

APPENDIX P

Socio-Economic Assessment



May 2016

ACWA POWER AFRICA HOLDINGS (PTY)
LTD

Socio-economic Impact Assessment for the proposed 75 MW Photovoltaic (PV1) Solar Facility (Bokpoort II Solar Development)

Submitted to:

ACWA Power Africa Holdings (Pty) Ltd



REPORT

Report Number: 1400951-302448-18

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Table of Contents

1.0 INTRODUCTION..... 1

2.0 PROJECT DESCRIPTION..... 1

 2.1 Photovoltaic Solar Facility..... 1

 2.2 Project Location..... 3

3.0 METHODOLOGY..... 5

 3.1 Delineation of the Study Area..... 5

 3.2 Desktop Review..... 5

 3.3 Data Analysis and Report Writing..... 7

 3.4 Impact Assessment Methodology..... 7

4.0 SOCIAL BASELINE 8

 4.1 Regional Baseline..... 8

 4.1.1 Historical Background 8

 4.1.2 Indigenous Peoples 9

 4.1.3 Administrative Setting 10

 4.1.4 Social Demographics 10

 4.1.5 Social Infrastructure 11

 4.1.6 Economic 13

 4.2 Local Baseline 15

5.0 IMPACT ASSESSMENT..... 18

 5.1 Construction Phase Impacts..... 19

 5.1.1 Local Employment..... 19

 5.1.2 Population Influx 20

 5.1.3 Economic Benefits 21

 5.1.4 Change in land use 21

 5.1.5 Traffic Impacts 22

 5.2 Operation Phase Impacts 22

 5.2.1 Employment Opportunities..... 22

 5.2.2 Training and skills development..... 23

 5.2.3 Continued Economic Benefits 23

 5.2.4 Continued Population Influx 23



5.2.5 Visual Impacts..... 24

5.3 Decommissioning and Closure Phase 24

5.4 Impact Ratings..... 25

6.0 CUMULATIVE IMPACT 26

6.1 Employment..... 26

6.1.1 Employment during Construction 26

6.1.2 Employment during the Operational Phase..... 27

6.2 Population Influx 27

6.3 Traffic Impacts 27

6.4 Continued Economic Benefits..... 27

6.5 Light Intrusion/Sense of Place Impacts..... 28

6.6 Cumulative Solar Power Projects 28

7.0 MITIGATION AND MANAGEMENT PLAN..... 33

7.1 Social Management Plan..... 33

7.2 Monitoring and Reporting 37

8.0 CONCLUSION 37

9.0 REFERENCE LIST 38

TABLES

Table 1: Location of the proposed activity 3

Table 2: Total population of the !Kheis LM, National Census 1996, 2001 and 2011 11

Table 3: Piped Water 11

Table 4: Sanitation systems 12

Table 5: Energy used for cooking..... 12

Table 6: Gross Value Added (2010)..... 13

Table 7: Agricultural households by type of activity in the!Kheis LM 14

Table 8: Description of farm portions within the local study area 15

Table 9: Proposed employment opportunities during construction..... 19

Table 10: Employment opportunities at Operational Phase 22

Table 11: Construction Phase Impact Ratings 25

Table 12: Operational Phase Impact Ratings..... 25

Table 13: Decommissioning and Closure Phase Impact Ratings..... 25

Table 14: Proposed local employment opportunities during construction 26

Table 15: Employment opportunities at operational phase 27



Table 16: Solar Energy Development Environmental Authorisation Applications in the Bokpoort II project area (Department of Environmental Affairs, 2016) 30

Table 17: Social Mitigation and Management Table 33

Table 18: Management and Monitoring Programme 35

FIGURES

Figure 1: PV power plant scheme 2

Figure 2: Example of a single axis tracking photovoltaic (PV) solar power plant..... 2

Figure 3: Example of PV solar power facility's tracker view 3

Figure 4: Locality map 4

Figure 5: Map of proposed site..... 6

Figure 6: Delineation of the project area 7

Figure 7: Percentage of agricultural households in each particular activity within the !Kheis LM (Stats SA, 2011) 14

Figure 8: Landscape of the project area..... 17

Figure 9: View from the project site of Bokpoort I solar development 17

Figure 10: Agricultural fields in the Orange River floodplains..... 18

Figure 11: Solar energy development environmental authorisation applications in the Bokpoort II project area (Department of Environmental Affairs, 2016) 29

APPENDICES

APPENDIX A

Document Limitations



1.0 INTRODUCTION

ACWA Power Africa Holdings (Pty) Ltd (hereafter referred to as ACWA Power) is proposing to construct a 75 MW photovoltaic solar facility (Bokpoort II PV1) on the north-eastern portion of the remaining extent of the farm Bokpoort 390. This farm is located 20 km northwest of the town of Groblershoop within !Kheis Local Municipality in the ZF Mgcawu District Municipality, Northern Cape Province.

Construction has been completed within the authorised 75 Megawatt (MW) concentrated solar power (CSP) parabolic trough development, located on the south-western portion of the farm Bokpoort 390 RE. The authorisation was granted by the Department of Environmental Affairs (DEA) in June 2011 ('Bokpoort I' site).

The proposed Bokpoort II PV solar development is situated within the area previously assessed in the Environmental Impact Assessment (EIA) for the Bokpoort I site. The Bokpoort I EIA's sensitivity zoning map indicates that the project footprint for the proposed Bokpoort II solar development is in a preferred and acceptable developable area.

ACWA Power has reported that the development will be funded both locally and internationally and hence the EIA for the proposed development would need to comply with the International Finance Corporation Performance Standards (IFC) 2012 and the Equator Principles.

ACWA Power is proposing to bid to the Department of Energy (DoE) under the Renewable Energy Independent Power Producer Procurement Programme (REIPPPP) for two different solar technologies which could be developed on the site. Each of the applications lodged to the DEA, if authorised, will be tendered in the DoE REIPPPP. Only successful bids in the REIPPPP will be considered for construction. This report is for the proposed 75 MW photovoltaic (PV1) solar power plant.

Golder Associates Africa (Pty) Ltd (Golder) will undertake the environmental authorisation including an EIA for the project. The scoping phase of the project has been completed and the impact assessment phase will incorporate specialist studies for this project. The social impact assessment is one of the specialist studies which will be undertaken and this document forms part of the overall EIA.

2.0 PROJECT DESCRIPTION

The proposed Bokpoort II PV solar technology (PV1) is discussed below.

2.1 Photovoltaic Solar Facility

The photovoltaic (PV) solar power plant converts the sun's energy directly into electrical energy. The PV plant will consist of 75 MW photovoltaic solar arrays. The facility consists of the following main functional groups (Figure 1):

- Solar generator comprised of polycrystalline PV modules (JINKO solar modules JKM 310 Wp) with an electricity export capacity of up to 75 MW;
- Inverters that convert direct current (DC) generated by the PV modules into alternating current (AC) to be exported to the electrical grid. The inverter is a HSC2160S solar station manufactured by Helios Systems. The inverter is an 11.28 m high cube container which includes the DC distribution, the inverter, the medium voltage transformer and the medium voltage switchgear;
- A transformer that raises the system AC low voltage to medium voltage. The transformer converts the voltage of the electricity generated by the PV panels to the correct voltage for delivery to Eskom;
- Transformer substation; and
- Instrumentation and Control consisting of hardware and software for remote plant monitoring and operation of the facility.

Associated infrastructure includes (Figure 1 and Figure 3):

- Mounting structures for the solar panels will be either rammed steel piles or piles with pre-manufactured concrete footings to support the PV panels;
- Cabling between the structures, to be laid underground where practical;



SIA FOR THE PROPOSED PV1 SOLAR FACILITY

- A new power line which will connect the facility to the national grid via Eskom's existing Garona Substation;
- Internal access roads (4 – 6 m wide roads will be constructed but existing roads will be used as far as possible) and fencing (approximately 3 m in height); and
- Associated buildings, including a workshop area for maintenance, storage (i.e. fuel tanks, etc.) and offices.

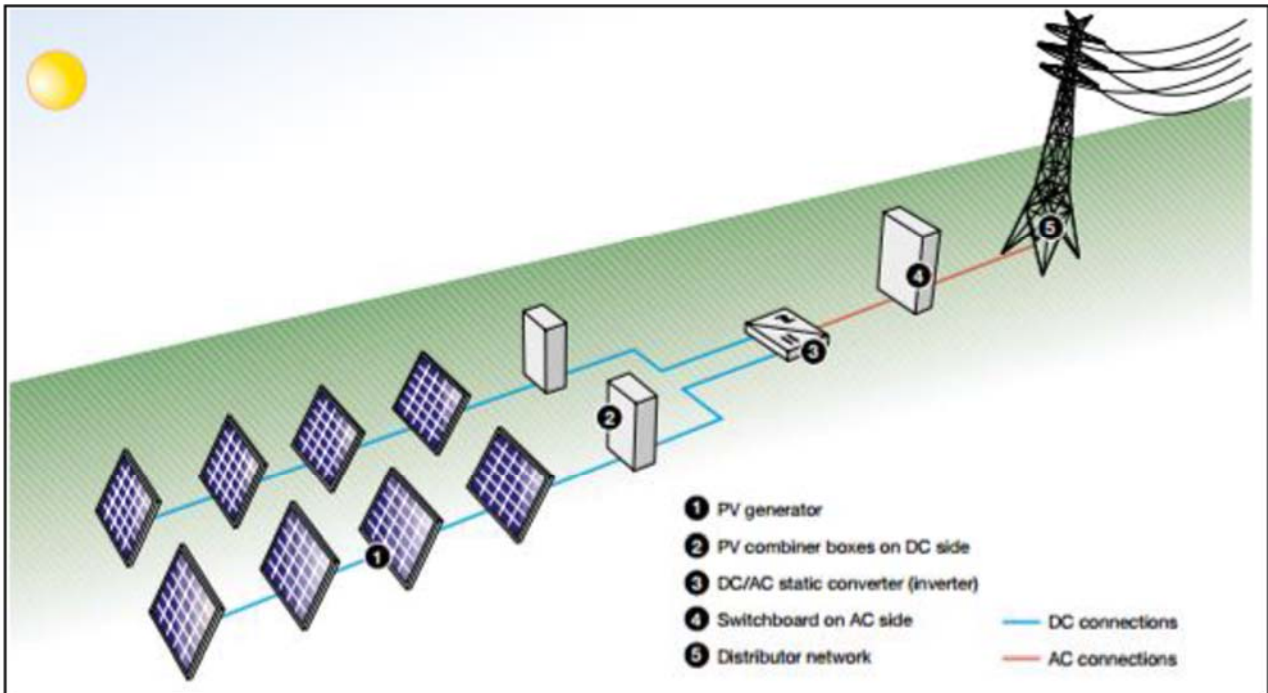


Figure 1: PV power plant scheme

An example of an installed PV facility is shown in Figure 2.



Figure 2: Example of a single axis tracking photovoltaic (PV) solar power plant



Figure 3: Example of PV solar power facility's tracker view

2.2 Project Location

The project site is located on the north-eastern portion of the remaining extent of the Farm Bokpoort 390 which is 20 km north-west of the town of Groblershoop within Ward 3 of !Kheis Local Municipality in the ZF Mgcawu District Municipality in the Northern Cape Province of South Africa (Figure 4). The approximate centre of the project area is 28°41'59.89"S and 22° 0'35.07"E. The total Bokpoort II project area, designated for the development, is approximately 1 500 ha. Bokpoort is situated approximately 77 km south-east of Upington. The Orange River is located approximately 12 km south-west of the site.

The 21 digit Surveyor General code of each cadastral land parcel is provided in Table 1 below.

Table 1: Location of the proposed activity

Farm Name	SG 21 Digit Code	Physical Address	Comments
The farm Bokpoort 390 RE	C02800000000039000000	Farm Bokpoort 390 Groblershoop	Preferred location of solar development and associated infrastructure.
Farm Sanddraai 391 Portion 0	C02800000000039100000	Farm Sanddraai 391 Portion 0 Groblershoop	Preferred location for placing water pipeline in existing water pipeline servitude.
Farm Sanddraai 391 Portion 5	C02800000000039100005	Farm Sanddraai 391 Portion 5 Groblershoop	Preferred location for placing water pipeline in existing water pipeline servitude.



