activities comprise mainly livestock farming.
- **Surrounding towns / affected communities:** One town is in proximity to PV Facility which is Deben. The proposed development site is located north west of Kathu.
- **Service providers:** The major service providers which will be affected by the project include the DM, LM, and local businesses in the area. The Gamagara LM and to a lesser degree the John Taolo Gaetsewe DM are likely to be impacted by the proposed development. The Gamagara LM will absorb a number of positive and negative social impacts. In addition, there are a number of local businesses in the surrounding area that could be impacted negatively or benefit from the opportunities of the proposed project.
- **Stakeholders outside the direct area of influence:** There are a number of stakeholders that reside outside the direct area of influence but who may be affected by the project. These include road users, including those that use the local gravel roads on a frequent basis as part of their daily or weekly movement patterns.

### 2.2.2. Collection and Review of Existing Information

Existing desktop information that has relevance to the proposed project, project area and / or surrounds was collected and reviewed. The following information was examined as part of this process:

- Project maps.
- Google Earth imagery.
- A description of the project (as provided by the project proponent).
- Responses to questions posed to the project proponent regarding employment and social upliftment and local economic development opportunities (as provided by the project proponent).
- Census Data (2011), and the Local Government Handbook (2019).
- Planning documentation such as Provincial Growth and Development Strategies (PGDSs), Local and District Municipality Integrated Development Plans (IDPs), Spatial Development Frameworks (SDFs), and development goals and objectives.
- Relevant legislation, guidelines, policies, plans, and frameworks.
- Available literature pertaining to social issues associated with the development and operation of solar PV power plants and associated infrastructure.

## 2.3. Collection of Primary Data

Primary data was collected in the form of face-to-face interviews on Friday 06 May 2022 with the directly affected landowner. The following is a summary of the discussions held with the landowners directly affected by the project.

**Table 2-1 Landowner consultation during the Environmental Impact Assessment Phase**

| Landowner | Representative details | Date of contact / attempted contact | Notes and feedback (not verbatim, only summarised) |
|---|---|---|---|
| Heinrich Nortjie | Directly Affected Landowner<br>Halliford 466 Portion 1 | 06 May 2022<br>Face-to-face | I have no issues with the proposed development I am confused if this development is the same as the one where there was a specialist sitting here at our restaurant trying to understand the areas landscape and activities. I see on the map there is an indication of secondary road, that road has been closed off now and does not cut between the farms. The R380 is being upgraded, will this development have an effect on the road. As there is already similar development of this nature in the area we welcome this as there isn't issues experienced from the proposed development. Should there be dust from the development it would be important for the animals not to be affected so if we need to relocate them during construction we need the developer to let us know how far the dust is anticipated to spread so we can also cover our bushes. |
| Ruan Maritz | Directly Affected Landowner<br>Chertsey 430 Portion 2 | 06 May 2022<br>Face-to-face | For us to ensure there is high fences to ensure that security increases. Around the area we often have had livestock theft so with an increase in the security we hope this development will bring a positive impact regarding security. I have cattle farming on the farm and its move in between my farm and also farm Haliford. The contract workers need to adhere to health and safety regulations as we have it now those contractors upgrading the R380 are not following the correct health regulations. It is important that locals are employed and not people from the outside local area. When doing the fencing try avoid 1.8m fence as it is not stable in this area. Security that is employed needs to be trustworthy and sanitary health needs be adhered too. Veld fires is an issue so development needs to consider this. We have Camelthorn trees in the area which are endangered and it's an issue in terms of theft in the area. Employment is an issue where there is no opportunities of work for people in the |

| Landowner | Representative details | Date of contact / attempted contact | Notes and feedback (not verbatim, only summarised) |
|---|---|---|---|
| | | | area, people need jobs so this development will assist with that. We just want the developer to make sure they communicate with us landowners when development takes place. |
| Martin van der Walt | Directly Affected Landowner<br>Flatlands 429 Portion RE | 06 May 2022<br>Face-to-face | Very positive about the proposed development. In terms of the activities on our farm we have sheep on my farm, I believe this development will bring greater security on the southern side, but it is important to at least 1m electrical fence and 2 m wide capping. From a water resource perspective, we receive our water from boreholes. We have cattle and sheep on the farm. There is one permanent staff member. I would not want that there are staff housing from this development to be my farm, also the railway that runs close to the solar farm development needs to be considered when this development takes place. All development should take place on the other side of my farm. |
| Hendrik van der Merwe | Directly Affected Landowner<br>Limebank 471 Portion 1 | 06 May 2022<br>Face-to-face | This development will bring work opportunities for us as farmers, so we welcome it. One of my businesses is to remove fencing so if there is a way to get that opportunity, please may the information be provided to the developer. We are also able to assist with removal of cattle during the preparation of the site. |

Initial consultation with the Sishen Iron Ore Company owning farm Remaining Extent Marsh 467 was undertaken on 18 January 2022 and comments are included in the Appendix C of the Public Participation Comments and Response.

As part of the public participation the following meetings were undertaken:

| FGM Date & Time | Stakeholder Group | Summary of Matters Raised |
|---|---|---|
| Tuesday, 12 July 2022 at 09h00 | Local and District Officials | No matters pertaining to social issues were raised. |
| Tuesday, 12 July 2022 at 11h00 | Respective Officials | Question around the way in which the site looks was questioned by the officials and a response was provided by the social specialist as there was a site visit undertaken in May 2022. It was mentioned that the |

| | | |
|---|---|---|
| | | proposed development is next to two other PV development and also a railway line. From the site visit the area is largely transformed and through consultation the farmers do speak of the Camel thorn species dominance in the area. |
| Tuesday, 12 July 2022 at 13h00 | Key Stakeholders | No matters pertaining to social issues were raised. |
| Tuesday, 12 July 2022 at 15h00 | Landowners | Questions around security and safety were asked and whether this assessment has considered those aspects as part of this evaluation. It was confirmed that considerations of security have been included in the Environmental Management Program Report. |
| Tuesday, 12 July 2022 at 17h30 | Public Participation Process Meeting | No matters pertaining to social issues were raised. |

During the interviews, interviewees were provided with background on the proposed project, and the EIA and public participation process being undertaken in support of the application for EA. Interviewees were then interviewed utilising a questionnaire to determine their perceptions, interest and concerns regarding the project.

## 2.4. Impact Assessment Evaluation Method

The main objective of this SIA is to determine the social risks and opportunities, and positive and negative impacts which may be associated with the construction, operation, and decommissioning of the project. The methodology below allows for the evaluation of the overall impact of a proposed project on the social environment. This includes an assessment of the significant direct, indirect, and cumulative impacts associated with the project. Social impacts were assessed in terms of their perceived extent (scale), duration, magnitude (severity), probability (certainty), and status (negative, neutral or positive).

- The **nature**, which includes a description of what causes the effect, what will be affected and how it will be affected.
- The **extent**, wherein it is indicated whether the impact will be local (limited to the immediate area or site of development) or regional, and a value between 1 and 5 was assigned as appropriate (with 1 being low and 5 being high).
- The **duration**, wherein it is indicated whether:
  - The lifetime of the impact will be of a very short duration (0 – 1 years) – assigned a score of 1.
  - The lifetime of the impact will be of a short duration (2 – 5 years) – assigned a score of 2.
  - Medium-term (5 – 15 years) – assigned a score of 3.
  - Long term (> 15 years) – assigned a score of 4.
  - Permanent – assigned a score of 5.
- The **magnitude**, quantified on a scale from 0 – 10, where 0 is small and will have no effect on the environment, 2 is minor and will not result in an impact on processes, 4 is low and will cause a slight

impact on processes, 6 is moderate and will result in processes continuing but in a modified way, 8 is high (processes are altered to the extent that they temporarily cease), and 10 is very high and results in complete destruction of patterns and permanent cessation of processes.

- The **probability** *of* occurrence, which describes the likelihood of the impact actually occurring. Probability is estimated on a scale of 1 – 5, where 1 is very improbable (probably will not happen), 2 is improbable (some possibility, but low likelihood), 3 is probable (distinct possibility), 4 is highly probable (most likely) and 5 is definite (impact will occur regardless of any prevention measures).
- the **significance**, which is determined through a synthesis of the characteristics described above and can be assessed as low, medium or high.
- The **status**, which will is described as either positive, negative or neutral.
- The degree to which the impact can be reversed.
- The degree to which the impact may cause irreplaceable loss of resources.
- The degree to which the impact can be mitigated.

The **significance** was then calculated by combining the criteria in the following formula:

S = (E+D+M)xP

S = Significance weighting
E = Extent
D = Duration
M = Magnitude
P = Probability

The **significance weightings** for each potential impact are as follows:

- < 30 points: Low (i.e. where this impact would not have a direct influence on the decision to develop in the area).
- 30 – 60 points: Medium (i.e. where the impact could influence the decision to develop in the area unless it is effectively mitigated).
- > 60 points: High (i.e. where the impact must have an influence on the decision process to develop in the area).

## 2.5. Limitations and Assumptions

The following assumptions and limitations are applicable to this SIA Report:

- Data derived from the 2011 Census, Northern Cape Provincial Spatial Development Framework (PSDF) 2012, Northern Cape Provincial Spatial Development Framework (PSDF) 2018 Review – Executive Summary, Final Second Review of the Integrated Development Plan (IDP) Gamagara Local Municipality 2019 – 2022 and the Integrated Development Plan (IDP) of the John Taolo Gaetsewe District Municipality 2019-2020 review was used to generate the majority of information provided in the baseline profile of the broader study area and the grid connection corridor. The possibility exists that some of the data utilised may be out of date, and may not provide an accurate reflection of the current status quo.
- This SIA Report was prepared based on information that was available to the specialist at the time of preparing the report. The sources consulted are not exhaustive, and the possibility exists that additional information which might strengthen arguments, contradict information in this report, and / or identify

additional information might exist. Additional information available from the public participation undertaken during the Scoping process will be included and considered within the final report, where relevant.

» Some of the project projections reflected in this SIA Report may be subject to change, and therefore may be higher or lower than those estimated by the project proponent.

» It is assumed that the motivation for and planning and feasibility study of the project were undertaken with integrity, and that information provided by the project proponent was accurate and true at the time of preparing this SIA Report.

# 3. LEGISLATION AND POLICY REVIEW

The legislative and policy context applicable to a project plays an important role in identifying and assessing the potential social impacts associated with the development. In this regard a key component of the SIA process is to assess a proposed development in terms of its suitability with regards to key planning and policy documents.