SIA FOR THE PROPOSED PV1 SOLAR FACILITY

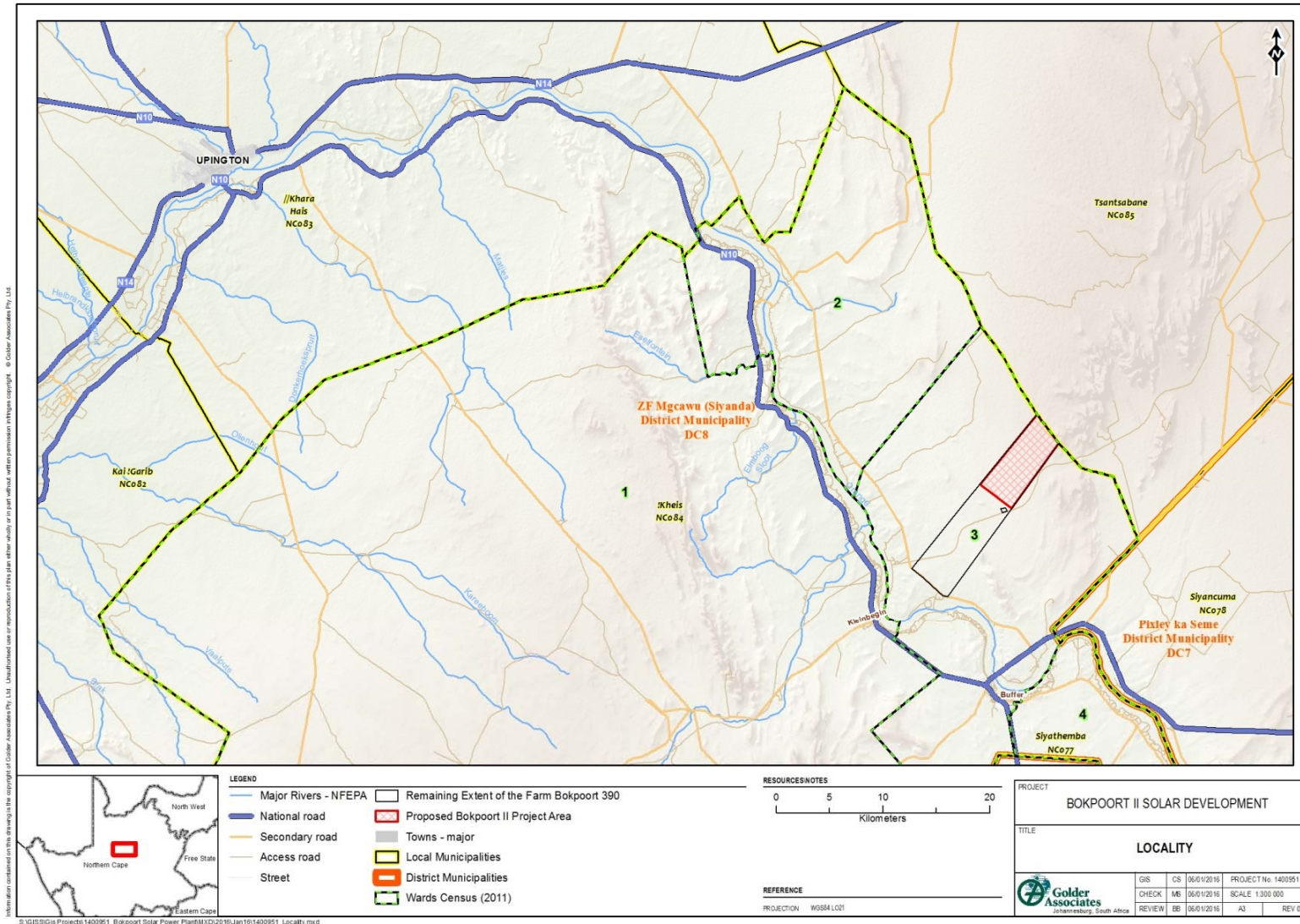


Figure 4: Locality map



3.0 METHODOLOGY

The study used a predominantly qualitative desktop approach, supported by secondary data gathering, to generate a baseline and assess impacts.

The SIA methodology involves a delineation of the study area, and the desktop study involved measuring project effects against baseline conditions. An in-depth understanding of the Project and its environmental impacts is required to determine the ways and extent of project impacts on communities. Assignment of significance is assigned qualitatively, based on professional experience and the level of concern expressed in the Comment and Response Report. Significance is assigned before and after mitigation and social management is applied.

3.1 Delineation of the Study Area

The area surrounding the proposed 75 MW PV 1 project area is a rural area involving commercial agriculture and livestock farming as well as game farming. The areas outside the towns and residential areas are generally rural and underdeveloped. The population resides mostly in the towns of Groblershoop, Wegdraai and Upington, which represent the primary service centres for the surrounding rural farm areas.

There is one settlement (~14 km southwest) from the centre point of the project site. Additionally, the Bokpoort I solar development has recently been completed and is located in the southern portion of the remaining extent of the Farm Bokpoort 390. The project area is remote as it is located away from the main roads and other farms along the banks of the Orange River.

Two national roads traverse the local municipality, the N10 and N8, Road R64, along which future economic development potential exists. The total population of Ward 3 of the municipality is 2 510. The population of the ZF Mgcawu District Municipality is 157 318.

The !Kheis LM area is characterised as predominantly rural farming, with extensive farming constituting approximately 40% of the total area within the local municipalities' jurisdiction. The site is situated north-west of the town of Groblershoop within Ward 3 of LM in the ZF Mgcawu District Municipality, Northern Cape Province.

3.2 Desktop Review

A desktop review of existing information was undertaken for the social environment. Documents reviewed include:

- EIA for a proposed 75 MW concentrating solar thermal power plant and associated infrastructure in the Siyanda District, Northern Cape, compiled by Bohlweki and SSI Environmental Consultancies in February 2011;
- Social Impact Assessment Report for the proposed Concentrated Solar Thermal Power Plant at the Olyvenhoutsdrift Farm, Northern Cape compiled by Afrosearch for Bohlweki in December 2006;
- Environmental and Social Review Summary for the Kaxu Solar One or Pofadder Solar Thermal Plant in the Northern Cape compiled by the International Finance Corporation (IFC) in April 2012;
- National Census 2011 Statistics South Africa;
- ZF Mgcawu District Municipality Integrated Development Plan (IDP) 2016-2017;
- !Kheis LM Integrated Development Plan (IDP) 2014-2015;
- Draft Scoping Report. Proposed 75 MW Photovoltaic (PV1) Solar Power Development on the remaining extent of the farm Bokpoort 390, Northern Cape. Golder Associates Africa (Pty) Ltd. January 2016; and
- Draft Scoping Report. Proposed 75 MW Photovoltaic (PV2) Solar Power Development on the remaining extent of the farm Bokpoort 390, Northern Cape. Golder Associates Africa (Pty) Ltd. January 2016.

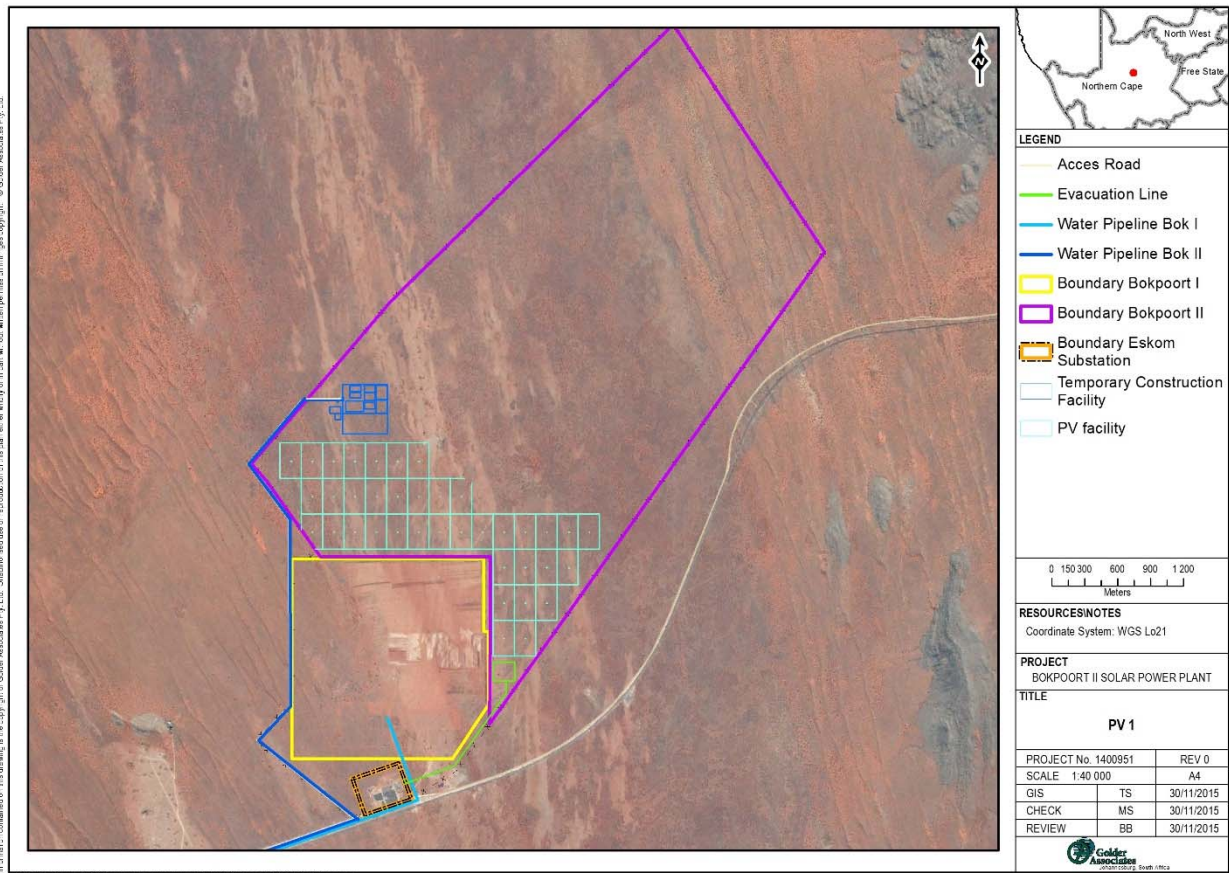


Figure 6: Delineation of the project area

3.3 Data Analysis and Report Writing

This study utilised quantitative data from the National Census 2011 which would be interpreted using statistical analysis. Qualitative data from existing studies and documentation was analysed using thematic or content analysis to gain insight into possible local issues and challenges. Key themes were identified that related to salient local dynamics, issues and concerns, this was incorporated into the social baseline. Potential project impacts that were identified through thematic/content analysis were incorporated into the impact analysis and assessment.

The impact assessment takes into consideration the various components of the proposed solar power operation for all project phases (construction, operations, closure/decommissioning). Some impacts are already occurring, for instance, those related to the establishment of the construction of the Bokpoort I solar facility and other existing solar projects in the local area and associated infrastructure and activities, and will be described in full with the mitigation measures that have and will be implemented to manage those impacts.

3.4 Impact Assessment Methodology

The significance of the identified impacts will be determined using the approach outlined below (terminology from the DEA and Tourism Guideline document on EIA Regulations, April 1998). This approach incorporates two aspects for assessing the potential significance of impacts, namely occurrence and severity, which are further sub-divided as follows:

Occurrence		Severity	
Probability of occurrence	Duration of occurrence	Scale/extent of impact	Magnitude (severity) of impact



To assess these factors for each impact, the following four ranking scales are used:

Probability	Duration
5 - Definite/don't know	5 - Permanent
4 - Highly probable	4 - Long-term
3 - Medium probability	3 - Medium-term (8 - 15 years)
2 - Low probability	2 - Short-term (0 - 7 years) (impact ceases after the operational life of the activity)
1 - Improbable	1 – Immediate
0 - None	
Scale	Magnitude
5 - International	10 - Very high/don't know
4 - National	8 - High
3 - Regional	6 - Moderate
2 - Local	4 - Low
1 - Site only	2 - Minor
0 - None	

Once these factors are ranked for each impact, the significance of the two aspects, occurrence and severity, is assessed using the following formula:

■ **SP (significance points) = (magnitude + duration + scale) x probability.**

The maximum value is 100 significance points (SP). The impact significance will then be rated as follows:

SP >75	Indicates high environmental significance	An impact which could influence the decision about whether or not to proceed with the project regardless of any possible mitigation.
SP 30 – 75	Indicates moderate environmental significance	An impact or benefit which is sufficiently important to require management and which could have an influence on the decision unless it is mitigated.
SP <30	Indicates low environmental significance	Impacts with little real effect and which should not have an influence on or require modification of the project design.
+	Positive impact	An impact that constitutes an improvement over pre-project conditions.

4.0 SOCIAL BASELINE

4.1 Regional Baseline

The regional study area is depicted by the provincial, district and local municipalities for the area. These are namely the Northern Cape Province, the ZF Mgcawu District Municipality, the !Kheis LM and Ward 3.

4.1.1 Historical Background

The !Kheis Municipal Area was initially inhabited by the Khoisan people, who've also been the first permanent inhabitants of South Africa. The San, who lived a nomadic life, migrated through the area. The Korannas (Khoi group) arrived in the area during the 18th century. They were widely spread over the “Benede Oranje” area and consisted of various tribes, each with its captain (leader). The groups who lived in the area were under the leadership of Captain Willem Bostander and Klaas Springbok.



Many of their descendants still live in the area today. Other Khoi-groups, such as the Griekwas, also migrated through the area and intermarried with the Korannas. Later Coloured stock farmers, as well as white hunters and farmers arrived.

The Korannas tenaciously protected their territory against English invaders, when the English wanted to shift the Colonial Northern Border up to the Orange River. After several Northern Border wars, the Korannas power was broken. Several Koranna leaders i.e. Dawid Diederiks, Jan Kivedo (Cupido), Karel Ruyter (Ruiters), Piet Rooi, Klaas Lukas, Jan Malgas and Thomas Pofadder were caught between 1870 and 1879 by the English and held captive as political prisoners on Robben Island. (The very first people sent to Robben Island as political prisoners, were Khoi people). In 1883, Piet Rooi died as a prisoner on Robben Island.

The actions of the English against the Korannas left them without leaders, which largely led to the fall of the Koranna people. The fact that the municipality was given the name !Kheis is indeed an acknowledgement to the native people who first migrated to this area (!Kheis LM IDP 2014-2017).

The !Kheis Municipality was established from the former Groblershoop Municipality, including the following settlements:

- Boegoeberg;
- Gariep;
- Grootdrink;
- Kleinbegin;
- Opwag;
- Topline; and
- Wegdraai.

These settlements were previously part of the Siyanda and Karoo District Municipalities (Boegoeberg: Karoo District Municipality). These Municipalities administrated these settlements and provided them with services up until the demarcation in November 2000. From December 2000, the !Kheis Municipality took over services and personnel and total service provision took place from 1 July 2001 (!Kheis LM IDP 2012-2017).

4.1.2 Indigenous Peoples

The IFCs Performance Standard 7 recognises that indigenous peoples, as social groups with identities that are distinct from mainstream groups in national societies, are often among the most marginalised and vulnerable segments of the population. In many cases, their economic, social, and legal status limits their capacity to defend their rights to, and interests in, lands and natural and cultural resources, and may restrict their ability to participate in and benefit from development. Indigenous Peoples are particularly vulnerable if their lands and resources are transformed, encroached upon, or significantly degraded. Their languages, cultures, religions, spiritual beliefs and institutions may also come under threat. As a consequence, indigenous peoples may be more vulnerable to the adverse impacts associated with project development than non-indigenous communities. This vulnerability may include loss of identity, culture, and natural resource-based livelihoods, as well as exposure to impoverishment and diseases.

Private sector projects can create opportunities for indigenous peoples to participate in, and benefit from project related activities that may help them fulfil their aspiration for economic and social development. Furthermore, indigenous peoples may play a role in sustainable development by promoting and managing activities and enterprises as partners in development. The government often plays a central role in the management of indigenous peoples' issues, and clients should collaborate with the responsible authorities in managing the risks and impacts of their activities (IFC, Performance Standard 7, 2012).

Identification of Indigenous Population in Project Area

Performance Standard 7 from the IFC has categories to identify indigenous people in a project area. The term is used to refer to a distinct social and cultural group possessing the following characteristics in varying degrees:



- Self-identification as members of a distinct indigenous cultural group and recognition of this identity by others;
- Collective attachment to geographically distinct habitats or ancestral territories in the project area and to the natural resources in these habitats or territories;
- Customary cultural, economic, social or political institutions that are separate from those of the mainstream society or culture; and
- A distinct language or dialect is often different from the official language or languages of the country or region in which they reside.

Regarding the criteria proposed by the IFC and African Commission's Working Group of Experts on Indigenous Populations/Communities, whose emphasis is on self-identification and groups that are in a structurally-subordinate position to the dominating groups and the state, the term is applied to refer to the various San and Khoi ethnic groups¹. In South Africa, these are peoples who, despite the gains made since the end of apartheid, remain in a subordinate position, discriminated against, marginalised and continue to demand recognition as indigenous peoples and protection of their fundamental human rights and freedoms².

The South African government has acknowledged the Khoi and San population as the indigenous population of South Africa. The municipality had Khoisan inhabitants which triggered further investigation into the presence of an indigenous population in this project area. At this stage of the social impact assessment, there is no evidence of the presence of any indigenous people residing or utilising the project area and immediate surrounds.

4.1.3 Administrative Setting

ZF Mgcawu District Municipality forms the mid-northern section of the province on the frontier with Botswana. It covers an area of more than 100,000 square kilometres (almost 30% of the entire province) out of which 65 000 square kilometres compromise the vast Kalahari Desert, Kgalagadi Trans Frontier Park and the former Bushman Land.

ZF Mgcawu District comprises six local municipalities namely: Mire; Kai! Garb; Kara Hails; Tsantsabane, !Kheis and Kgatelopele. Upington is the district municipal capital where the municipal government is located. The entire area is managed by the ZF Mgcawu District Municipality, which is classified as a category C municipality (ZF Mgcawu DM IDP, 2016-2017).

!Kheis Local Municipality was previously a municipality, composed regarding the Provincial Proclamation No. 46 of 1994 and amended by Provincial Proclamation No. 64 of 1994. The municipality was established in September 2000 and is currently in the process of transformation to stabilise as a category B municipality. The municipality now has to fulfil functions that are unfamiliar (as indicated in the Municipal Systems and Structures Acts). !Kheis Municipality falls within the borders of the ZF Mgcawu District Municipality (!Kheis LM IDP 2012-2017).

4.1.4 Social Demographics

This section summarises the socio-economic baseline with key indicators such as population size and density, household data, education and economic data. !Kheis Municipality, formerly known as Groblershoop Municipality, includes the following settlements: Boegoeberg, Gariep, Grootdrink, Kleinbegin, Opwag, Topline, and Wegdraai. These settlements were previously part of the Siyanda and Karoo District Municipalities.

Current socio-economic baseline data indicates that there has been a marginal increase in population (0.06%) in the local municipality from 2001 to 2011, see Table 2. In the 2011 Census, the majority (60.3%) of the total population is of working age while the youth comprises 35% and the elderly (+65) comprise 4.7% of the population. The average population density for the municipality is one person per every square kilometre.

¹ Report of the African Commission's Working Group of Experts on Indigenous Populations/Communities, submitted in accordance with the 'Resolution on the Rights of Indigenous Populations/Communities in Africa' Adopted by the African Commission on Human and Peoples' Rights (African Commission) at its 28th Ordinary Session, ACHPR & IWGIA (2005) 15-17; 89.

² Concluding Observations of the Committee on the Elimination of Racial Discrimination on South Africa, CERD/C/ZAF/CO/3, 19 October 2006, para 19 (CERD Concluding observations on South Africa 2006)



Table 2: Total population of the !Kheis LM, National Census 1996, 2001 and 2011

Census Year	1996	2001	2011
Total Population	14 950	16 539	16 637

The total population for Ward 3 of the !Kheis LM is 2 510 and the population of ZF Mgcawu District Municipality is 157 318. Groblershoop is the closest town to the proposed project area (22 km South) and has a total population of 4 938 with a population density of 360/km² (Census 2011).

There are 4,146 households in the municipality of which 1,209 are defined as agricultural households in the 2011 Census. The average household size is nearly four people per house. Thirty-three percent of households is headed by females.

The local municipality unemployment rate is high at 28% in the 2011 Census indicating that there are limited formal job opportunities in the municipality. Youth, or persons 35 years or younger, comprise 34.3% of the municipal unemployment rate. Regarding education levels, 13.5% of the municipal population above the age of 20 years has received no formal schooling. Only 4.5% of the population over 20 years old received a high education while 14% achieved Matric qualifications. The dominant language spoken in the municipality is Afrikaans (93%).

Regarding educational facilities, there is a school in Groblershoop and several farm schools in the regional area.

There are low levels of skilled people as well as high levels of unemployment (28%) in the local municipality. Table grapes are marketed and exported to Western Europe. This industry currently provides the most job opportunities in the area. Unfortunately, a large percentage of this employment is only seasonal. The environment also promotes livestock farming with sheep farming being the most common for the meat market. The livestock farming industry also provides work to local people.

4.1.5 Social Infrastructure

Water Sources and Infrastructure

Most people within the municipality have access to piped tap water inside their yards followed by piped water available inside their homes. In the municipality, 12% of the population do not have access to piped water and 1% of the population in Ward 3 have no access to piped water (refer to Table 3).

Table 3: Piped Water

Access to Piped Water	ZF Mgcawu DM	!Kheis LM	Ward 3
Piped (tap) water inside dwelling/institution	48%	17%	27%
Piped (tap) water inside yard	38%	58%	71%
Piped (tap) water on community stand: distance between 200 m and 500 m from dwelling/institution	6%	10%	1%
Piped (tap) water on community stand: distance between 200 m and 500 m from dwelling/institution	1%	3%	0%
Piped (tap) water on community stand: distance between 500 m and 1 000 m (1 km) from dwelling /institution	1%	0%	0%
Piped (tap) water on community stand: distance greater than 1 000 m (1 km) from dwelling/institution	0%	0%	0%
No access to piped (tap) water	4%	12%	1%

Source: Census Stats 2011

The Orange River provides a significant source of water that is available for irrigation. However, there is still a lack of proper and sufficient potable water provision within the local area.



Sanitation Systems

A third of the population of the !Kheis LM and half of Ward 3 have access to a flush toilet (connected to sewerage system) the next most available sanitation system are flush toilets (with a septic tank) as seen in Table 4. A fourth (25%) of LM and 7% of Ward 3 do not have access to any sanitation system. There is a lack of proper and sufficient sanitation and sewerage systems to all residents with in Ward 3 and the !Kheis LM.

Table 4: Sanitation systems

Locality	Flush toilet (connected to sewerage system)	Flush toilet (with septic tank)	Chemical toilet	Pit toilet with ventilation (VIP)	Pit toilet without ventilation	Bucket toilet	Other	None
ZF Mgcauwu DM	64%	8%	0%	5%	6%	5%	1%	10%
!Kheis LM	27%	21%	1%	12%	9%	2%	3%	25%
Ward 3	55%	30%	0%	4%	1%	0%	2%	7%

Source: Census Stats 2011

Formal dwellings (66.3%) dominate the types of dwellings found in the local municipality, but only 27% have flush toilets connected to a reticulated sewerage system and 16.7% have piped water inside their dwellings.

Energy Usage

The most common form of energy used for cooking in the local area is electricity followed by a small percentage of the population using gas. Table 5 indicates that 64% of the local municipal population uses electricity for lighting.

There is a strong reliance on wood which is not sustainable over the long-term and can lead to the overexploitation of especially Camel Thorn trees in the area, alternative energy sources are not utilised to potential in the area.

Table 5: Energy used for cooking

Locality	Electricity	Gas	Paraffin	Wood	Coal	Animal dung	Solar	Other	None
ZF Mgcauwu DM	82%	6%	1%	10%	0%	0%	0%	0%	0%
!Kheis LM	55%	8%	1%	35%	0%	0%	1%	0%	0%
Ward 3	85%	3%	1%	10%	0%	0%	0%	0%	0%

Source: Census Stats 2011

Due to the climate of the area, there is enormous potential to utilise solar energy more widely, especially in the remote areas of the district. There are currently two projects in the construction/commissioning phase namely Bokpoort I CSP facility and Kleinbegin PV solar facility (60 km south-east of Upington).

Health Facilities

!Kheis Municipality has health facilities available in:

- Groblershoop;
- Wegdraai;
- Topline (Mobile);
- Grootdrink;
- Boegoeberg;
- Gariep (Mobile once a week); and
- Opwag (Mobile once a week).



Each clinic has access to a nursing sister and, some are understaffed and most of the time without medicine. No services are available when the nursing sister is not on duty. The nearest hospital is Upington, 120 km from Groblershoop by road.

Tourism

According to the SA Tourism survey (2004), the Northern Cape receives the lowest number of tourists, both foreign and domestic, of all the provinces. It consequently experiences the lowest foreign spending too. The tourism sector in the municipality has not reached its full potential. Currently, the Boegoeberg Dam is the most popular tourist attraction in the area, drawing fishing and water sport enthusiasts. Other popular attractions include:

- Ezelsklaauw;
- Centenary Monument;
- Oranjerivier Wine Cellars;
- Water turbine at Winstead Farm; and
- Private Game Farms and hunting concessions.

The study area has no established tourism facility in its vicinity. None currently registered conservation areas are impacted on by the proposed site. The natural appearance of the area also supports agricultural tourism.

4.1.6 Economic

The regional Gross Value Added (GVA) for 2010 is depicted in Table 6. The GVA consists of mainly mining and quarrying (18%) Agriculture, forestry and fishing (15%) in ZF Mgcawu DM and Agriculture, forestry and fishing (33%) and Wholesale and retail trade, catering and accommodation (19%) in the !Kheis LM.