The following key pieces of documentation were reviewed as part of this legislation and policy review process:

**National Policy and Planning Context:**
- Constitution of the Republic of South Africa, 1996
- National Environmental Management Act (No. 107 of 1998) (NEMA)
- White Paper on the Energy Policy of the Republic of South Africa (1998)
- National Energy Act (No. 34 of 2008)
- Integrated Energy Plan (IEP) (2015)
- National Development Plan (NDP) 2030 (2012)
- Strategic Infrastructure Projects (SIPs)

**Provincial Policy and Planning Context:**
- Northern Cape Provincial Spatial Development Framework (PSDF) 2012
- Northern Cape Provincial Spatial Development Framework (PSDF) 2018 Review – Executive Summary (full documentation not publicly available)

**Local Policy and Planning Context:**
- Integrated Development Plan (IDP) of the John Taolo Gaetsewe District Municipality 2019-2020 review
- Final Second Review of the Integrated Development Plan (IDP) Gamagara Local Municipality 2017 – 2022

## 3.1. National Policy and Planning Context

Any project which contributes positively towards the objectives mentioned within national policies could be considered strategically important for the country. A review of the national policy environment suggests that the connection infrastructure is considered integral to contributing towards social upliftment and economic development, even if only limited in extent.

A brief review of the most relevant national legislation and policies is provided in table format (**Table 3.1**) below.

**Table 3.1: Relevant national legislation and policies for the San Solar PV Facility**

| Relevant legislation or policy | Relevance to the proposed project |
|---|---|
| Constitution of the Republic of South Africa, 1996 | Section 24 of the Constitution pertains specifically to the environment. It states that Everyone has the right to an environment that is not harmful to their health or well-being, and to have the environment protected, for the benefit of present and future generations, through reasonable legislative and other measures that prevent pollution and ecological degradation, |

| Relevant legislation or policy | Relevance to the proposed project |
|---|---|
| | promote conservation and secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development.<br><br>The Constitution outlines the need to promote social and economic development. Section 24 of the Constitution therefore requires that development be conducted in such a manner that it does not infringe on an individual's environmental rights, health, or well-being. This is especially significant for previously disadvantaged individuals who are most at risk to environmental impacts. |
| National Environmental Management Act (No. 107 of 1998) (NEMA) | This piece of legislation is South Africa's key piece of environmental legislation, and sets the framework for environmental management in South Africa. NEMA is founded on the principle that everyone has the right to an environment that is not harmful to their health or well-being as contained within the Bill of Rights.<br><br>The national environmental management principles state that the social, economic and environmental impacts of activities, including disadvantages and benefits, must be considered, assessed and evaluated, and decisions must be appropriate in the light of such consideration and assessment.<br><br>The need for responsible and informed decision-making by government on the acceptability of environmental impacts is therefore enshrined within NEMA. |
| National Development Plan 2030 (2012) | The National Development Plan (NDP) 2030 is a plan prepared by the National Planning Commission in consultation with the South African public which is aimed at eliminating poverty and reducing inequality by 2030.<br><br>In terms of the Energy Sector's role in empowering South Africa, the NDP envisages that, by 2030, South Africa will have an energy sector that promotes:<br><br>**ECONOMIC GROWTH AND DEVELOPMENT THROUGH ADEQUATE INVESTMENT IN ENERGY INFRASTRUCTURE. THE SECTOR SHOULD PROVIDE RELIABLE AND EFFICIENT ENERGY SERVICE AT COMPETITIVE RATES, WHILE SUPPORTING ECONOMIC GROWTH THROUGH JOB CREATION.**<br><br>**SOCIAL EQUITY THROUGH EXPANDED ACCESS TO ENERGY AT AFFORDABLE TARIFFS AND THROUGH TARGETED, SUSTAINABLE SUBSIDIES FOR NEEDY HOUSEHOLDS.**<br><br>**ENVIRONMENTAL SUSTAINABILITY THROUGH EFFORTS TO REDUCE POLLUTION AND MITIGATE THE EFFECTS OF CLIMATE CHANGE.**<br><br>The NDP aims to provide a supportive environment for growth and development, while promoting a more labour-absorbing economy.<br><br>The development of the grid connection infrastructure is considered to be relevant to the plan due to the need of the infrastructure for economic growth within the Gamagara Local Municipality municipal area. |

## 3.2. Provincial Policies

This section provides a brief review of the most relevant provincial policies. The proposed San Solar PV Facility considered to align with the aims of these policies, even if contributions to achieving the goals therein are only minor.

A brief review of the most relevant provincial policies is provided in table format (**Table 3.2**) below.

**Table 3.2: Relevant provincial policies for the San Solar PV Facility**

| Relevant policy | Relevance to the proposed project |
|---|---|
| Northern Cape Provincial Spatial Development Framework (PSDF) 2012 | The Northern Cape Provincial Spatial Development Framework (PSDF) 2012 states that the overarching goal for the province is to enable sustainability through sustainable development. The province considers social and economic development as imperative in order to address the most significant challenge facing the Northern Cape, which is poverty.<br><br>The development of the grid connection infrastructure is required in order to enable and strengthen the supply of electricity to the municipal area. The development of the grid connection infrastructure is considered to be relevant to the framework due to the opportunity provided in terms of economic development and growth in the area. |
| Northern Cape Provincial Spatial Development Framework (PSDF) 2018 Review – Executive Summary | The review of the Northern Cape PSDF (2018) refers to infrastructure investment and that a balance must be maintained between investments aimed at meeting the social needs of communities and investment aimed at promoting economic development and job creation.<br><br>The Spatial Development Strategy identified in the PSDF for basic infrastructure includes the following points to be achieved:<br><br>» Ensure efficient supply of water, electricity and waste management services to sustain additional industry growth.<br>» Eradicate backlogs in water and sanitation, electricity, housing<br>» Improve basic services.<br>» Provide green infrastructure e.g. water tanks, renewable energy.<br>» Eradicate backlogs and maintain basic services.<br><br>The development of the San Solar PV Facility will contribute to achieving, albeit only to a limited extent, the basic infrastructure requirements for the Province and contribute to the social needs and economic development. |

## 3.3. District and Local Municipalities Policies

The strategic policies at a district and local level have similar objectives for the respective areas, namely to accelerate economic growth, create jobs, and uplift communities. The proposed San Solar PV Facility is considered to align with the aims of these policies, even if contributions to achieving the goals therein are only minor.

A brief review of the most relevant district and local municipal policies is provided in table format (**Table 3.3**) below.

**Table 3.3: Relevant district and local municipal policies for the San Solar PV Facility**

| Relevant policy | Relevance to the proposed project |
|---|---|
| Integrated Development Plan (IDP) of the John Taolo Gaetsewe District Municipality 2019-2020 review | The IDP identifies that there is a 10% gap in terms of access to electricity within the district municipal area. The IDP also states that the inadequate supply of electricity experienced in the municipal area is restraining economic growth.<br><br>The development of the grid connection infrastructure is required in order to enable and strengthen the supply of electricity to the municipal area as is identified as a gap by the DM. The development of the PV Facility and proposed grid connection infrastructure is considered |

| Relevant policy | Relevance to the proposed project |
|---|---|
| | to be relevant to the development plan due to the opportunity provided in terms of economic development and growth in the area. |
| Final Second Review of the Integrated Development Plan (IDP) Gamagara Local Municipality 2019 – 2022 | The IDP states that the municipality has a current backlog of 3015 households that are not electrified due to capacity constraints. Priority community issues have been identified through engagement with communities. Basic service delivery and infrastructure development has been identified as a key community issue which includes the provision of electricity and the upgrading of infrastructure.<br><br>The development of the PV Facility and proposed grid connection infrastructure is required in order to enable and strengthen the supply of electricity to the municipal area and thereby contributing to the provision of electricity. |

## 3.4. Conclusion

The review of relevant legislation, policies and documentation pertaining to the proposed development indicates that the establishment of the PV Facility and associated grid connection infrastructure is supported at a national, provincial, and local level, and that the proposed project will contribute positively towards a number of targets and policy aims.

# 4. SOCIAL PROFILE

San Solar PV Facility including associated facility and grid connection infrastructure is proposed on Remaining extent of the Farm Wincanton 472 and comprise several arrays of PV panels and associated infrastructure with a contracted capacity of up to 100MW.

A facility development area , which will include the PV facility, BESS and a 132kV facility substation to be connected via a Loop-in-Loop out (LILO) connection to the Umtu 132kV overhead power line will be identified within the study area considered in the Scoping phase (refer to **Table 4-1**).

**Table 4-1: Spatial Context of the study area for the development of the San Solar PV Facility**

| | |
|---|---|
| **Province** | Northern Cape Province |
| **District Municipality** | John Taolo Gaetsewe District Municipality |
| **Local Municipality** | Gamagara Local Municipality |
| **Ward number(s)** | 7 |
| **Nearest town(s)** | Deben, Kathu |
| **Preferred access** | The site is located east of Deben and is accessible via the R380 provincial route which branches off the N14 National Road, approximately 3km south of Kathu |

This Chapter provides an overview of the socio-economic environment of the province, DM, and LM within which the San Solar PV Facility is proposed and provides the socio-economic basis against which potential issues can be identified.

## 4.1. Northern Cape Province

The Northern Cape Province is located in the north-western extent of South Africa and constitutes South Africa's largest province, occupying an area 372 889km² in extent, equivalent to nearly a third (30.5%) of the country's total land mass. It is also South Africa's most sparsely populated province with a population of 1 145 861, and a population density of 3.1/km². It is bordered by the provinces of the Western Cape, and Eastern Cape to the south, and south-east, the provinces of Free State, and North West to the east, Botswana and Namibia, to the north, and the Atlantic Ocean to the west. The Northern Cape is South Africa's only province which borders Namibia, and therefore plays an important role in terms of providing linkages between Namibia and the rest of South Africa. The Orange River is a significant feature within the province, and the main source of water, and also constitutes the international border between South Africa and Namibia.

The Northern Cape offers unique tourism opportunities including wildlife conservation destinations, natural features, historic sites, festivals, cultural sites, stars gazing, adventure tourism, agricultural tourism, ecotourism, game farms, and hunting areas, etc. The province is home to the Richtersveld Botanical and Landscape World Heritage Site, which comprises a United Nations Educational, Scientific and Cultural Organisation (UNESCO) World Heritage Site under the World Heritage Convention. The Northern Cape is also home to two Transfrontier National Parks, namely the Kgalagadi Transfrontier Park, and the Richtersveld /Ai-Ais Transfrontier Park, as well as five national parks, and six provincial reserves.

The Northern Cape plays a significant role in South Africa's science and technology sector, and is home to the Square Kilometre Array (SKA), the Southern African Large Telescope (SALT), and the Karoo Array Telescope (MeerKAT).

The Northern Cape makes the smallest contribution to South Africa's economy (contributing only 2% to South Africa's Gross Domestic Product per region (GDP-R) in 2007). The mining sector is the largest contributor to the provincial GDP, contributing 26%. The Northern Cape's mining industry is of national and international importance, as it 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.