Table 6: Gross Value Added (2010)

Industry	Northern Cape	ZF Mgcawu DM	!Kheis LM
Agriculture, forestry and fishing	7%	15%	33%
Mining and quarrying	24%	18%	0%
Manufacturing	4%	6%	5%
Electricity, gas and water	2%	3%	3%
Construction	2%	2%	1%
Wholesale and retail trade, catering and accommodation	11%	13%	19%
Transport, storage and communication	10%	12%	7%
Finance, insurance, real estate and business services	15%	11%	12%
Community, social and personal services	10%	8%	10%
General government	15%	12%	11%

Source: Quantec data (2010)

The major established economic growth centres are located in the Kimberley and Upington sub-regions. These are likely to remain the main economic driving forces for the future and will continue to attract rural and urban migrants.

The agriculture sector is the main economic sector in the region. The majority of households within the municipality are involved in Poultry production followed by livestock production (see Figure 7).

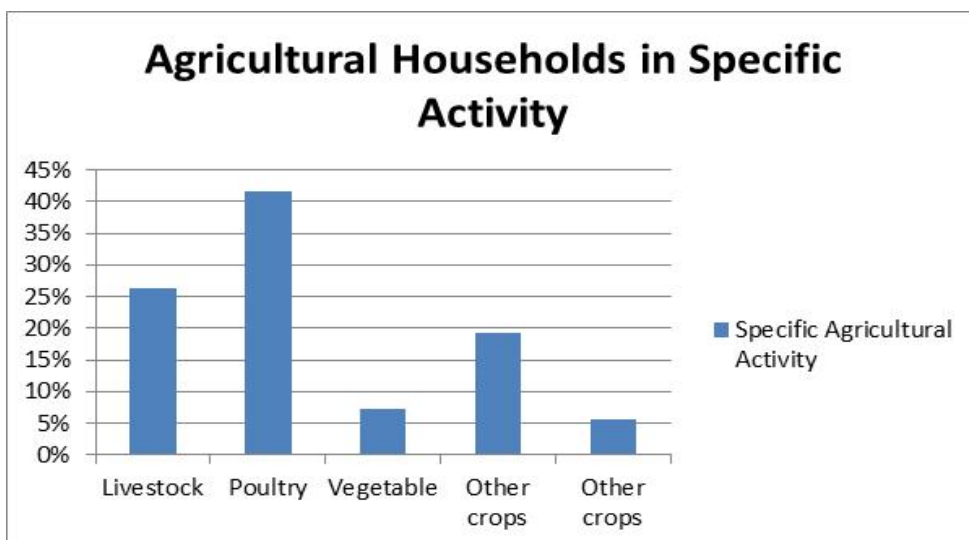


Figure 7: Percentage of agricultural households in each particular activity within the !Kheis LM (Stats SA, 2011)

As depicted in Table 7 'Animals Only' agriculture is the majority practice among agricultural households, followed by crops only production.

Table 7: Agricultural households by type of activity in the!Kheis LM

Type of Activity	Percentage of Total Households
Animals Only	66.3%
Crops Only	19.6%
Mixed Farming	13.2%
Other	0.9%

Source: Stats SA, 2011

The Orange River plays a crucial economic role in the ZF Mgcawu DM, with most of the economic activities linked to or located along the river. The Orange River area delivers a major part of South Africa's table grape production. The Orange River Producers Alliance is a table grape industry that is renowned in as supplier of fresh table grapes to Europe with an output of more than 20 million cartons (!Kheis LM IDP, 2012-2017).

More than 90% of Africa's total dried vine fruit production is produced through 1 250 sultana grape growers in the Northern Cape who produced more than 50 000 tons in 2010. The sultanas produced here comprise more than 80% of that which is exported primarily to Europe and other eastern countries (ZF Mgcawu DM IDP, 2016-2017).

SAD Vine Fruit Pty (Ltd) is located in Upington and owns the largest dried vine fruit processing and packaging plant in South Africa, employing more than 350 persons. It has intakes at Groblershoop, Mylpaal, Louisvaleweg, Keimoes, Kakamas and Vredendal (ZF Mgcawu DM IDP, 2016-2017).

The Orange River Wine Cellars Co-Op, also based in Upington, is the second largest winemaking cooperative in the world and has wine cellars at Groblershoop, Grootdrink, Upington, Keimoes and Kakamas. This Co-Op has more than 740 members who produce wine grapes and 445 farmers who produce grape juice (ZF Mgcawu DM IDP, 2016 - 2017).

In the ZF Mgcawu DM, there are approximately 1 600 farm land units, which belong to 890 owners. Because of the difference in the carrying capacity of the field, there are relatively large differences in the sizes of the farms. The carrying capacity of the field in this area can differ considerably between (for instance) a 10 ha stock unit and 65 ha stock unit further westwards (ZF Mgcawu DM IDP, 2016-2017).

The central parts of the region consist mainly of semi-desert areas and are, therefore, with a few exceptions, mainly suitable for extensive livestock farming. Livestock farming occurs mainly on large farms where farming is extensive. The larger majority of these farms are privately owned.



The renewable energy sector is also recognised as a key developing sector. There has been an increase in these types of projects in South Africa. There is currently an application to construct a Hydropower project at the Boegoeberg Dam in the Orange River. This project also falls within the local municipality and would contribute to the local economy.

4.2 Local Baseline

This section of the report provides a description of the receiving environment and existing conditions on and in the vicinity of the proposed project components. The project site is located on the Remaining Extent of the Farm Bokpoort 390, Groblershoop and portion 0 and portion 5 of the farm Sanddraai 391 Groblershoop. The landowner for the proposed project area is ACWA Power Solafrica Bokpoort (Pty) Ltd. Neighbouring property owners are indicated in Table 8 below.

Table 8: Description of farm portions within the local study area

Farm and Portion number	Land owner	Portion description	Planned infrastructure
Farm Bokpoort 390 Portion 1	JH. J. Kotze Boerdery Pty Ltd	<ul style="list-style-type: none"> ■ This portion backs onto the Orange River; ■ Open grass and shrub land (Savanna Biome); and ■ One farm structure including various agricultural fields located along the banks of the Orange River. 	None, this portion is a neighbouring farm portion.
Farm Bokpoort 390 Portion 2	Mr Peter Murray Kotze	<ul style="list-style-type: none"> ■ This portion backs onto the Orange River; ■ Open grass and shrub land (Savanna Biome); ■ Secondary roads; and ■ Two large farm structures including a broad range of agricultural fields including a large pivot irrigated commercial field located along the banks of the Orange River. 	None, this portion is a neighbouring farm portion.
Farm Bokpoort 390 Portion 3	AP Hanekom Familie Trust	<ul style="list-style-type: none"> ■ This portion backs onto the Orange River; ■ Open grass and shrub land (Savanna Biome); ■ Secondary roads; and ■ There is a broad range of agricultural fields including an irrigated commercial field located along the banks of the Orange River. 	None, this portion is a neighbouring farm portion.
Farm Bokpoort 390 Portion 4	Eskom Holdings Ltd	<ul style="list-style-type: none"> ■ This small portion has the Garona Substation (Eskom) located on it. 	A new power line will connect the proposed facility into the national grid via Eskom's existing Garona Substation.
Farm Bokpoort 390 Portion 0	ACWA Power Solafrica Bokpoort (Pty) Ltd	<ul style="list-style-type: none"> ■ Open grass and shrub land (Savanna Biome); ■ A railway line cuts through the south-western corner of the portion and exits on the eastern section; ■ A set of Eskom power lines (HV) also run through the middle section of this portion; 	<ul style="list-style-type: none"> ■ This is the preferred location for the solar development and associated infrastructure; and



SIA FOR THE PROPOSED PV1 SOLAR FACILITY

Farm and Portion number	Land owner	Portion description	Planned infrastructure
		<ul style="list-style-type: none"> ■ A water pipeline servitude also follows a similar path to that of the railway line; and ■ Bokpoort I solar development has been constructed near the middle of portion 0. 	<ul style="list-style-type: none"> ■ All associated infrastructure (CSP Tower, PVs) will be placed on the top section of this portion.
Farm Rooilyf 389 Portion 0	Pepler Jooste Hendrik	<ul style="list-style-type: none"> ■ Open grass and shrub land (Savanna Biome); ■ A set of Eskom power lines (HV) also run through the middle section of this portion; and ■ A water pipeline servitude also follows a similar path to that of the powerline. 	None, this portion is a neighbouring farm portion.
Farm Sanddraai 391 Portion 0	Transnet Ltd	<ul style="list-style-type: none"> ■ Open grass and shrub land (Savanna Biome); ■ A set of Eskom power lines (HV) also run through the middle section of this portion; and ■ A water pipeline servitude also follows a similar path to that of the powerline. 	None, this portion is a neighbouring farm portion.
Farm Sanddraai 391 Portion 4	Dalene Connan Winifred	<ul style="list-style-type: none"> ■ This portion backs onto the Orange River; ■ Open grass and shrub land (Savanna Biome); and ■ There is a wide range of agricultural fields including irrigated fields located along the banks of the Orange River. 	None, this portion is a neighbouring farm portion.
Farm Sanddraai 391 Portion 0 and 2	Opwag Groblershoop Pty Ltd	<ul style="list-style-type: none"> ■ Open grass and shrub land (Savanna Biome). 	None, this portion is a neighbouring farm portion.

The landscape in the study area is characterised by open plains and mountain ridges within a semi-arid region (Figure 8). The project area is located in a remote area and located away from the main roads and other farms along the banks of the Orange River.



Figure 8: Landscape of the project area

The project area is sparsely populated and the nearest settlements are Groblershoop (~22 km south) and Wegdraai (~21 km southwest). Other main towns in the vicinity are Boegoeberg (~40 km south-southeast) and Upington (~70 km west-northwest). There is one settlement (~14 km southwest) from the centre point of the project site. Additionally, the Bokpoort I solar development has been constructed in the southern portion of the remaining extent of the farm Bokpoort 390 (Figure 9).



Figure 9: View from the project site of Bokpoort I solar development



Access within the local area is dependent on the National Road N10, National Road N8/Road R64, Loop 16 (unpaved road) as well as by the Saldanha-Sishen railway line. The N14 and the N10 are the primary roads in the region and are the main link between the economic centres of Gauteng and Namibia.

Land use in the study area consists predominantly of agricultural activities within the Orange River floodplain (Figure 10). Small towns occur intermittently along the N10 national road between Groblershoop and Upington. Farmsteads occur in a distinct linear pattern alongside the Orange River.



Figure 10: Agricultural fields in the Orange River floodplains

Residential settlements include:

- The town of Groblershoop is located approximately 9 km south-east of the eastern boundary of the Farm Bokpoort 390;
- The urban settlement (township) of Wegdraai, which is situated on the western side of the Orange River on the Farm Boegoeberg 48;
- Numerous farmhouses and farm labourer houses on the northern and southern banks of the Orange River. These are residences related mainly to the sultana grape farms;
- The main farmhouse on Bokpoort is situated on a hill in the central portion of the farm; and
- The main farmhouse on the farm La Gratitude is situated 5 200 m east of the north-eastern corner boundary of the farm Bokpoort 390.

5.0 IMPACT ASSESSMENT

Social impacts are the real and perceived impacts experienced by humans (at the individual and higher aggregation levels) as a result of social change processes caused by planned interventions. Social impacts relate to all social and cultural consequences to human populations of any public or private actions that alter the ways in which people live, work, play and relate to one another (Becker and Vanclay, 2003)³ Impacts are anticipated for construction, operation, decommissioning and closure phases of the project.

The socio-economic impact assessment has taken into consideration both economic prosperity and social wellbeing for healthy communities. The assessment will focus on the impacts that the project is expected to have on the local social environment and will also look at the long-term, indirect social impacts that the proposed Bokpoort II 75 MW PVI solar project will have on a regional and even national scale.

This section outlines socio-economic impacts and opportunities associated with the project. A summary of mitigation and enhancement strategies is provided for each impact. For this impact assessment the project has been divided into the following phases:

³ Becker, H.A and Vanclay, F. (2003). The International Handbook of Social Impact Assessment: Conceptual and Methodological Advances. Edward Elgar Publishing Ltd, Cheltenham, UK and Northampton, MA, USA.



- Construction;
- Operational; and
- Decommissioning and Closure.

5.1 Construction Phase Impacts

The construction periods for the proposed photovoltaic infrastructure will be approximately nine months. One of the most obvious positive short-term social impacts will be the creation of jobs. Construction activities will create some temporary employment opportunities. Other social impacts discussed further in this section include the increased demand for local services, the potential influx of job seekers, social problems arising from population increase in the area, change in land use, social investment initiatives by ACWA Power and the effect on the sense of place.

5.1.1 Local Employment

Description of Impact

Construction activities associated with the proposed PV I solar facility will create a small number of temporary employment opportunities. The proposed employment numbers for the project during construction are presented in Table 9 below.

Table 9: Proposed employment opportunities during construction

Infrastructure	Local Employment	Foreign Employment	Total Employment Opportunities
PV	40 at peak on site	10	50

Sourcing of construction workers from the local labour pool is likely to be limited to unskilled workers due to the highly technical nature of the work to be undertaken. The !Kheis LM unemployment rate is high at 28% in the 2011 Census indicating that there are limited formal job opportunities in the municipality. This project propose employment opportunities for only eight local unskilled workers during construction. These jobs would be temporary and would not significantly change the unemployment rate but would still contribute to the individual's income for that period.

There is, however, the potential for indirect employment through the contractors or supply chain vendors associated with the project. At this stage, the number of contractors associated with the project is unclear but the use of a local supply chain has positive benefits for the municipality.

At this stage, it is unknown where the employees will be housed. Accommodating the limited number of employees in the nearby towns, will not place any noteworthy stress on the local infrastructure (water and sanitation, accommodation, schools and health facilities). As the nearest towns of Groblershoop and Wegdraai are more than 20 km away, employees will potentially have to be transported to the project site.

The use of buses is common for this purpose. Transporting 18 people is not anticipated result in any increase in the vehicular traffic on the limited access roads in the project area. However, considering the travel distance and time, it could be considered to house the construction phase workers on site, subject to specific conditions.

Mitigation and Management Measures

Potential management measures to ensure local employment are:

- Source local labour as far as possible with an emphasis on employing youth and women;
- If specific skilled positions cannot be sourced within the local municipality, they should be sourced at district, province or national level first before looking at international workers;
- Any contractors working on this project should be encouraged to utilise the local labour pool and local businesses where possible;



- The provision of housing is not a condition of service for employees of the company. If the company does not provide housing for employees, these people would be responsible for their accommodations and transportation to work;
- Establish community liaison officers to manage the interaction between the project company and the local communities; and
- Development of recruitment and procurement policies for ACWA Power and all Contractors which include maximising the usage of local service providers and utilisation of local labour should be a key requirement in the tender documentation.

5.1.2 Population Influx

Description of Impact

Influx or outflows of temporary workers is a reality in the Northern Cape. It has significant impacts on the existing communities based on limited available resources to service a larger population in a stark and arid landscape.

As news regarding the proposed project spreads, expectations regarding possible employment opportunities may take root. Consequently, the area surrounding the site may experience an influx of job seekers. On the Remaining Extent of the Farm Bokpoort 390, construction of the Bokpoort I facility has recently been completed and there has been an influx of people and heavy equipment to the south of the project area. The Bokpoort II PV I project would similarly result in the influx of potential job seekers to this area.

The magnitude of this impact will depend on the severity of unemployment in surrounding areas. As previously mentioned the unemployment rate within the local municipality stands at 28%, which is high and any development which provides jobs, would be an attraction to potential job seekers. This impact is listed as a construction related impact. However, it is possible that the impact may commence before construction, and may continue after construction has been completed (Bohlweki and SSI EIA, 2011).

It is possible that conflict might arise between the newcomers and residents. One possible reason for such conflict would be the perception among locals that the outsiders are taking up jobs that could have gone to unemployed members of the local community (Bohlweki and SSI EIA, 2011). Due to the specialised nature of some of the required jobs, there will be approximately ten positions filled by foreign labour which could illicit antagonistic feelings among local population if these foreigners reside in the existing communities.

The influx of people into the nearby communities poses a threat to farm and business infrastructure (fences and gates). Other impacts arising from influx to the area are:

- Impacts on existing community networks and relationships;
- Perceptions of safety and crime levels (increased risk of stock theft and poaching of livestock); and
- Damage to farm infrastructure.

Mitigation and Management Measures

Potential mitigation measures for influx of job seekers to the area are:

- Construction workers should be easily identified as part of the construction team by e.g. wearing particular clothing and/or name tags;
- Criminal incidents should be communicated to the workforce and employees to ensure a general awareness of the safety situation in the area;
- The mitigation measures which are largely based on the IFC Handbook for Addressing Project-induced In-migration (IFC, 2009a) may be applicable here:
 - Implement an effective stakeholder engagement process;
 - Ensure adherence to land use zoning, occupation and land use rights;
 - Prevent the development of roadside dwellings, shops and so forth;



- Implement increased security measures to manage in-migrants and the consequences of their presence; and
 - Implement spatial plans for existing and new settlements within the project area, through controlled and regulated development.
- Before construction commences, representatives from the local authority and community-based organisations, as well as neighbouring residents should be informed of the details of the construction company, the size of the workforce and construction schedules.

5.1.3 Economic Benefits

Description of Impact

As this is a small scale operation, the economic benefits associated with the proposed project are expected to be somewhat limited but nevertheless positive. Agriculture, forestry and fishing (33%) and Wholesale and retail trade, catering and accommodation (19%) are the highest GVA in the !Kheis LM as of 2010. Renewable solar activities will enhance this contribution and is likely to have multiplier effects at regional and national level.

The need for solar power technology developments in South Africa has been increasing over the recent years, as it is a means of providing the country with an alternate energy supply, the need for which is directly proportional to the increase in social and economic growth and development within the country. South African citizens are also growing more aware of global issues such as climate change and sustainable development, which also tie into using more "environmentally friendly" methods with which to meet the country's energy requirements.

In the past, most of South Africa's energy demands were met using fossil fuels, mainly coal. South Africa does, however, have the means with which to generate electricity via renewable energy resources, such as solar, wind, hydro, tidal, wave, geothermal, and others. The use of renewable energy resources contributes to diversifying the fuel sources used for energy production, improving electricity production efficiency, decreasing the quantity of burned fossil fuels, decreasing Greenhouse Gas (GHG) emissions and reducing the amount of other aerial pollutant emissions. This all, in turn, contributes to improving the sustainability of South Africa's development.

South Africa experiences some of the highest levels of solar radiation in the world, which also translates to significant solar resource potential for solar water heating applications, solar photovoltaic and solar thermal power generation. If implemented, the proposed Bokpoort II PV I solar development would add 75 MW into the Eskom grid. The development will generate electricity from a renewable energy resource which has nearly zero carbon dioxide emissions, unlike coal fired power plants, South Africa's main electricity resource.

Mitigation and Management Measures

The proposed management measure to further enhance this impact is to utilise local procurement as far as possible.

5.1.4 Change in land use

Description of Impact:

Should the project be commissioned, the land use will change from grazing land to solar energy production. The site will be cleared of all vegetation during the construction phase and top soil will be subjected to wind erosion, possibly resulting in displacement for other land uses during the project's construction and operational phases. A discussion with Mr Andre Kruger, a local stakeholder, indicated the viewpoint that dust impacts from Bokpoort I, which has recently been constructed, has a measurable influence on raisin and export grape production.

Mitigation and Management Measures

Upon closure of the project, the land use should revert back to the land use prior to development.



5.1.5 Traffic Impacts

Description of Impact

The Bokpoort II project site is located in a rural farming area approximately 20 km north-west of the town of Groblershoop in the Northern Cape Province. The roads in the area range between national roads (N10, R64), untarred secondary roads (Loop 16) and farm access roads.

Transportation of construction materials and workers to the Bokpoort II PV I site will have an impact on the condition of the transportation infrastructure and traffic volumes in the area. Heavy construction vehicles have the potential to damage roads, create noise, dust, and cause risks impacts for other road users and residents in the area. Care must be taken that any increases in traffic will not have a negative effect on pedestrians.

Mitigation and Management Measures

Potential mitigation for traffic impacts would be:

- Communicate information regarding the construction routes, peak operational times, hazards associated and precautionary measures to the ward councillor as well as the relevant community organisations;
Notify the public of construction progress, when and where new construction will start and what routes will be affected;
Construction traffic past community infrastructures such as schools, crèches and sporting facilities must be strictly managed;
Ensure construction activities avoid peak traffic hours and particular social usage requirements;
General road rules should be enforced, and specific provision should be made for management of construction related complaints; and
Ensure safe and secure public transport access points.

5.2 Operation Phase Impacts

The operational phase of the project is expected to be medium to long-term based on the energy requirements for Eskom. There has been no definitive period for the operational phase of this project at this stage.

The positive social impacts will be the creation of jobs, training and skills development of employees, continued economic contribution to the municipality, electricity provision to the national grid and local economic development. Continued impacts from the construction phase would be the influx of job seekers to the project area, visual impacts of the infrastructure and potential water impacts based on operational usage.

5.2.1 Employment Opportunities

Description of Impact

There is the potential for 10 job opportunities for the local workers during the operational phase. The breakdown of these positions is presented in Table 10. Job creation in the medium to long-term during the operational phase is generated by operational components including security, drivers, administration, and operator's positions.

Table 10: Employment opportunities at Operational Phase

Table with 4 columns: Infrastructure, Local Employment, Foreign Employment, Total Employment Opportunities per Infrastructure. Row 1: PV, 10, Not specified, 10.

This means that local communities can potentially take maximum advantage of any potential employment opportunities to be created by the proposed activities. It should be noted that some positions may require scarce skills, which may not be readily available in the labour sending area. Therefore, a certain percentage of the workforce will potentially be recruited from elsewhere in the district or province. At this stage of the project, the number of foreign employment opportunities is uncertain.



Mitigation and Management Measures

Proposed mitigation would be:

- Deliver on promised employment opportunities for local people with a focus on women and youth; and
- Recruit locally as a priority (from among those that are unemployed, poor or under income stress).

5.2.2 Training and skills development

Description of Impact

The primary aim of the training and skills development programme is to enable employees to reach their realistic developmental aspirations and diversify their skills to be re-employable at the point of possible operation downscaling or retrenchment.

Potential community development projects can be designed to contribute to the growth and education of the local communities as well as infrastructure development where needed. ACWA Power would need to allocate funds to develop community projects based on the requirements in these areas.

Mitigation and Management Measures

Proposed mitigation would entail:

- ACWA Power should identify and deliver on Human Resource Development goals/projects;
- ACWA Power should aim to diversify the proposed Bokpoort II project (PV 1) employee's skills to ensure that employees are re-employable when the proposed operation downscales or closes; and
- Develop community initiatives to give back to the local communities in the project area.

5.2.3 Continued Economic Benefits

Description of Impact

The use of renewable energy resources like solar power contributes to diversifying the fuel sources used for energy production which improves electricity production efficiency. The proposed Bokpoort II PV solar development would add 75 MW into the Eskom grid. The development will generate electricity from a renewable energy resource which has nearly zero carbon dioxide emissions, unlike coal fired power plants.

Operational expenditure for the proposed project will contribute to the local and district municipal economies. The expected operational wage bill from the 10 local employee's salaries would also provide an injection of cash into the local economy. This cash injection will stimulate the formal and informal retail and service sectors and secondary industries, having a multiplier effect on the local economy.

Mitigation and Management Measures

Continued use of the local labour pool and service providers would enhance the positive growth of the local economy. Supporting local business and services would further improve the local economy.

5.2.4 Continued Population Influx

Description of Impact

The increase in population to the area should stable out during the operational phase as the potential job opportunities are small and the influx would slow. The prevalence of the other impacts associated with population influx such as an increase in crime and property damage could still affect the existing communities but these are anticipated to be of low significance.

Mitigation and Management Measures

As per the IFC performance standards requirements, the development of an Influx Management Plan may be required if the population influx is high for this area. ACWA Power may undertake this if the flow becomes a significant issue during operations.



5.2.5 Visual Impacts

Description of Impact:

A visual impact assessment has been conducted as the installation of the solar development will change the aesthetics of the project area. Construction activities, dust mobilisation and construction vehicles traversing the proposed site, as well as the presence of new infrastructure will transform the landscape. The landscape in the study area is characterised by open plains and mountain ridges in a semi-arid region. Given the relative flatness of the project site, the solar facility will be visually prominent from a considerable distance.

According to the Visual Assessment, potentially sensitive viewer locations include places of residence, work, leisure (including tourism), and travelling routes. Tourists are attracted to the Orange River Wine Route, large private game reserves and hunting concessions as well as other destinations such as the Au-grabies National Park.

The glint and glare off the PV panels are disruptive to aircraft and birds. The surrounding farms will experience a disruption to their sense of place.

Mitigation and Management Measures

The proposed mitigation for the visual impact of the project is included in the Environmental Management Plan.

5.3 Decommissioning and Closure Phase

Due to the relatively small number of people affected, the social impacts associated with the decommissioning of the facility are likely to be low. Also, the potential impacts can be effectively managed with the implementation of a retrenchment and downscaling programme.

The decommissioning activities are expected to initially give rise to impacts similar to those mentioned under the construction phase (associated with the dismantling of infrastructure). Rehabilitation follows demolishing or removal of existing infrastructure. The area is stripped and rehabilitated to a land use which is discussed in further detail within the EIA report. It is recommended that the choice of land use be agreed upon by ACWA Power in conjunction with the relevant municipal authorities.