In 2007 the agricultural sector contributed 5.8% to the Northern Cape GDP per region which was equivalent to approximately R1.3 billion. The agricultural sector also employs approximately 19.5% of the total formally employed individuals (LED Strategy). The sector is experiencing significant growth in value-added activities, including game-farming, while food production and processing for the local and export market is also growing significantly (PGDS, July 2011). Approximately 96% of the land is used for stock farming, including beef cattle and sheep or goats, as well as game farming, while approximately 2% of the province is used for crop farming, mainly under irrigation in the Orange River Valley and Vaalharts Irrigation Scheme (LED Strategy).

The Northern Cape comprises five Districts, namely Frances Baard, John Taolo Gaetsewe, Namakwa, Pixley ka Seme, and ZF Mgcawu (refer to **Figure 4.1**).

## 4.2. John Taolo Gaetsewe DM

The John Taolo Gaetsewe DM is bordered by the ZF Mgcawu and Frances Baard DMs to the west and south and the North West Province to the east and north-east and Botswana to the north-west. The John Taolo Gaetsewe DM is the second smallest district in the Northern Cape, occupying only 7% of the Province. The John Taolo Gaetsewe DM comprises only three local municipalities which include the Gamagara Local Municipality, the Ga-Segonyana Local Municipality and the Joe Morolong Local Municipality (refer to **Figure 4.2**). The Joe Morolong Local Municipality is the largest local municipality in terms of size, with the Ga-Segonyana Local Municipality and Gamagara Local Municipality covering 16% and 10% respectively.

The John Taolo Gaetsewe DM comprises of 186 towns and settlements of which the majority (80%) are villages located in the Joe Morolong Municipality. The population of the DM accounts for 20.3% of the total population in the Northern Cape Province, which is the third largest population size after the Frances Baard and ZF Mgcawu Districts.

The John Taolo Gaetsewe DM is characterised by a mixture of land uses of which agriculture and mining are dominant. Minerals mined include manganese ore, iron ore and tiger's eye. The Sishen iron-ore mine is one of the longest iron-ore carriers in the world. The rural land in the district is used extensively for cattle, sheep, goat and game farming.

The area is also well known for its good commercial hunting in the winter, and holds potential as a tourism destination. The north-eastern region is comprised principally of high-density rural and peri-urban areas while the western and southern areas are sparsely populated and consist mainly of commercial farms and mining activities.

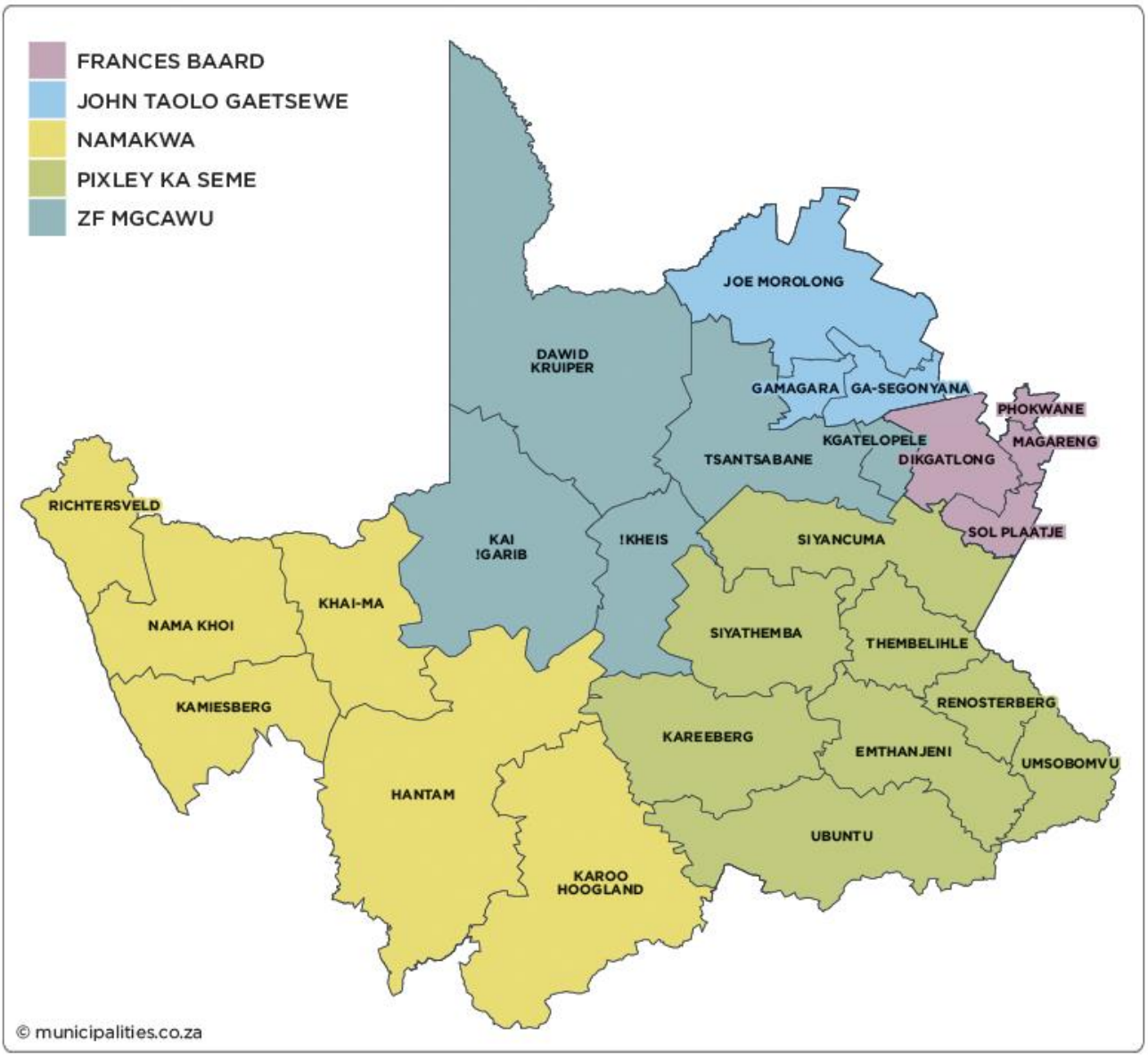



**Figure 4.1: Map showing the municipalities of the Northern Cape (Source: www.municipalities.co.za).**

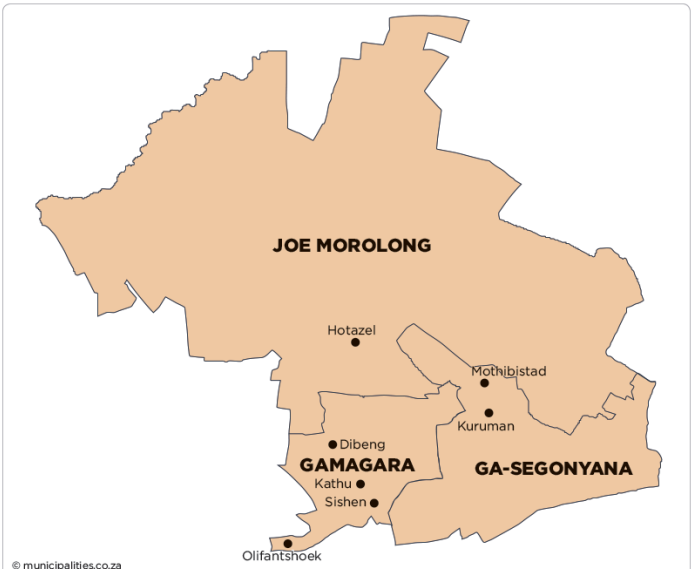



**Figure 4.2: Map showing the municipalities of the John Taolo Gaetsewe DM (Source: www.municipalities.co.za).**

## 4.3. Gamagara LM

The Gamagara LM serves an area of 2619km$^2$, which is approximately 10% of the total John Taolo Gaetsewe DM area. The LM is located in the north-eastern section of the Northern Cape on the N14 National Road between Upington and Vryburg.

The Gamagara LM is a category B local municipality and includes four (4) towns namely, Kathu, Sishen Olifantshoek and Dibeng. Dingleton was a town within the LM but the residents of the town are planned to be relocated to Kathu due to mining activity planned by the Sishen iron-ore mine. The LM is classified as a small mining town.

The Gamagara LM is described as a developing municipality, and in order for the municipality to grow and develop land is needed. Most of the land is currently privately owned. The municipality does not have serviced land currently available due to illegal land grabs, however the municipality is in a process of negotiating with the mining companies in the area for land.

## 4.4. Baseline Description of the Social Environment

**Table 4.2** provides a baseline summary of the socio-economic profile of the Gamagara LM within which the San Solar PV Facility is located. In order to provide context against which the LM's socio-economic profile can be compared, the socio-economic profiles of the John Taolo Gaetsewe DM, Northern Cape Province, and South Africa as a whole have also been considered. The data presented in this section have been derived from the 2011 Census, the Local Government Handbook South Africa 2019, the Northern Cape Provincial Spatial Development Framework (PSDF), and the John Taolo Gaetsewe DM and Gamagara LM IDPs.[4]

4 While information was derived from the Local Government Handbook South Africa 2019, Northern Cape PSDF, John Taolo Gaetsewe DM and Gamagara LM IDPs, these sources largely make use of statistical information derived from the Census 2011. The information

The region is sparsely populated (less than 5 people per km2), with the highest concentrations occurring in the towns of Kathu and Dibeng, and at the Sishen Mine. In addition to the towns and the mine settlements, a number of isolated homesteads occur throughout the study area. Some of these in the study area include:

- Bosaar
- Flatlands
- Halliford
- Selsden
- Haakbosskerm homestead and restaurant
- Limebank
- Klein Landbank
- Curtis
- Dundrum

The portions 6 and 4 of farm Wincanton 472, located west of the railway line, host the operational Sishen Solar Energy Facility and the Kathu Solar Energy Facility respectively. The expansion of the town of Kathu and most of the larger settlements within the study area are mainly attributed to the mine. Infrastructure closer to the proposed San Solar PV facility includes the Kathu Solar PV, Kathu Solar Energy Facility (SEF) and the Sishen Solar PV facilities. The cumulative visual impact of these three proposed PV facilities is ultimately expected to be of moderate to low significance due to their remote locations and the general absence of potential sensitive visual receptors. It is further preferred that the proposed San Solar PV facility be placed in as close a proximity to the Sishen and Kathu SEFs as possible, as these two PV facility represent an existing visual disturbance, i.e. the visual amenity at this location has already been compromised.
In spite of the predominantly rural and natural character of the study area, there are a large number of overhead power lines in the study area, associated mainly with the Ferrum Substation located at the mine. The cumulative visual impact of these proposed PV facilities is ultimately expected to be of moderate to low significance due to their remote locations and the general absence of potential sensitive visual receptors. It is further preferred that the proposed San Solar PV facility be placed in as close a proximity to the Sishen and Kathu SEFs as possible, as these two PV facilities represent an existing visual disturbance, i.e. the visual amenity at this location has already been compromised.

Within 1km – 3 km of the study area is the Stokkiesdraai guesthouse, Haakbosskerm homestead and restaurant, the Flatlands and Halliford homesteads, and sections of the R380 main road. From the discussions with the owners at the guesthouse the proposed development was welcomed as the area is transformed from similar solar development. While migration impacts development, economic conditions are important drivers of migration and one of the reasons Deben is growing larger. People migrate for a variety of reasons including the search for better economic opportunities, education, family reunion and escaping violence. People often migrate for a combination of these and other reasons. The people of the Northern Cape are relatively immobile and tend to stay in the same place for their lifetime. In 2011, 83.2% of the Northern Cape's population had been there at least since 2001 or born later and not moved.

presented in this Chapter may therefore be somewhat outdated, but is considered sufficient for the purposes of this assessment (i.e. to provide an overview of the socio-economic characteristics against which impacts can be identified and their significance assessed).

**Table 4–2: Baseline description of the socio-economic characteristics of the area within which the San Solar PV Facility is proposed**

| |
|---|
| **Location characteristics** |
| » The project is proposed within the Northern Cape Province, which is South Africa's largest, but least populated Province. |
| » The project is proposed within the Gamagara LM of the John Taolo Gaetsewe DM. |
| » The Gamagara LM is approximately 2619km² in extent, equivalent to approximately 10% of the John Taolo Gaetsewe DM. |
| **Population characteristics** |
| » Between 2011 and 2016 the Gamagara LM experienced a population growth rate of 28.93% over 5 years. |
| » The Gamagara LM has a high urbanisation rate of 97.6%, which is significantly higher than that of the DM (24.9%). The main reason for the high rate is due to the Gamagara LM being a mining hub and individuals are moving in to the area seeking employment opportunities. |
| » The Gamagara LM is male dominated, with males comprising approximately 56.4% of the LM population. The John Taolo Gaetsewe DM is female dominated, with females comprising approximately 50.8% of the DM population. |
| » Black Africans comprise the predominant population group within the Gamagara LM and John Taolo Gaetsewe DM. |
| » The Gamagara LM, John Taolo Gaetsewe DM, and Northern Cape provincial, and South African national population age structures are all youth dominated. A considerable proportion of the respective populations therefore comprise individuals within the economically active population between the ages of 15 and 64 years of age |
| **Economic, education and household characteristics** |
| » The Gamagara LM has a dependency ratio of 34.2, which is lower than the John Taolo Gaetsewe DM (57.9), Northern Cape Province (35.8), and South Africa (34.5). |
| » Education levels within the Gamagara LM are low with approximately 33% of the population aged 20 years and older who have completed Grade 12 / Matric. Only 10.8% of the age group have received higher education. This implies that the majority of the population can be expected to have a relatively low-skill level and would either require employment in low-skill sectors, or skills development opportunities in order to improve the skills level of the area. |
| » The unemployment rate of the Gamagara LM (17.7%) is lower than that of the John Taolo Gaetsewe DM (29.7%). |
| » Approximately 32% of people in the Gamagara LM have no monthly income. At least 64% of the population are earning less than R6400 per month. The area can therefore be expected to have a high poverty level with associated social consequences such as not being able to pay for basic needs and services and poor living conditions. |
| » The main economic sectors of the Gamagara LM includes mining, game farming and business services. |
| » 43% of employed people in the Gamagara LM are employed in the formal sector, of which 5% are employed in the informal sector. |
| » As of 2016 there were a total of 15 723 households within the Gamagara LM. This is equivalent to 21.7% of the total number of households within the John Taolo Gaetsewe DM (72 310), and 5% of the total number of households within Northern Cape Province (313 402). |
| » The majority of households within the Gamagara LM comprise of houses or brick houses, informal dwellings (i.e. shacks), a flat or house in a backyard, townhouse and flat or apartment in a block of flats. |
| **Services** |
| » The Gamagara LM achieved to provide the following household services:<br>* 80.8% have access to flush toilet connected to sewerage;<br>* 8.9% have weekly refuse removal;<br>* 52% have access to piped water inside a dwelling; and<br>* 88.1% have electricity for lighting. |

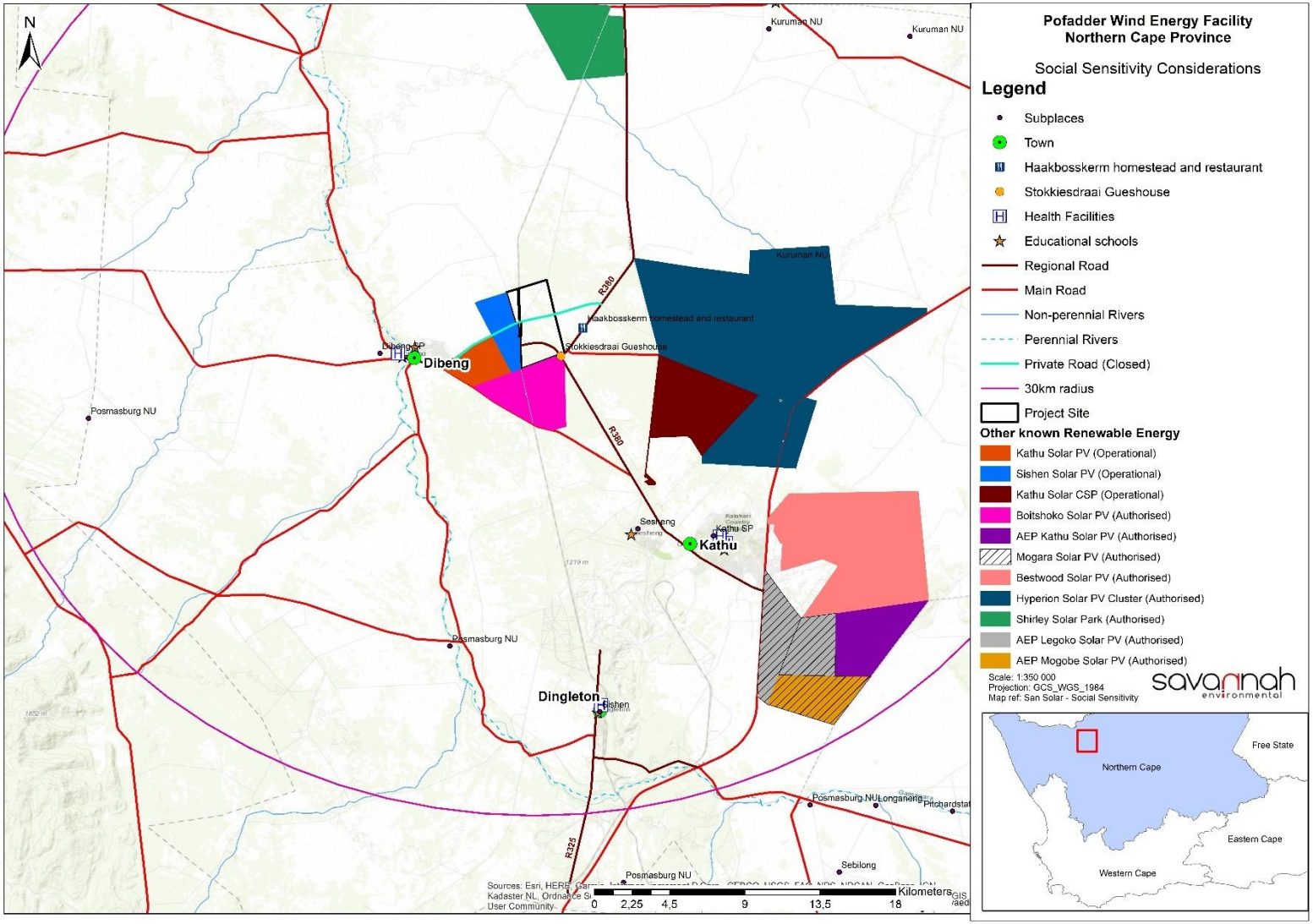



**Figure 4.3: Social Sensitivity considerations for the San Solar PV Facility**

# 5. SOCIAL IMPACT ASSESSMENT

This Chapter provides a detailed description and assessment of the potential social impacts that have been identified for the detailed design and construction, operation, and decommissioning phases, of the proposed San Solar PV Facility.

The development area will be larger than the area needed for the construction of a 100MW PV facility and will provide the opportunity for the optimal placement of the infrastructure, ensuring avoidance of major identified environmental sensitivities by the development footprint[5]. To avoid areas of potential sensitivity and to ensure that potential detrimental environmental impacts are minimised as far as possible, the development footprint within which the infrastructure of San Solar PV facility and its associated infrastructure will be located will be fully assessed during the EIA Phase.

Three (3) solar facilities have been constructed in the broader area. These include the Sishen Solar PV and Kathu Solar PV facilities located immediately west of the farm Remaining extent of the Farm Wincanton 472. The Kathu Solar facility is a CSP facility located to the east of the study area.

Through the undertaking of this Social Impact Assessment for the development of the power line, the current *status quo* of the area from a social and land use perspective was considered in order to provide an indication of the positive and negative social impacts expected to occur. This assessment considered the following points:

» The nature, extent and significance of the features within the social landscape being considered.
» The existing disturbance already present within the social landscape (i.e. mining activities and other industrial developments/infrastructure).

Social impacts are expected to occur during both the construction and operation phases of the 132kV power line. The status of the impacts will either be positive or negative and either mitigation or enhancement measures are recommended for the management of the impacts depending on the status of the impacts.

### 5.1. Social Impacts during the Construction Phase

The majority of social impacts associated with the project are anticipated to occur during the construction phase of the development, and are typical of the type of social impacts generally associated with construction activities. These impacts will be temporary and short-term (~12 months), but could have long-term effects on the surrounding social environment if not planned or managed appropriately. It is therefore necessary that the detailed design phase be conducted in such a manner so as not to result in permanent social impacts associated with the ill-placement of project components or associated infrastructure or result in the mis-management of the construction phase activities.

The positive and negative social impacts identified and assessed for the construction phase includes:

» Direct and indirect employment opportunities

[5] The development footprint is the defined area (located within the development area) where the PV panel array and other associated infrastructure for San Solar PV will be planned to be constructed. This will be the actual footprint of the facility, and the area which would be disturbed. The extent of the development footprint will be determined in the EIA Phase.

- Economic multiplier effects
- Influx of jobseekers and change in population
- Safety and security impacts
- Impacts on daily living and movement patterns
- Nuisance impacts, including noise and dust

**Table 5-1: Impact assessment on direct and indirect employment opportunities**

***Nature:*** The creation of direct and indirect employment opportunities during the construction phase of the project.

It is anticipated that development of the PV Facility will result in the creation of approximately 250 temporary employment of which, 50 full -time employment opportunities is anticipated, comprising a mixture of skilled, semi-skilled and unskilled positions during the operational phase. Employment opportunities generated as a result of the project will be temporary in nature, and will last for the duration of the construction period (i.e. ~18 months). The general labour force will, as far as possible and where skills are available, be sourced from the local labour pool. Where relevant skills are unavailable from the local labour pool, these would need to be sought elsewhere. The injection of income into the area, albeit limited, in the form of wages will represent an opportunity for the local economy and businesses in the area.