The closure phase of the project is expected to give rise to the loss of employment and associated economic impacts).

Description of Impact

Potential impacts related to the Decommissioning Phase may include the following:

- A temporary increase in employment opportunities followed by a decrease after decommissioning; and
- Noise and dust impacts linked to decommissioning activities.

Closure impacts include:

- Loss of employment for approximately 10 workers;
- Change in economic benefits from energy generation to agriculture; and
- Ceasing any local economic development projects from the local communities if alternative funding is not sourced.

It is assumed that impacts will be fully assessed and options explored to mitigate these impacts during the Rehabilitation and Closure Plan for the project.

Mitigation and Management Measures

Potential mitigation measures may include:

- A programme of retrenchment and re-training during the Operational Phase, providing employees with clear, transparent information on planned activities and closure dates, offering employment at similar sites where possible and full retrenchment packages;



- An analysis of current community development programmes in place which would need to be sustained after the closure of the project;
- An assumption that project activities will only end following an assessment to determine the complete rehabilitation, meaning local communities will not experience impacts related to instability, health and safety issues; and
- It is recommended that a detailed Social Closure Plan be developed during the Operational Phase before closure.

5.4 Impact Ratings

The social impacts discussed in the previous section are rated according to the environmental rating matrix detailed in section 3.4 and described in the methodology section of this report (section 5.1). Table 11, Table 12 and Table 13 summarises the impacts related to the construction, operational, decommissioning and closure phases of the proposed project, and provides a significance rating for each impact before and after mitigation.

Table 11: Construction Phase Impact Ratings

Potential Social Impact: Construction Phase	Social Significance											
	Before mitigation						After mitigation					
	M	D	S	P	SP	Rating	M	D	S	P	SP	Rating
1. Employment opportunities	6	2	2	3	30	Moderate	6	2	2	4	40	Moderate
2. Population influx	8	3	2	4	52	Moderate	6	2	2	3	30	Low
3. Economic benefits	6	4	3	3	39	Moderate	8	4	4	4	64	Moderate
4. Change in land use	6	4	3	4	52	Moderate	4	4	2	3	30	Moderate

Table 12: Operational Phase Impact Ratings

Potential Social Impact: Operational Phase	Social Significance											
	Before mitigation						After mitigation					
	M	D	S	P	SP	Rating	M	D	S	P	SP	Rating
1. Employment opportunities	4	2	2	3	24	Low	4	4	2	3	30	Moderate
2. Training and skills development	4	4	2	3	30	Moderate	6	5	2	4	52	Moderate
3. Continued economic benefits	6	4	3	3	39	Moderate	8	4	4	4	64	Moderate
4. Continued population influx	6	4	2	3	36	Moderate	4	3	2	2	18	Low
5. Visual impacts	Assessed in EIA											

Table 13: Decommissioning and Closure Phase Impact Ratings

Potential Social Impact: Closure And Rehabilitation Phase	Social Significance											
	Before mitigation						After mitigation					
	M	D	S	P	SP	Rating	M	D	S	P	SP	Rating
1. Reduced employment	8	4	2	4	56	Moderate	6	2	2	2	20	Low
2. Reduced economic benefits	8	5	3	5	80	High	6	5	2	4	52	Moderate
3. Dependency on project sustaining local economy	8	5	3	3	48	Moderate	6	3	2	2	22	Low



6.0 CUMULATIVE IMPACT

The following section provides a brief overview of the cumulative impacts if all three of the proposed Bokpoort II components are implemented and the combination of Bokpoort I Solar facility. The section focuses on employment, population, and sense of place impacts, mitigation and management measures are indicated in the respective reports these measures and those indicated in the EMP should be implemented diligently to maximise the positive cumulative aspects and avoid or mitigate the adverse impacts.

6.1 Employment

It is assumed that the construction period of the photovoltaic infrastructure and construction of infrastructure for the proposed CSP Tower will be spread over a 3 year period. The construction periods for each of the solar technologies are approximately:

- PV: 9 months; and
- CSP Tower: 28 months.

One of the most obvious positive short-term social impacts will be the creation of jobs. Construction activities will create a number of temporary employment opportunities. Other social impacts discussed further in this section include the increased demand on local services, the influx of job seekers, social problems arising from population increase in the area, change in land use, social investment initiatives by ACWA Power and the effect on sense of place.

6.1.1 Employment during Construction

Construction activities will create a small number of temporary employment opportunities. The proposed employment numbers for the project during construction are presented in Table 14.

Table 14: Proposed local employment opportunities during construction

Infrastructure	Local Employment	Foreign Employment	Total Employment Opportunities Per Infrastructure
PV1	40 at peak times on site	10	50
PV2	40 at peak times on site	10	50
CSP Tower	360 at peak times	25	385
Total Employment Opportunities	440	45	485

This combined project indicates employment opportunities for approximately 440 local unskilled workers during construction peak. Although it is uncertain at this stage, what the duration of the construction peak will be, 440 local employment opportunities will contribute significantly to livelihoods and the local economy. This conclusion is based on the assumption that by far the majority (if not all) of the 440 opportunities will be sourced from the local communities, focused on Groblershoop and Wegdraai, and other communities within a radius of 20 to 30 km from the site. Using local employees must be a key focus area, if the positive impacts are to be maximised.

The use of local employees also minimise the range of potential adverse social impacts, such as cultural disparity between local people and large numbers of newcomers, social mobilisation to protect local jobs and health, safety and security concerns.

The 45 foreign employees will also make a positive contribution, but not nearly as significant as the local labour component. Due to the temporary nature of these jobs, longer term unemployment rates will not be impacted upon to any large extent. Even though the number of direct job opportunities will be temporary, there is the potential for increased indirect employment through the supply chain vendors and service providers and associated increased local spend as a result of the project activities.



6.1.2 Employment during the Operational Phase

There is the potential for 41 local job opportunities. The breakdown of these positions is presented in Table 15. Job creation in the medium to long-term during the operational phase is generated by operational components including security, drivers, administration, and operator's positions.

Table 15: Employment opportunities at operational phase

Infrastructure	Local Employment	Foreign Employment	Total Employment Opportunities Per Infrastructure
Bokpoort I Solar facility	100	Not specified	100
PV1	10	Not specified	10
PV2	10	Not specified	10
CSP Tower	21	Not specified	21
Total Employment Opportunities	101	Not specified	101

Due to the small number of employment opportunities, the impact is considered to be below, but positive. At this stage of the project, the number of foreign employment opportunities which may be required during the operational phase is unclear.

6.2 Population Influx

The influx of temporary workers in search of jobs is a reality in the Northern Cape. It has significant impacts on the existing communities based on limited available resources to service a larger population in a stark and arid landscape. As indicated before, the recent construction of the Bokpoort I solar facility resulted in the influx of people and heavy equipment to the south of the Bokpoort I area. The Bokpoort II project would similarly result in the potential influx of potential job seekers to this area.

An impact directly linked to foreign workers, is related to social and intimate relations between the foreigners, who are here for only a short duration, and the local population. This often results in family stress, health impacts, and the socio-economic load on households to look after children, whose fathers have departed and make little contribution to their emotional and financial upkeep. Although any influx of workers into the area may result in such impacts, experience has shown that this is most prominent in the case of foreign workers.

6.3 Traffic Impacts

The Bokpoort II project site is located in a rural farming area approximately 20 km north-west of the town of Groblershoop in the Northern Cape Province. The roads in the area range between national roads (N10, R64), untarred secondary roads (Loop 16) and farm access roads. Transportation of construction materials and workers to the Bokpoort II site, during the constructing of all three components is anticipated to have a much more significant impact on the condition of the transportation infrastructure and traffic volumes in the area, as would be the case if not all three components are built. Heavy construction vehicles have the potential to damage roads, create noise, dust, and cause risks impacts for other road users and residents in the area. The current access road to the Bokpoort I site is already a source of friction between the applicant and the local farmers (Issues and Response Register).

Please note that the detailed traffic impact assessment had not been completed when this report was written. The above comments are based on similar experience elsewhere and feedback from local stakeholders.

6.4 Continued Economic Benefits

The use of renewable energy resources like solar power contributes to diversifying the fuel sources used for energy production which improves electricity production efficiency. The proposed Bokpoort II project can add an additional 300 MW into the Eskom grid. The development will generate electricity from a renewable energy resource which has nearly zero carbon dioxide emissions, unlike coal fired power plants.



Operational expenditure for the proposed project will contribute to the local and district municipal economies. The projected operational wage bill from the 440 temporary and 41 permanent employees would also provide an injection of cash into the local economy. This will stimulate the formal and informal retail and service sectors and secondary industries, having a positive multiplier effect on the local economy.

6.5 Light Intrusion/Sense of Place Impacts

The cumulative light intrusion impact on sense of place will be highly significant. This in particular is a result of the height and light intensity of the CSPT component. The large footprint of the photovoltaic components will add to the intrusion on the sense of place, with a particular focus on the neighbouring Kalahari-Oryx Private Game Reserve to the north of the project area. Indications are that the CSPT in particular, can have a significant impact on the financial and tourism potential of the Kalahari-Oryx Private Game Reserve. The impact, however, is much wider and may influence a variety of other sensitive viewer locations, include places of residence, work, leisure (including tourism), and travelling routes. Tourists are attracted by the Orange River Wine Route, large private game reserves and hunting concessions as well as other destinations such as the Augrabies National Park.

6.6 Cumulative Solar Power Projects

The Northern Cape has been identified as one of the best places in the world to harness solar radiation. Figure 11 shows the currently know environmental authorisation applications for solar power developments in the vicinity of the towns of Upington, Postmasburg, Groblershoop and Prieska (south of the map area) as obtained from the database on the website of the Department of Environmental Affairs.

Table 6.1 summarises the project information pertaining to the solar development environmental authorisation applications received by the DEA up to the end of the 4th Quarter of 2015. The solar development for which environmental authorisations have been submitted to the DEA vary in solar technology, generation capacity and status of approval.

The projects are in different phases of approval and it is important to note that, even though a number of the projects listed in Table 16 have been granted environmental authorisation, due to the required approval process of the REIPPP Programme to which each project will be subjected, not all of the authorised projects will be constructed.



SIA FOR THE PROPOSED PV1 SOLAR FACILITY

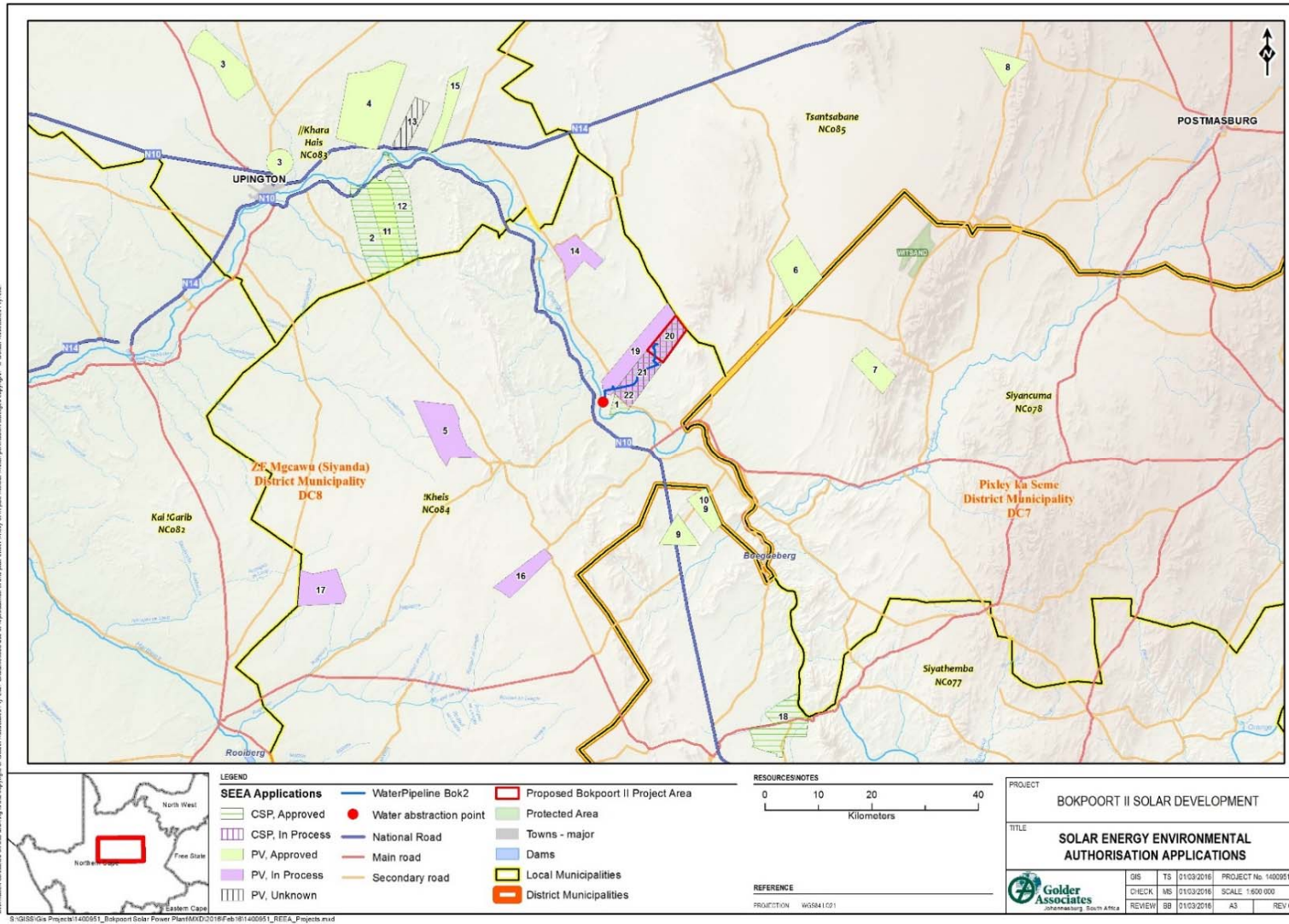


Figure 11: Solar energy development environmental authorisation applications in the Bokpoort II project area (Department of Environmental Affairs, 2016)