Several indirect employment opportunities will also be created. Indirect employment opportunities will predominantly be created in the service industry, through the opportunity for the provision of secondary services to the construction team. Services may include, but are not limited to, accommodation, catering, and laundry services.

| | **Without Enhancement** | **With Enhancement** |
|---|---|---|
| ***Extent*** | Local - Regional (3) | Local - Regional (3) |
| ***Duration*** | Short term (2) | Short term (2) |
| ***Magnitude*** | Minor (2) | Moderate (6) |
| ***Probability*** | Highly Probable (4) | Definite (4) |
| ***Significance*** | **Low (28)** | **Medium (55)** |
| ***Status (positive or negative)*** | Positive | Positive |
| ***Reversibility*** | N/A | N/A |
| ***Irreplaceable loss of resources?*** | No | |
| ***Can impacts be* Enhanced?** | Yes | |

***Mitigation:***

To enhance the local employment, skills development and business opportunities associated with the construction phase the following measures should be implemented:

- It is recommended that local employment policy is adopted to maximise the opportunities made available to the local labour force. San Solar Energy (Pty) Ltd should make it a requirement for contractors to implement a 'locals first' policy, especially for semi and low skilled job categories. Enhance employment opportunities for the immediate local area Ditsobotla Local Municipality, if this is not possible, then the broader focus areas should be considered for sourcing workers.
- In the recruitment selection process; consideration must be given to women during recruitment process
- It is recommended to set realistic local recruitment targets for the construction phase

| |
|---|
| » Training and skills development programmes should be initiated prior to the commencement of the construction phase |
| ***Cumulative impacts:***<br>Opportunity to upgrade and improve skills levels in the area |
| ***Residual Risks:***<br>» Improved pool of skills and experience in the local area<br>» Temporary employment during the construction phase will result in job losses and struggles for construction workers to find new employment opportunities following the completion of construction.<br>» Economic growth for small-scale entrepreneurs |

**Table 5-2: Economic multiplier effects**

***Nature***: Significance of the impact from the economic multiplier effects from the use of local goods and services

Economic multiplier effects from the use of local goods and services opportunities include but are not limited to, the provision of construction materials and equipment, and workforce essentials such as services, safety equipment, ablution, accommodation, transportation and other goods. The increase in demand for goods and services may stimulate local business and local economic development (however locally sourced materials and services may be limited due to availability). There is likely to be a direct increase in industry and indirect increase in secondary businesses. The impact is likely to be positive, local to regional in extent, short-term, and of medium significance.

| | **Without Enhancement** | **With Enhancement** |
|---|---|---|
| ***Extent*** | Local - Regional (3) | Local - Regional (3) |
| ***Duration*** | Short term (2) | Short term (2) |
| ***Magnitude*** | Low (4) | Moderate (6) |
| ***Probability*** | Highly Probable (4) | Definite (5) |
| ***Significance*** | **Medium (36)** | **Medium (55)** |
| ***Status (positive or negative)*** | Positive | Positive |
| ***Reversibility*** | N/A | N/A |
| ***Irreplaceable loss of resources?*** | No | |
| ***Can impacts be Enhanced mitigated?*** | Yes | |

***Mitigation:***

» A local procurement policy should be adopted to maximise the benefit to the local economy and the existing local SMMEs.
» A database of local companies, specifically Historically Disadvantaged Individuals (HDIs) which qualify as potential service providers (e.g. construction companies, security companies, catering companies, waste collection companies, transportation companies etc.) should be created and companies listed thereon should be invited to bid for project-related work where applicable.
» Local procurement must be encouraged along with engagement with local authorities and business organisations to investigate the possibility of procurement of construction materials, goods and products from local suppliers where feasible.

***Cumulative impacts:***

| |
|---|
| Opportunity for local capital expenditure, potential for the local service sector |
| ***Residual Risks:*** |
| Improved local service sector; growth in local business |

**Table 5 -3: Assessment of impacts from an influx of jobseekers and change in population**

***Nature:*** In-migration of labourers in search of employment opportunities, and a resultant change in population, and increase in pressure on local resources and social networks, or existing services and infrastructure.

An influx of people looking for employment or other economic opportunities could result in increased pressure being placed on economic and social infrastructure, and a change in the local population. Population change refers to the size, structure, density as well as demographic profile of the local community.

An influx of jobseekers into an area, could lead to a temporary increase in the level of crime, cause social disruption and put pressure on basic services. It could also potentially create conflict between locals and outsiders due to potential differences in racial, cultural and ethnic composition. A further negative impact that could result due to an influx of jobseekers into an area is an increase in unemployment levels due to an oversupply of available workforce, particularly with respect to semi- and unskilled workers.

| | **Without mitigation** | **With mitigation** |
|---|---|---|
| ***Extent*** | Local (1) | Local (1) |
| ***Duration*** | Short term (2) | Short term (2) |
| ***Magnitude*** | Moderate (6) | Low (4) |
| ***Probability*** | Probable (2) | Probable (2) |
| ***Significance*** | **Low (18)** | **Low (14)** |
| ***Status (positive or negative)*** | Negative | Negative |
| ***Reversibility*** | Yes | |
| ***Irreplaceable loss of resources?*** | No | |
| ***Can impacts be mitigated?*** | Yes | |

***Mitigation:***

- Develop and implement a recruitment protocol in consultation with the municipality and local community leaders. Ensure that the procedures for applications for employment are clearly communicated.
- Develop and implement a local procurement policy which prioritises "locals first" to prevent the movement of people into the area in search of work.
- Engage with local community representatives prior to construction to facilitate the adoption of the local's first procurement policy.
- Provide transportation for workers to ensure workers can easily access their place of employment and do not need to move closer to the project site.
- Compile and implement a grievance mechanism.
- Appoint a Community Liaison Officer (CLO) to assist with the procurement of local labour.
- Prevent the recruitment of workers at the construction site.
- Implement a method of communication whereby procedures to lodge complaints are set out in order for the local community to express any complaints or grievances with the construction process.

| |
|---|
| » Establish clear rules and regulations for access to the construction site.<br>» Appoint a security company and implement appropriate security procedures to ensure that workers to not remain on site after working hours.<br>» Inform local community organisations and policing forums of construction activities and times and the duration of the construction phase. |
| ***Cumulative impacts:***<br>Possible increase in crime level (with influx of people) with subsequent possible economic losses, |
| ***Residual Risks:***<br>Possibility of outside workers remaining in the area after construction is completed and subsequent pressures on local infrastructure, resources and services |

**Table 5-4: Assessment of safety and security impacts**

***Nature***: Temporary increase in safety and security concerns associated with the influx of people during the construction phase.

The commencement of construction activities can be associated with an increase in crime within an area. The perceived loss of security during the construction phase of a project due to an influx of workers and / or outsiders to the area (as in-migration of newcomers, construction workers or jobseekers are usually associated with an increase in crime), may have indirect effects such as increased safety and security concerns for neighbouring properties, damage to property, increased risk of veld fire, stock theft, poaching, crime and so forth.

The labour force will not permanently reside within the construction site.

| | **Without mitigation** | **With mitigation** |
|---|---|---|
| ***Extent*** | Local (2) | Local (2) |
| ***Duration*** | Short term (2) | Short term (2) |
| ***Magnitude*** | Moderate (6) | Moderate (6) |
| ***Probability*** | Probable (3) | Improbable (2) |
| ***Significance*** | **Medium (33)** | **Low (20)** |
| ***Status (positive or negative)*** | Negative | Negative |
| ***Reversibility*** | Yes | |
| ***Irreplaceable loss of resources?*** | No | |
| ***Can impacts be mitigated?*** | Yes | |

***Mitigation:***

» Working hours must preferably be restricted to daylight hours during the construction phase. Where deviation of working hours is required, it must be approved by the relevant local authorities and surrounding landowners must be notified.
» All vehicles must be road worthy, and drivers must be licensed, obey traffic rules, follow speed limits and made aware of the potential road safety issues.
» Construction vehicles should be inspected regularly by the EPC contractor to ensure their road worthiness.
» Adequate and strategically placed traffic warning signs and control measures must be placed along the gravel farm access roads to warn road users of the construction activities taking place for the duration of the construction phase. Warning signs must be visible at all times, and especially at night and must be maintained throughout the construction phase.

- » Implement penalties for reckless driving as a way to enforce compliance to traffic rules.
- » Avoid heavy vehicle activity through residential areas during "peak" hours (when children are taken to school, people driving to work, etc.).
- » The developer and EPC contractor must ensure that all fencing along access roads is maintained in the present condition or repaired if disturbed or damaged due to construction activities.
- » The developer and EPC Contractor must ensure that the roads utilised for construction activities are either maintained in the present condition or upgraded if damaged (i.e. wear and tear) due to construction activities.
- » A protocol for communication must be implemented whereby procedures to lodge complaints are set out in order for the local community to express any complaints or grievances with the construction process.
- » Undertake information sessions with the surrounding communities, and affected and adjacent landowners, prior to construction in order to ensure that communities are fully informed of the project to be developed in its final form. This must be undertaken through the appointment of a CLO.
- » The placement of the power line route within the grid connection must avoid the sensitive land uses undertaken by the affected landowners as far as possible. Consultation with the affected landowners must be undertaken in this regard.

***Cumulative impacts:***
Possible increase in crime level (with influx of people) with subsequent possible economic losses

***Residual Risks:***
None anticipated.

**Table.5-5: Assessment of impacts on daily living and movement patterns.**

Nature: Temporary increase in traffic disruptions and movement patterns during the construction phase.

Project components and equipment will be transported using road transport. Increased traffic due to the movement of construction vehicles could cause disruptions to the local community and increase safety hazards. The use of local roads and transport systems may cause road deterioration and congestion. An existing tar road (Regional Road R380) along Portions RE of 472 of Wincanton will be utilised to access the facility. This impact will be slightly impacted since the road is not designed to carry heavy traffic. Noise, vibrations, dust and visual pollution from heavy vehicle traffic and construction activities during the construction phase could also negatively impact local residents and road users.

The labour force will not permanently reside within the construction site.

| | **Without mitigation** | **With mitigation** |
|---|---|---|
| ***Extent*** | Local – Regional (3) | Local – regional (2) |
| ***Duration*** | Short term (2) | Short term (2) |
| ***Magnitude*** | Moderate (6) | Low (4) |
| ***Probability*** | Probable (3) | Probable (3) |
| ***Significance*** | **Medium (33)** | **Low (24)** |
| ***Status (positive or negative)*** | Negative | Negative |
| ***Reversibility*** | Yes | |
| ***Irreplaceable loss of resources?*** | No | |

| ***Can impacts be mitigated?*** | Yes |
|---|---|

***Mitigation:***

- » Working hours must preferably be restricted to daylight hours during the construction phase. Where deviation of working hours is required, it must be approved by the relevant local authorities and surrounding landowners must be notified.
- » All vehicles must be road worthy, and drivers must be licensed, obey traffic rules, follow speed limits and made aware of the potential road safety issues.
- » Construction vehicles should be inspected regularly by the EPC contractor to ensure their road worthiness.
- » Adequate and strategically placed traffic warning signs and control measures must be placed along the gravel farm access roads to warn road users of the construction activities taking place for the duration of the construction phase. Warning signs must be visible at all times, and especially at night and must be maintained throughout the construction phase.
- » Implement penalties for reckless driving as a way to enforce compliance to traffic rules.
- » Avoid heavy vehicle activity through residential areas during "peak" hours (when children are taken to school, people driving to work, etc.).
- » The developer and EPC contractor must ensure that all fencing along access roads is maintained in the present condition or repaired if disturbed or damaged due to construction activities.
- » The developer and EPC Contractor must ensure that the roads utilised for construction activities are either maintained in the present condition or upgraded if damaged (i.e. wear and tear) due to construction activities.
- » A protocol for communication must be implemented whereby procedures to lodge complaints are set out for the local community to express any complaints or grievances with the construction process.
- » Undertake information sessions with the surrounding communities, and affected and adjacent landowners, prior to construction to ensure that communities are fully informed of the project to be developed in its final form. This must be undertaken through the appointment of a CLO.
- » The placement of the power line route within the grid connection corridor must avoid the sensitive land uses undertaken by the affected landowners as far as possible. Consultation with the affected landowners must be undertaken in this regard.

***Cumulative impacts:***

Possible increase in crime level (with influx of people) with subsequent possible economic losses,

***Residual Risks:***

None anticipated

**Table 5-6: Assessment of nuisance impacts (noise and dust)**

***Nature:*** Nuisance impacts in terms of temporary increase in noise and dust.

Nuisance impacts associated with construction related activities include noise, dust, and possible disruption to adjacent properties. Site clearing activities increase the risk of dust and noise being generated, which can in turn negatively impact on adjacent properties. The movement of heavy construction vehicles and construction activities and equipment also have the potential to create noise, as well as impacts on travellers travelling along the gravel access roads. The primary sources of noise during construction would be from construction equipment, vehicle and truck traffic. Noise levels can be audible over a large distance although are generally short in duration. Dust would be generated from construction activities as well as trucks / vehicles driving on gravel access roads. This impact will

| | | |
|---|---|---|
| negatively impact sensitive receptors. The impact of noise and dust on sensitive receptors can be reduced through the application of appropriate mitigation measures. | | |
| | **Without mitigation** | **With mitigation** |
| ***Extent*** | Local (1) | Local (2) |
| ***Duration*** | Short term (2) | Short term (2) |
| ***Magnitude*** | High (8) | Moderate (6) |
| ***Probability*** | Highly probable (4) | Probable (3) |
| ***Significance*** | **Medium (44)** | **Low (27)** |
| ***Status (positive or negative)*** | Negative | Negative |
| ***Reversibility*** | Yes | |
| ***Irreplaceable loss of resources?*** | No | |
| ***Can impacts be mitigated?*** | Yes | |
| ***Mitigation:***<br>» The movement of heavy vehicles associated with the construction phase through populated areas should be timed to avoid weekends, public holidays and holiday periods, where feasible.<br>» Dust suppression measures must be implemented for heavy vehicles such as wetting of gravel roads on a regular basis and ensuring that vehicles used to transport sand and building materials are fitted with tarpaulins or covers.<br>» A speed limit of 40km/hr should be implemented on gravel roads.<br>» Ensure all vehicles are road worthy, drivers are licensed and are made aware of the potential noise and dust issues.<br>» A CLO should be appointed. A method of communication should be implemented whereby procedures to lodge complaints are set out in order for the local community to express any complaints or grievances with the construction process.<br>» A stakeholder management plan must be implemented by the EPC contractor to address neighbouring farmer concerns regarding safety and security. | | |
| ***Cumulative impacts:***<br>Other construction activities in area will heighten the nuisance impacts, such as noise, dust and war and tear on roads. | | |
| ***Residual Risks:***<br>None anticipated | | |

**Table 5-7: Assessment of visual impacts and impacts on the sense of place**

| |
|---|
| ***Nature:*** Intrusion impacts from construction activities will have an impact on the area's "sense of place".<br><br>Intrusion impacts such as aesthetic pollution (i.e. building materials, construction vehicles, etc.), noise and light pollution will impact the "sense of place" for the local community. Construction related activities have the potential to negatively impact a local area's "sense of place". Such an impact is likely to be present during the construction phase. It is envisaged that the structures, where visible from shorter distances (e.g. less than 1km and potentially up to 3km), and where sensitive visual receptors may find themselves within this zone, may constitute a high visual prominence, potentially resulting in a visual impact. This may include residents of the farm dwellings mentioned above, as well as observers travelling along the R380 arterial road in closer proximity to the facility. |

| | | |
|---|---|---|
| Cumulative visual exposure from the formerly mentioned elevated areas occurs at varying distances from the sites, with some sites appearing in the foreground, whilst others further away in the distance. It is also possible that solar panel structures from a Solar Energy Facility closer to the observer may obstruct views of SEFs structures located further away, thereby negating the potential cumulative visual impact. | | |
| | **Without mitigation** | **With mitigation** |
| ***Extent*** | Local (2) | Local (2) |
| ***Duration*** | Short term (2) | Short term (2) |
| ***Magnitude*** | Moderate (6) | Low (4) |
| ***Probability*** | Highly probable (4) | Probable (3) |
| ***Significance*** | **Moderate (40)** | **Low (24)** |
| ***Status (positive or negative)*** | Negative | Negative |
| ***Reversibility*** | Yes | |
| ***Irreplaceable loss of resources?*** | No | |
| ***Can impacts be mitigated?*** | Yes | |
| ***Mitigation:***<br>» Retain and maintain natural vegetation immediately adjacent to the development footprint.<br>» Ensure that vegetation is not unnecessarily removed during the construction phase.<br>» Plan the placement of laydown areas and temporary construction equipment camps in order to minimise vegetation clearing (i.e. in already disturbed areas) wherever possible.<br>» Restrict the activities and movement of construction workers and vehicles to the immediate construction site and existing access roads.<br>» Ensure that rubble, litter, and disused construction materials are appropriately stored (if not removed daily) and then disposed regularly at licensed waste facilities.<br>» Reduce and control construction dust using approved dust suppression techniques as and when required (i.e. whenever dust becomes apparent).<br>» Restrict construction activities to daylight hours whenever possible in order to reduce lighting impacts.<br>» Rehabilitate all disturbed areas immediately after the completion of construction works. | | |
| ***Cumulative impacts:***<br>The primary visual impact, namely the layout and appearance of the PV panels is not possible to mitigate. | | |
| ***Residual Risks:***<br>None, provided rehabilitation works are carried our as specified. | | |

### 5.2. Potential Social impacts during the Operation Phase

It is anticipated that the San Solar PV will operate for approximately 20 years which is equivalent to the operational lifespan of the project).

The potential positive and negative social impacts that could arise because of the operation of the proposed project include the following:

» Establishment of renewable energy infrastructure
» Direct and indirect employment opportunities
» Benefits associated with establishment of community trust and SED

» Visual impact and sense of place impacts
» Impacts associated with the loss of agricultural land

**Table 5-8: Employment opportunities and skills development**

| | | |
|---|---|---|
| ***Nature:*** The creation of employment opportunities and skills development opportunities during the operation phase.<br><br>Given the location of the proposed facility the majority of permanent staff is likely to reside in Debn. In terms of accommodation options, a percentage of the non-local permanent employees may purchase houses in Deben, while other may decide to rent. Both options would represent a positive economic benefit for the region. In addition, a percentage of the monthly wage bill earned by permanent staff would be spent in the regional and local economy, which will benefit local businesses in these towns. The benefits to the local economy will extend over the operational lifespan of the project.<br><br>The local hospitality industry in Deben would also benefit from the operational phase. These benefits are associated with site visits by company staff members and other professionals (engineers, technicians, etc.) who are involved in the company and the project but who are not limited to day-to-day operations | | |
| | **Without mitigation** | **With mitigation** |
| ***Extent*** | Local-Regional (3) | Local-regional (3) |
| ***Duration*** | Long-term (4) | Long-term (4) |
| ***Magnitude*** | Low (4) | Low (4) |
| ***Probability*** | Highly probable (4) | Definite (5) |
| ***Significance*** | **Medium (44)** | **Medium (55)** |
| ***Status (positive or negative)*** | Positive | Positive |
| ***Reversibility*** | N/A | |
| ***Irreplaceable loss of resources?*** | No | |
| ***Can impacts be mitigated?*** | Yes | |
| ***Mitigation:***<br>» It is recommended that a local employment policy is adopted by the developer to maximise the project opportunities being made available to the local community. Enhance employment opportunities for the immediate local area, Govan Mbeki Local Municipality, if this is not possible, then the broader focus areas should be considered for sourcing employees.<br>» The recruitment selection process should seek to promote gender equality and the employment of women wherever possible<br>» The developer should establish vocational training programs for the local employees to promote the development of skills. | | |
| ***Cumulative impacts:***<br>Opportunity to upgrade and improve skills levels in the area | | |
| ***Residual Risks:***<br>Improved pool of skills and experience in the local area | | |

**Table 5–9: Assessment of the visual impact and impacts on sense of place**

| |
|---|
| ***Nature:*** Visual impacts and sense of place impacts associated with the operation phase of the San Solar PV Facility. |

An area's sense of place is created through the interaction of various characteristics of the environment, including atmosphere, visual resources, aesthetics, climate, lifestyle, culture, and heritage. An area's sense of place is however subjective and largely dependent on the demographics of the population residing within the area and their perceptions regarding trade-offs. For example, while some individuals may prefer not to see any form of infrastructure development, others may be interested in large-scale infrastructure, or engineering projects and consider the impact to be less significant. Such a scenario may be true given that one of the main economic sectors within the area is mining which has altered the landscape from natural to industrial.