SIA FOR THE PROPOSED PV1 SOLAR FACILITY

Table 16: Solar Energy Development Environmental Authorisation Applications in the Bokpoort II project area (Department of Environmental Affairs, 2016)

ID No.	DEA Ref No.	Project Title	Applications Received	Applicant	Technology	Megawatt	Project Status
1	12/12/20/1920	Proposed 75 MW Concentrating Solar Thermal Power Plant and Its Associated Infrastructure in the Siyanda District, Northern Cape Province.	2010/05/06	SolAfrica Thermal Energy Pty Ltd	Solar CSP	50	Approved
2	12/12/20/2056/A2	Proposed construction of the Illanga Solar Thermal Power Plant, Karoshoek Solar Thermal Park.	2014/06/06	Ilangaletu Solar Power Pty Ltd	Solar CSP	-	Approved
3	12/12/20/2146	The Proposed Establishment of a Photovoltaic (PV) Installation at the Upington Airport, Northern Cape Province.	To review	ACSA PV	Solar PV	8.9	Approved
4	12/12/20/2169	The Construction of a 25 MW Photovoltaic Solar Energy Facility on a Site North-East of Upington, Northern Cape Province.	2012/11/15	Upington Solar Pty Ltd	Solar PV	25	Approved
5	12/12/20/2198	Proposed Construction of a Photovoltaic (PV) Solar Energy Facility on the Farm Kleinbegin, South East of Upington, Northern Cape Province.	2011/02/01	Vanguard Solar Pty Ltd	Solar PV	50	In Process
6	12/12/20/2583	The Proposed Inyanga Energy Project 6 on Portion 15 of the Farm O'poort 384, Kheis Local Municipality, Northern Cape Province.	2011/11/01	Islandsite Investment 519 Pty Ltd	Solar PV	75	Approved
7	12/12/20/2647/48	Proposed Construction of three (3) 75 MW Arriesfontein Photovoltaic Solar Power Plants: Phase 1, 2 and 3, on the Farm Arriesfontein 267 Barkley Wes Rd, Kgatelopele Local Municipality, Northern Cape.	2011/11/01	Solar Reserve South Africa Pty Ltd	Solar PV	75	Approved
8	12/12/20/2649	Jasper Power Company.	2011/11/01	Solar Reserve South Africa Pty Ltd	Solar PV	75	Approved
9	14/12/16/3/3/1/658	The Proposed Prieska Solar Power Plant, Within the Siyathemba Municipality, Northern Cape.	2012/07/20	Maxwell Moss and Associates	Solar PV	19	Approved



SIA FOR THE PROPOSED PV1 SOLAR FACILITY

ID No.	DEA Ref No.	Project Title	Applications Received	Applicant	Technology	Megawatt	Project Status
10	14/12/16/3/3/1/909	Proposed expansion of the Prieska solar power plant within Siyathemba Municipality, Prieska, Northern Cape.	2012/08/01	Maxwell Moss and Associates (Pty) Ltd	Solar PV	19	Approved
11	14/12/16/3/3/2/292	The Karoshoek Concentrating Photovoltaics or Parabolic Dish (Cpvpd) 1-4 Facilities East of Upington within the Khara Hais Local Municipality in the Northern Cape Province.	2012/03/08	FG Emvelo Energy Pty Ltd	Solar PV	25	Approved
12	14/12/16/3/3/2/293	The proposed establishment of the Karoshoek Linear Fresnel 1 (LF 1) facility located on site 1.1 located 30 km East of Upington in the Northern Cape.	2012/03/08	FG Emvelo Energy Pty Ltd	Solar CSP	100	Approved
13	14/12/16/3/3/2/532	Proposed Moipax solar project, Khara Hais Municipality, Northern Cape.	2013/04/09	Moipax Pty Ltd	Solar PV	250	Status unknown
14	14/12/16/3/3/2/571	The Proposed Kheis Solar Park 1 PV project on a site South East of Upington within the !Kheis Local Municipality, Northern Cape Province.	2013/08/28	Gestamp Asetym Solar South Africa Pty Ltd	Solar PV	75	In Process
15	14/12/16/3/3/2/619	Proposed renewable energy generation project on Portion 1 of the Farm Avondale No. 410, Gordonia RD, Khara Hais Local Municipality, Avondale 2 Solar Park.	2014/01/17	Tita Energy (Pty) Ltd	Solar PV	75	Approved
16	14/12/16/3/3/2/625	Proposed renewable energy generation project, Kenhardt RD, !Kheis local municipality, ZF Mgcawu District Municipality, Northern Cape.	2014/01/01	Ansolgenix (Pty) Ltd	Solar PV	-	In process
17	14/12/16/3/3/2/712	Proposed construction of the Boven PV1 75 MW in Kenhardt, Northern Cape.	2014/05/01	Mulilo Renewable Project Developments (Pty) Ltd	Solar PV	-	In process



SIA FOR THE PROPOSED PV1 SOLAR FACILITY

ID No.	DEA Ref No.	Project Title	Applications Received	Applicant	Technology	Megawatt	Project Status
18	14/12/16/3/3/2/729	Proposed Solar Power Generation Plant on Portion 2 and Portion 7 of the Farm Rietfontein 11, Northern Cape Province.	2015/03/02	Kameelboom Solar Power Plant Pty Ltd	Solar CSP	125	Approved
19	14/12/16/3/3/2/738	Proposed Solafrica Sanddraai 75 MW PV Project in !Kheis LM.	2014/08/29	Solafrica Photovoltaic Energy (Pty) Ltd	Solar PV	75	In Process
20	14/12/16/3/3/2/881	Proposed Bokpoort II 75 MW Photovoltaic Development (PV1) on the Remaining Extent of the Farm Bokpoort II 390 near Groblershoop within the !Kheis Local Municipality in the Northern Cape Province.	06/01/2016	ACWA Power Africa Holdings (Pty) Ltd	PV	75	In Process
21	14/12/16/3/3/2/880	Proposed Bokpoort II 75 MW Photovoltaic Development (PV2) on the Remaining Extent of the Farm Bokpoort II 390 near Groblershoop within the !Kheis Local Municipality in the Northern Cape Province.	06/01/2016	ACWA Power Africa Holdings (Pty) Ltd	PV	75	In Process
22	14/12/16/3/3/2/879	Proposed Bokpoort II 150 MW CSP Tower Development on the Remaining Extent of the Farm Bokpoort II 390 near Groblershoop within the !Kheis Local Municipality in the Northern Cape Province.	06/01/2016	ACWA Power Africa Holdings (Pty) Ltd	CSP Tower	150	In Process
23	14/12/16/3/3/2/521	The proposed 1 GW Siyathemba solar park, Northern Cape Province.	2013/03/26	Central Energy Fund (Soc) Ltd	Solar PV	1000	In Process



7.0 MITIGATION AND MANAGEMENT PLAN

A social impact assessment not only forecasts impacts, but it also identifies means to mitigate adverse impacts. Mitigation includes avoiding the impact by not taking or modifying an action; minimising, rectifying, or reducing the impacts through the design or operation of the project or policy; or compensating for the impact by providing substitute facilities, resources, or opportunities. Ideally, mitigation measures are built into the selected alternative, but it is appropriate to identify mitigation measures even if they are not immediately adopted or if they would be the responsibility of another person or government unit.

The approach should be to avoid or if not avoidable, minimise adverse impacts. The first step in evaluating potential mitigation for each variable is to determine whether the proponent could modify the project or proposed policy to avoid the adverse effects. The next step in the process is to identify ways to minimise negative social impacts. Attitudes (particularly negative ones) formed about the project cannot be eliminated, but might be moderated if the public has complete information about the proposed development, are included in the decision-making process, or are provided with structural arrangements that assure safe operations.

There are at least three benefits of identifying irresolvable social impacts that may result from a proposed project. The first is identifying methods of compensating individuals and the community for unavoidable impacts, the second occurs when the community may find ways of enhancing other quality of life variables as compensation or the adverse effects. The third happens when the identification of irresolvable social impacts makes community leaders and project proponents more sensitive to the feelings of community residents. By articulating the impacts that will occur and making efforts to avoid or minimise the adverse consequences, or compensating the residents or the community for the losses, benefits may be enhanced and avoidable conflicts can be managed or reduced.

Table 17 discusses the proposed mitigation and management measures for the impacts discussed in the above impact sections. The management objective for this impact assessment is to provide solutions in which to minimise the negative social impacts and enhance to positive impacts. Most of the impacts discussed in this SIA are medium to low significance with the livelihood impacts having the potential to create high significant changes in the social environment.

7.1 Social Management Plan

Social Management Plans (SMPs) are a management tool for addressing social impacts during the implementation of planned interventions (projects, plans, policies and programmes). SMPs have the potential to operationalise the findings of dedicated phases of predictive assessment, outline the priorities, resources, strategies, processes, activities, commitments and staffing employed to avoid and mitigate adverse impacts, and enhance the positive impacts of development. The SMP may detail monitoring, reporting and community engagement processes and may be developed with the participation of impacted parties. They have the potential to be integrated with environmental management plans and consist of a collection of more specific plans, including plans for community engagement and participation, community development, complaints and grievance handling, procurement and local business development, local and indigenous employment, traffic, housing, resettlement, community health, and cultural heritage (Franks. DM and Vanclay. F, 2013).

The SMP establishes the role and responsibilities of the proponent, government, stakeholders and communities in mitigating and managing social impacts and opportunities during the construction, operational and closure phases of the proposed mining operation (refer to Table 17).