Given the location of the corridor within an area characterised as having a low-medium population density, and given the project's location within close proximity to existing operational and visible grid infrastructure and other industrial developments, the visual impact and impact on the area's sense of place associated with the construction of the proposed project, from a social perspective, is anticipated to be of a very limited significance.

| | **Without mitigation** | **With mitigation** |
|---|---|---|
| ***Extent*** | Local (1) | Local (1) |
| ***Duration*** | Long-term (4) | Long-term (4) |
| ***Magnitude*** | Low (4) | Minor (2) |
| ***Probability*** | Highly Probable (4) | Probable (3) |
| ***Significance*** | **Medium (36)** | **Low (21)** |
| ***Status (positive or negative)*** | Negative | Negative |
| ***Reversibility*** | Yes | |
| ***Irreplaceable loss of resources?*** | No | |
| ***Can impacts be mitigated?*** | Yes | |

***Mitigation:***

- » Maintain and manage the associated infrastructure to be in a good and neat condition to ensure that no degradation of the area and the associated infrastructure servitude takes place and impacts the visual quality of the area.
- » Implement the relevant mitigation measures as recommended in the Visual Impact Assessment.

***Cumulative impacts:***

Vegetation screening established if required

***Residual Risks:***

The visual impact of the PV facility will remain until the infrastructure is completely decommissioned and removed. Thereafter the impact will be removed.

**Table 5-10: Assessment on the loss of agricultural land and overall productivity**

***Nature:*** Loss of agricultural land and overall productivity because of the operation of the proposed project on an agricultural property.

The development footprint on which the solar energy facility will be developed will be removed from agricultural production. This could have negative implications in terms of food production and security and could also threaten jobs of workers employed in the agricultural activities.

| | **Without mitigation** | **With mitigation** |
|---|---|---|
| ***Extent*** | Local (1) | Local-regional (2) |
| ***Duration*** | Long-term (4) | Long-term (4) |
| ***Magnitude*** | Moderate (6) | Low (4) |

| | | |
|---|---|---|
| ***Probability*** | Probable (3) | Improbable (2) |
| ***Significance*** | **Medium Negative (33)** | **Medium Negative (20)** |
| ***Status (positive or negative)*** | Negative | Negative |
| ***Reversibility*** | Yes | |
| ***Irreplaceable loss of resources?*** | No | |
| ***Can impacts be mitigated?*** | Yes | |
| ***Mitigation:***<br>» Keep the project footprint as small as possible.<br>» Avoid interference with current agricultural activities undertaken within the affected properties. | | |
| ***Cumulative impacts:***<br>Vegetation screening established if required | | |
| ***Residual Risks:***<br>None expected to occur. | | |

## 5.3. Cumulative Impacts

The EIA Regulations, 2014 (GNR 326) define a cumulative impact as follows:

*"Cumulative impact in relation to an activity, means the past, current and reasonably foreseeable future impact of an activity, considered together with the impact of activities associated with that activity that in itself may not be significant, but may become significant when added to the existing and reasonably foreseeable impacts eventuating from similar or diverse activities."*

There are three operational PV facilities within the study area. These are the Sishen Solar PV, the Kathu SEF and the Kathu Solar PV facilities. The former two PV facilities are located respectively 382m west and 2km south-west of the proposed San Solar PV facility. The Kathu Solar PV facility is located 6km east-south-east of the proposed San Solar PV site.

Cumulative visual exposure occurs at varying distances from the sites, where one site might be in the foreground and the others further away in the distance. These areas of high frequency of visual exposure predominantly fall within vacant farmland, generally devoid of potential sensitive visual receptors.

Areas of moderate frequency of visual exposure (i.e. where two facilities may be visible) also predominantly fall within vacant farmland, with only a section of the Deben secondary road potentially exposed to two PV facilities. From the visual impact assessment report it is noted that the cumulative visual impact of these three proposed PV facilities is ultimately expected to be of moderate to low significance due to their remote locations and the general absence of potential sensitive visual receptors. It is further preferred that the proposed San Solar PV facility be placed in as close a proximity to the Sishen and Kathu SEFs as possible, as these two PV facilities represent an existing visual disturbance, i.e. the visual amenity at this location has already been compromised.

The potential for cumulative impacts to occur as a result of the projects is therefore likely. Potential cumulative impacts identified for the project include positive impacts on the economy, business development, and employment, as well as negative impacts such as an influx of jobseekers and change in the area's sense of place.

## 5.4. Cumulative Impacts associated with San Solar PV Faciliy

**Table 5-11: Cumulative impact from employment, skills and business opportunities**

***Nature:*** Employment, skills and business opportunities

San Solar PV Facility and the establishment of other solar power projects within the area has the potential to result in significant positive cumulative impacts, specifically with regards to the creation of a number of socio-economic opportunities for the region, which in turn, can result in positive social benefits. The positive cumulative impacts include creation of employment, skills development and training opportunities, and downstream business opportunities. The cumulative benefits to the local, regional, and national economy through employment and procurement of services are more considerable than that of San Solar PV Facility alone.

| | **Overall impact of proposed project considered in isolation** | **Cumulative impact of the project and other projects in the area** |
|---|---|---|
| ***Extent*** | Local (1) | Local-regional (3) |
| ***Duration*** | Long-term (4) | Long-term (4) |
| ***Magnitude*** | Moderate (6) | Moderate (6) |
| ***Probability*** | Probable (3) | Highly probable (4) |
| ***Significance*** | **Medium (33)** | **Medium (52)** |
| ***Status (positive or negative)*** | Positive | Positive |
| ***Reversibility*** | N/A | |
| ***Irreplaceable loss of resources?*** | N/A | |
| ***Can impacts be mitigated?*** | Yes | |
| ***Confidence in findings*** | High | |

***Mitigation:***

The establishment of a number of solar power projects under the REIPPP Programme in the area has the potential to have a positive cumulative impact on the area in the form of employment opportunities, skills development and business opportunities. The positive benefits will be enhanced if local employment policies are adopted and local services providers are utilised by the developers to maximise the project opportunities available to the local community.

**Table 5-12: Cumulative impact with large scale in-migration of people**

***Nature:*** Negative impacts and change to the local economy with an in-migration of labourers, businesses and jobseekers to the area

While the development of a single solar power project may not result in a major influx of people into an area, the development of several projects may have a cumulative impact on the in-migration and movement of people. In addition, the fact that the project is proposed within an area characterised by good levels of solar irradiation suitable for the development of commercial solar energy facilities implies that the surrounding area is likely to be subject to considerable future applications for PV energy facilities. Levels of unemployment, and the low level of earning potential may attract individuals to the area in search of better employment opportunities and higher standards of living. It is very difficult to control an influx of people into an area, especially in a country where unemployment rates are high. It is therefore

| important that the project proponent implement and maintain strict adherence with a local employment policy in order to reduce the potential of such an impact occurring. | | |
|---|---|---|
| | **Overall impact of proposed project considered in isolation** | **Cumulative impact of the project and other projects in the area** |
| ***Extent*** | Local (1) | Local-regional (2) |
| ***Duration*** | Short-term (2) | Long-term (4) |
| ***Magnitude*** | Low (4) | Low (4) |
| ***Probability*** | Very improbable (3) | Probable (3) |
| ***Significance*** | **Low (7)** | **Medium (30)** |
| ***Status (positive or negative)*** | Negative | Negative |
| ***Reversibility*** | Yes | |
| ***Irreplaceable loss of resources?*** | No | |
| ***Can impacts be mitigated?*** | Yes | |
| ***Confidence in findings*** | High | |
| ***Mitigation:***<br>» Develop a recruitment policy / process (to be implemented by contractors), which will source labour locally.<br>» Work together with government agencies to ensure service provision is in line with the development needs of the local area.<br>» Form joint ventures with community organisations, through Trusts, which can provide local communities with benefits, such as employment opportunities and services. | | |

**Table 5-13: Cumulative impact on the sense of place and landscape character**

| ***Nature:*** Visual impact and impact on the sense of place and landscape character<br><br>The social impacts associated with the impact on sense of place relate to the change in the landscape character and visual impact of San Solar Facility. Given the location of the project on a private property, within an area characterised as a mining area, the visual impact and impact on the area's sense of place associated with the project is anticipated to be of a low significance. The alteration of the sense of place in view of the local residents (specifically adjacent landowners) and road users will start during the construction phase and remain for the project's operational lifetime. The area has been exposed to large scale industrial development.<br><br>The anticipated cumulative visual impact of the proposed SEFs is expected to be of moderate significance, which is acceptable from a visual perspective. This is due to the relatively low viewer incidence within close proximity to the proposed development sites and the presence of the existing electricity infrastructure and mining activities (Sishen Mine) within the region. | | |
|---|---|---|
| | **Overall impact of proposed project considered in isolation** | **Cumulative impact of the project and other projects in the area** |
| ***Extent*** | Local (2) | Regional (3) |
| ***Duration*** | Long-term (4) | Long-term (4) |
| ***Magnitude*** | Moderate (6) | High (8) |
| ***Probability*** | Probable (3) | Probable (3) |
| ***Significance*** | **Moderate (36)** | **Moderate (45)** |
| ***Status (positive or negative)*** | Negative | Negative |
| ***Reversibility*** | Yes | |

| | |
|---|---|
| ***Irreplaceable loss of resources?*** | No |
| ***Can impacts be mitigated?*** | No, only best practice measures can be implemented |
| ***Confidence in findings*** | High |
| ***Mitigation:***<br>» Retain/re-establish and maintain natural vegetation immediately adjacent to the development footprint.<br>» Maintain the general appearance of the facility as a whole.<br>» Remove infrastructure not required for the post-decommissioning use.<br>» Rehabilitate all affected areas. Consult an ecologist regarding rehabilitation specifications. | |
| ***Residual impacts:***<br>» The visual impact will be removed after decommissioning, provided the PV facility infrastructure is removed. Failing this, the visual impact will remain. | |

## 5.5. Decommissioning Phase

Typically, major social impacts associated with the decommissioning phase are linked to the loss of jobs and associated income and will be similar to the impacts during the construction phase associated with construction activities. This has implications for the households who are directly affected, the communities within which they live, and the relevant local authorities. The impact of the decommissioning phase is expected to be negligible due to the small number of permanent employees affected. The potential impacts associated with decommissioning phase can also be effectively managed with the implementation of a retrenchment and downscaling programme. With mitigation, the impacts are assessed to be Low (negative).

**Table 5-14: Assessment of Decommissioning**

| ***Nature:***<br>**Social impacts associated with decommissioning** | |
|---|---|
| | **Overall impact of the proposed project considered in isolation** |
| ***Extent*** | Local (1) |
| ***Duration*** | Medium-term (2) |
| ***Magnitude*** | Moderate (6) |
| ***Probability*** | Highly Probable (4) |
| ***Significance*** | **Medium (40)** |
| ***Status (positive or negative)*** | Negative |
| ***Reversibility*** | Yes |
| ***Irreplaceable loss of resources?*** | No |
| ***Can impacts be mitigated?*** | Yes |
| ***Confidence in findings:*** High. | |
| ***Mitigation:***<br>» The project developer/team to ensure there are retrenchment packages provided for all staff retrenched when plant is decommissioned<br>» All structures and infrastructure associated with the proposed facility should be dismantled and transported off-site on decommissioning<br>» Revenue generated from the sale of scrap metal during decommissioning should be allocated to funding closure and rehabilitation of distributed areas | |

## 5.6. Assessment of Impacts for the No-Go Option

The "no-go" alternative is the option of not constructing the San Solar PV Facility. The implementation of the proposed project is expected to result in a number of positive and negative social impacts. The majority of negative impacts identified for the project are associated with the construction phase of the project, while the positive impacts are associated with both the construction and operation phases of the project.

Potential negative social impacts associated with the construction and operation of the project include the following:

- Potential influx of job seekers and an associated change in population and increase in pressure on basic services.
- Potential safety and security impacts.
- Potential impacts on daily living and movement patterns.
- Potential nuisance impacts (noise and dust).
- Potential visual impact and impact on the sense of place.
- Potential loss of agricultural land.

Potential positive social impacts associated with the construction and operation of the project include the following:

- Potential direct and indirect employment opportunities.
- Potential economic multiplier effect.

The impacts of pursuing the "no-go" alternative can therefore be summarised as follows:

- The benefits would be that there is no disruption from nuisance impacts (noise and dust during construction), visual impacts and safety and security impacts. The impact is therefore neutral.
- There would also be an opportunity loss in terms of limited job creation, skills development, community upliftment and associated economic business opportunities for the local economy. This impact is considered to be negative.
- The opportunity to strengthen the grid connection within the municipal area would be lost which will have a negative impact on economic growth and development and therefore result in negative social impacts.

**Table 5-9: Assessment of No-Development Option**

| ***Nature:*** **The no-development option would result in the lost opportunity for South Africa to supplement its current energy needs with clean, renewable energy** | |
|---|---|
| | **Overall impact of the proposed project considered in isolation** |
| ***Extent*** | Local-International (4) |
| ***Duration*** | Long term (4) |
| ***Magnitude*** | Moderate (6) |
| ***Probability*** | Highly Probable (4) |
| ***Significance*** | **Moderate (56)** |
| ***Status (positive or negative)*** | Negative |
| ***Reversibility*** | Yes |
| ***Irreplaceable loss of resources?*** | N/A |

| | |
|---|---|
| ***Can impacts be mitigated?*** | Yes |
| ***Confidence in findings:*** High. | |
| ***Mitigation:***<br>» Reduce carbon emissions via the use of renewable energy and associated benefits in terms of global warming and climate change. | |

# 6. CONCLUSION AND RECOMMENDATIONS

This SIA focused on the collection of data to provide an understanding of the current social environment associated with the San Solar PV Facility and grid connection corridor that is proposed and identifying and assessing social issues and potential social impacts associated with the development of such a nature. The environmental assessment framework for assessment of impacts and the relevant criteria was applied to evaluate the significance of the potential impacts and to recommend appropriate mitigation and enhancement measures for the identified impacts.

A summary of the potential positive and negative impacts identified for the detailed design, construction and operation phases are presented in Table 6-1 and Table 6-2. A summary of the potential positive and negative cumulative social impacts identified for the project is provided in key findings and recommendations.

**Table 6-1: Summary of potential social impacts identified for the detailed design and construction phase of the San Solar PV Facility**

| Impact | Status | Significance |
|---|---|---|
| ***Positive Impacts*** | | |
| Creation of direct and indirect employment and skills development opportunities. | Positive | Medium |
| Economic multiplier effects | Positive | Medium |
| ***Negative Impacts*** | | |
| In-migration of people (non-local workforce and jobseekers). | Negative | Medium |
| Safety and security impacts | Negative | Medium |
| Impacts on daily living and movement patterns | Negative | Low |
| Nuisance impact (noise and dust) | Negative | Low |
| Visual and sense of place impacts | Negative | Medium |

**Table 6-2: Summary of potential social impacts identified for the operation phase of the San Solar PV Facility**

| Impact | Status | Significance |
|---|---|---|
| ***Positive Impacts*** | | |
| Direct and indirect employment and skills development opportunities | Positive | Medium |
| Impacts associated with renewable energy infrastructure and SEDs | Positive | Medium |
| ***Negative Impacts*** | | |
| Visual and sense of place impacts | Negative | Low |
| Impacts associated with the loss of agricultural land. | Negative | Low |

**Table 6-3: Summary of potential cumulative social impacts identified for the operation phase of the San Solar PV Facility**

| Impact | Status | Significance |
|---|---|---|
| ***Positive Impacts*** | | |
| Cumulative impact from employment, skills and business opportunities and skills development | Medium | Medium |

| Impact | Status | Significance |
|---|---|---|
| ***Negative Impacts*** | | |
| Cumulative impact with large scale in-migration of people | Low | Medium |
| Visual and sense of place impacts | Low | Medium |
| Visual and sense of place impacts<br>Cumulative impact on the sense of place and landscape character | Low | Medium |

## 6.1. Key findings and Recommendations

The social impacts identified (including all positive and negative impacts) will be either of a low or medium significance. No negative impacts with a high significance rating have been identified to be associated with the development of the San Solar PV Facility. All negative social impacts are within acceptable limits with no impacts considered as unacceptable from a social perspective. The recommendations proposed for the project are considered to be appropriate and suitable for the mitigation of the negative impacts and the enhancement of the positive impacts.

Based on the findings of the SIA the proposed establishment of the San Solar PV is supported.

## 6.2. Recommendations

The following recommendations are made on the basis of the SIA. The proposed mitigation measures should be implemented to limit the negative impacts and enhance the positive impacts associated with the project. Based on the social assessment, the following recommendations are made:

- The appointment of a CLO to assist with the management of social impacts and to deal with community issues, if feasible.
- It is imperative that local labour be sourced, wherever possible, to ensure that benefits accrue to the local communities. Efforts should be made to involve local businesses during the construction activities where possible. Local procurement of labour and services / products would greatly benefit the community during the construction and operation phases of the project.
- Local procurement of services and equipment is required where possible to enhance the multiplier effect.
- Involve the community in the process as far as possible (encourage co-operative decision making and partnerships with local entrepreneurs).
- Employ mitigation measures to minimise the dust and noise pollution and damage to existing roads.
- Safety and security risks should be considered during the planning / construction phase of the proposed project. Access control, security and management should be implemented to limit the risk of crime increasing in the area.

## 6.3. Overall Conclusion

The proposed project and associated infrastructure will create a number of potential socio-economic opportunities and benefits and is unlikely to result in permanent damaging social impacts. From a social perspective it is concluded that the project is acceptable subject to the implementation of the recommended mitigation and enhancement measures and management actions identified for the project. Considering the findings of the report and potential for mitigation it is the reasoned opinion of the specialist that the project can be authorised from a social perspective.

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**Annexure 1**

It is recommendation that the following measures are included in the EMPr and EA, should such authorisation be granted by DFFE.

**Pre-construction / Design Phase:**
No measures are recommended to be included in the EMPr and EA for the pre-construction and/or design phase

**Construction Phase:**

- **Noise**
  - The mitigation measures suggested by the noise specialist
- **Increase in crime**
  - Ensure that constructions workers are identifiable. All workers should carry identification cards and wear identifiable clothing.
  - Encourage local people to report any suspicious activity associated with the construction sites through the establishment of community liaison forum
  - Prevent loitering within the vicinity of the construction camp and construction sites
- **Increase in HIV Infections**
  - Ensure that an onsite HIV Infections Policy is in place and that construction have easy access to condoms
  - Expose workers to a health and HIV/Aids awareness educational program.
- **An influx of construction workers**
  - Communicate the limitation of opportunities created by the project through Community Leaders and Ward Councillors
  - Draw up a recruitment policy in consultation with the community leaders and Ward Councillors of the area and ensure compliance with this policy
- **Hazard exposure**
  - Ensure all construction equipment and vehicles are properly maintained at all times
  - Ensure that operations and drivers are properly trained and make them aware, through regular toolbox talks, of any risk they may pose to the community. Place specific emphasis on the vulnerable sector of the population, such as children and the elderly
  - Ensure that fires lit by construction staff are only ignited in designated areas and that the appropriate safety precautions, such as not lighting fires in strong winds and completely extinguishing fires before leaving them unattended, are strictly adhered to.
  - Make staff aware of the danger of fire during toolbox talks
- **Disruption of daily living pattens**
  - Ensure that, at all times, people have access to their properties as well as to social facilities.
- **Disruptions to social and community infrastructure**
  - Regularly monitor the effect that construction is having on infrastructure and immediately report any damage to infrastructure to the appropriate authority.

**Ensure that where communities' access is obstructed that this access is restored to an acceptable state**

- **Job creation and skills development**
  - Wherever feasible, local residents should be recruited to fill semi and unskilled jobs.
  - Women should be given equal employment opportunities are encouraged to apply for positions.
  - A skills transfer plan should be established at an early stage and workers should be given the opportunity to develop skills, which they can to secure jobs elsewhere post-construction.

- **Socio-economic impacts**
    - A procurement policy promoting the use of local business should, where possible, be installed and applied throughout the construction phase.

**Operational Phase:**

- **Transformation of the sense of place**
    - Apply the mitigation measures suggested in the Visual Impact Assessment Report.
    - Communicate the benefits associated with renewable energy to the broader community
    - Ensure that all affected landowners and tourist associations are regularly consulted
    - A Grievance Mechanism should be put in place and all grievance should be dealt with transparently
    - The mitigation measures recommended in the Heritage and Palaeontology Impact Assessment should be followed.
- **Socio-economic stimulation**
    - Ensue that the procurement policy supports local enterprises
    - Establish a social responsibility programme either in line with the REIPPP BID guidelines or equivalent;
    - Work closely with the appropriate municipal structures regarding establishing a social responsibility programme;
    - ensure that any trusts or funds are strictly managed in respect of outcomes and funds

**Monitoring Measures for include in the EMPr/EA**

Monitoring measures to be included in the EMPr are considered below in respect of the construction, operational and decommissioning phases of the project and in regard to the cumulative impacts associated with the project.

**Construction and Operational phase Monitoring**

A public grievance and incident register should be established and should be monitored internally by the developer and made available for public scrutiny if requested. Any incident should be immediately recorded and reported to management and all actions pertaining to that incident, as well as the final outcome of the complaint, should be recorded and signed off by management. If an independent environmental monitor is appointed, this register should be audited on at least a monthly basis.

**Decommissioning Phase:**

The time lag between constructing and decommissioning the project is extensive and, as the social environment is highly dynamic, it would therefore be meaningless to attach measurements. No measures are suggested in respect of cumulative impacts as these impacts would, in large, need to be addressed by the responsible authorities as they are beyond the control of project developers. For instance, the policing authorities can only address an increase in crime, due to a proliferation of activity in the area as it is beyond the scope of individual project developers. In much the same vein, an increased risk of HIV in the area would need to be addressed by the relevant health authorities.