Table 17: Social Mitigation and Management Table

Phase	Social Impacts	Significance Rating Before Mitigation	MITIGATION MEASURES (ACTIONS)	Significance Rating After Mitigation
Construction	Employment Opportunities	Moderate	<ul style="list-style-type: none"> ■ Employ local labour as far as possible; and ■ Development of a recruitment and procurement policy. 	Moderate



SIA FOR THE PROPOSED PV1 SOLAR FACILITY

Phase	Social Impacts	Significance Rating Before Mitigation	MITIGATION MEASURES (ACTIONS)	Significance Rating After Mitigation
	Population Influx	Moderate	<ul style="list-style-type: none"> ■ Implement an effective stakeholder engagement process; ■ Ensure adherence to land use zoning, occupation and land use rights; ■ Prevent the development of roadside dwellings, shops and so forth; and ■ Implement increased security measures to manage in-migrants and the consequences of their presence. 	Low
	Economic Impacts	Moderate	<ul style="list-style-type: none"> ■ Utilise local procurement as far as possible; and ■ Develop a Community Development Plan. 	Moderate
	Change in Land Use	Moderate	<ul style="list-style-type: none"> ■ Upon closure of the project, the land use should revert to the land use before development. 	Moderate
Operational	Employment Opportunities	Low	<ul style="list-style-type: none"> ■ Employ local labour as far as possible; ■ Retain trained staff where relevant; and ■ Implement transparent recruitment and procurement policies. 	Moderate
	Training and Skills Development	Moderate	<ul style="list-style-type: none"> ■ Develop and Implement Human Resource Development goals/projects; ■ Diversify employee's skills to ensure that employees are re-employable when the proposed operation downscales or closes; and ■ Develop community initiatives to give back to the local communities in the project area i.e. support to local clinics or schools in the local area. 	Moderate
	Continued Economic Benefits	Moderate	<ul style="list-style-type: none"> ■ Government contributions (taxes and royalties); ■ Social Investment opportunities; ■ Community Development Plan; and ■ Continued use of the local labour pool and service providers. 	Moderate



SIA FOR THE PROPOSED PV1 SOLAR FACILITY

Phase	Social Impacts	Significance Rating Before Mitigation	MITIGATION MEASURES (ACTIONS)	Significance Rating After Mitigation
	Continued Population Influx	Moderate	<ul style="list-style-type: none"> Development and implementation of an Influx Management Plan. 	Low
Decommissioning and closure	Reduced employment	Moderate	<ul style="list-style-type: none"> A programme of retrenchment and re-training during the Operational Phase, providing employees with clear, transparent information on planned activities and closure dates, offering employment at similar sites where possible and full retrenchment packages. 	Low
	Reduced economic impacts	High	<ul style="list-style-type: none"> Promote a sustainable local supply chain. 	Moderate
	Sustainable community development projects	Moderate	<ul style="list-style-type: none"> Once the project has stopped its social investment funding, the on-going projects have to be sustainably maintained by the communities or government administrations; Handover of investment and community project to reliable funders to ensure sustainable projects; and It is recommended that a detailed Social Closure Plan be developed during the Operational Phase before closure. 	Low

Table 18: Management and Monitoring Programme

Impact	Actions/Mitigations	Source	Timeframes	Responsibility
Employment Opportunities during construction	<ul style="list-style-type: none"> Employ local labour as far as possible; and Development of a recruitment and procurement policy. 	Recruitment figures and breakdown of employment types	Construction	ACWA Power HR Manager
Population Influx	<ul style="list-style-type: none"> Implement an effective stakeholder engagement process; Ensure adherence to land use zoning, occupation and land use rights; Prevent the development of roadside dwellings, shops and so forth; and Implement increased security measures to manage in-migrants and the consequences of their presence. 	Monitoring growth of local communities.	Construction	ACWA Power Community Liaison Officer



SIA FOR THE PROPOSED PV1 SOLAR FACILITY

Impact	Actions/Mitigations	Source	Timeframes	Responsibility
Economic Impacts	<ul style="list-style-type: none"> Utilise local procurement as far as possible; and Develop and implement a community Development Plan. 	Wage Bill Government Taxes and Royalties Community Initiatives	Construction and Operation	ACWA Power Bokpoort II Manager and!Kheis LM Director
Change in Land Use	<ul style="list-style-type: none"> Upon closure of the project, the land use should revert to the land use before development. 	Rehab and closure plan	Construction, Operation and Closure	ACWA Power Bokpoort II Manager
Employment Opportunities during operations	<ul style="list-style-type: none"> Employ local labour as far as possible; Retain trained staff where relevant; and Transparent recruitment and procurement policies. 	Recruitment figures and breakdown of employment types	Operation	ACWA Power HR Manager
Training and Skills Development	<ul style="list-style-type: none"> Develop and implement Human Resource Development goals/projects; Diversify employee's skills to ensure that employees are re-employable when the proposed operation downscales or closes; and Develop community initiatives to give back to the local communities in the project area. 	Employee Skills Matrix Career Development Pathways Community initiatives such as internships, bursaries and learnership programmes	Operation	ACWA Power HR Manager
Continued Economic Benefits	<ul style="list-style-type: none"> Government contributions (taxes and royalties); Social Investment opportunities; Community Development Plan; and Continued use of the local labour pool and service providers. 	Wage Bill Government Taxes and Royalties Community Initiatives	Construction and Operation	ACWA Power Bokpoort II Manager and!Kheis LM Director
Continued Population Influx	<ul style="list-style-type: none"> Development and implementation of an Influx Management Plan. 	Influx Management Plan	Construction and Operation	ACWA Power Bokpoort II Environmental Manager
Reduced employment	<ul style="list-style-type: none"> A programme of retrenchment and re-training during the Operational Phase, providing employees with clear, transparent information on planned activities and closure dates, offering employment at similar sites where possible and full retrenchment packages. 	Transfer of employees to other operations. Retrenchment packages	Closure	ACWA Power HR Manager



Impact	Actions/Mitigations	Source	Timeframes	Responsibility
Reduced economic impacts	<ul style="list-style-type: none"> Promote a sustainable local supply chain. 	Closure Costs and Annual Company Financials	Closure	ACWA Power Bokpoort II Manager and!Kheis LM Director
Sustainable community development projects	<ul style="list-style-type: none"> Once the project has stopped its social investment funding, the on-going projects have to be sustainably maintained by the communities or government administrations; Handover of investment and community project to reliable funders to ensure sustainable projects; and It is recommended that a detailed Social Closure Plan be developed during the Operational Phase before closure. 	Community Development Plan	Closure	ACWA Power Bokpoort II Manager !Kheis LM Director Relevant Project manager for each community programme

7.2 Monitoring and Reporting

The monitoring and reporting phase involves the collection, analysis, and dissemination of information overtime. This phase can assist in refining assessments, track the progress of social impact management approaches and identify changes needed, report to communities on impacts and activities, and facilitate an informed dialogue around these issues. Complaints handling processes (also known as grievance mechanisms) and participatory monitoring processes are essential activities during this phase (Franks 2011, 2012).

The draft monitoring programme in Table 18 outlines preliminary performance indicators and an approach to monitoring and reporting for the mitigation strategies. A more detailed monitoring program can be developed in consultation with the key stakeholders during the finalisation of the SMP. The principal objectives of the monitoring program will be to:

- Demonstrate compliance with the EIA and EMP commitments;
- Track the identified impacts and the delivery of their mitigation strategies;
- Identify new impacts arising from changing conditions and develop responses; and
- Enable regular stakeholder contact and feedback.

8.0 CONCLUSION

The findings of the SIA indicate that the development of the proposed 75 MW PV 1 solar facility will create employment and business opportunities for locals during both the construction and operational phase of the project.

The results of the study indicate that the recommended mitigation measures are expected to reduce the significance of adverse impacts to acceptable levels while positive impacts will on average be significantly enhanced to maximise benefits to surrounding communities.

On-going monitoring, management and implementation of measures outlined in specialist reports and the Environmental Management Programme will be critical to ensuring environmentally real impacts do not affect communities.



The proposed development also represents an investment in clean, renewable energy infrastructure, which, given the challenges created by climate change, represents a positive social benefit for society as a whole. The establishment of the proposed 75 MW PV 1 solar facility is therefore supported by the findings of the SIA.

9.0 REFERENCE LIST

- 1) Environmental Impact Assessment for a proposed 75 MW Concentrating Solar Thermal Power Plant and Associated Infrastructure in the Siyanda District, Northern Cape, compiled by Bohlweki and SSI Environmental Consultancies in February 2011.
- 2) Environmental and Social Review Summary for the Kaxu Solar One or Pofadder Solar Thermal Plant in the Northern Cape compiled by the IFC in April 2012.
- 3) International Finance Corporation (IFC) World Bank Group. Guidance Note 7, Indigenous Peoples. January 1, 2012.
- 4) Social Impact Assessment Report for the proposed Concentrated Solar Thermal Power Plant at the Olyvenhouts Drift Farm, Northern Cape compiled by Afrosearch for Bohlweki in December 2006.
- 5) Social Impact Assessment for a Proposed Concentrated Solar Thermal Power (CSP) Plant Project in the Siyanda District, Northern Cape. Afrosearch for Bohlweki Environmental (2006).
- 6) National Census 2011 Statistics South Africa.
- 7) ZF Mgcawu District Municipality Integrated Development Plan (IDP) 2016 - 2017.
- 8) !Kheis LM Integrated Development Plan (IDP) 2014 - 2015.

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APPENDIX A

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DOCUMENT LIMITATIONS

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environmental affairs

Department:
Environmental Affairs
REPUBLIC OF SOUTH AFRICA

DETAILS OF SPECIALIST AND DECLARATION OF INTEREST

	(For official use only)
File Reference Number:	14/12/16/3/3/2/881
NEAS Reference Number:	DEAT/EIA
Date Received:	

Application for integrated environmental authorisation and waste management licence in terms of the-

- (1) National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended and the Environmental Impact Assessment Regulations, 2010; and
- (2) National Environmental Management Act: Waste Act, 2008 (Act No. 59 of 2008) and Government Notice 718, 2009

PROJECT TITLE

Proposed 75 MW Photovoltaic Development (PV1) on the Remaining Extent of the Farm Bokpoort 390 near Groblershoop in the !Kheis Local Municipality, Northern Cape.

Specialist:	Taryn Smith		
Contact person:	Golder Associates Africa (Pty) Ltd		
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Project Consultant:	Golder Associated Africa (Pty) Ltd		
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E-mail:	mschlechter@golder.co.za		

4.2 The specialist appointed in terms of the Regulations_

I, Taryn Smith , declare that --

General declaration:

I act as the independent specialist in this application;

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

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

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

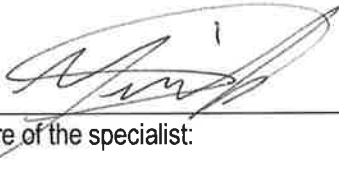
I will comply with the Act, Regulations and all other applicable legislation;

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

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

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

I realise that a false declaration is an offence in terms of regulation 71 and is punishable in terms of section 24F of the Act.



Signature of the specialist:

Golder Associates Africa Pty Ltd

Name of company (if applicable):

18 April 2016

Date:



Schoeman and Associates

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3 May 2016

**INDEPENDENT REVIEW OF THE SOCIAL IMPACT ASSESSMENT REPORT
ENTITLED 'PROPOSED 75 MW PHOTOVOLTAIC (PV1) SOLAR POWER
DEVELOPMENT ON THE REMAINING EXTENT OF FARM BOKPOORT 390 – DEA
REFERENCE NUMBER: 14/12/16/3/3/2/881**

BACKGROUND

The Review provided herewith has been commissioned by Golder Associates, in respect of their Research Report entitled “Socio-economic Impact Assessment for the Proposed 75 MW Photovoltaic (PV1) Solar Facility (Bokpoort II Solar Development); Golder Report No: 1400951-302448-18; DEA Reference Number: 14/12/16/3/3/2/8881. The Assessment was undertaken by Golder Associates for ACWA Power Holdings (Pty) Ltd, and formed part of a broader Environmental Impact Assessment and Public Participation Programme.

This Review is guided by the specific Scope of Work provided by Golder Associates, which has identified the following focus areas:

- The appropriateness of the baseline, and identification of key issues to be assessed.
- The appropriateness of the approach and methodology to the assessment.
- The appropriateness of the impact assessment and mitigation proposed.

REVIEW PROCESS AND APPROACH

The Review has involved, as far as is practicable, an assessment¹ of the technical/procedural compliance of the process as measured against that proposed by the International Association for Impact Assessment (IAIA) in the first instance.

¹ Assessment focus areas and associated indicators directly derived from Vanclay, F, Esteves, A.M., Aucamp, I and Franks, D.M (2015) ‘Social Impact Assessment: Guidance for Assessing and Managing the Social Impacts of Projects, International Association of Impact Assessors (IAIA).

Secondly, it has aimed at assessing the substantive compliance of the assessment process with the Equator Principles (EP). The review process has taken on board the requirements of the International Finance Corporation (IFC). This is given the fact that compliance with the EP, ipso facto, requires compliance with the IFC (2012) Performance Standards, at least in respect of the degree to which a sustainability framework approach has been adopted and the basic tenets of corporate social responsibility have been incorporated.

Judgment regarding the degree to which the Golder Assessment Report could be assessed as appropriate against each of the review focus areas was based on well-researched and accepted assessment focus areas and associated indicators as described by the IAIA. A comprehensive matrix is provided as attachment to this Report which sets out the degree of performance against each indicator.

No separate verification has been undertaken of the presence or absence of information said to be contained in any other Report. As well, given the 'Draft' status of the Report, this Review Report must be regarded as preliminary.

Aspects in the matrix, assessed as only partially addressed in the Report ('to some extent'), and/or where uncertainty exists ('cannot readily confirm'), should not be deemed to be exceptional flaws, unless flagged as a serious omission in this Evaluation Report.

REVIEW FINDINGS

REVIEW FOCUS AREA	FOCUS AREAS	COMMENTS
Appropriateness of the baseline and identification of key issues to be assessed	<p>Socio-economic, historic, indigenous people issues, etc., addressed as part of the baseline assessment.</p> <p>Key issues identified based on previous equivalent assessments within the study area as well as outside, combined with issues raised by stakeholders during the participation process.</p>	<p>Standard internationally accepted and locally appropriate socio-economic baseline data were sourced and used, and included attention to the historic and current situation related to indigenous people.</p> <p>Reference is made to data derived from previous studies, comments from Interested and Affected Parties (I&APs) and from issues reports and integrated into the body of the assessment. Results of the precedent and post impact assessments were not used as chief basis to enhance the accuracy of predications regarding likely post-</p>

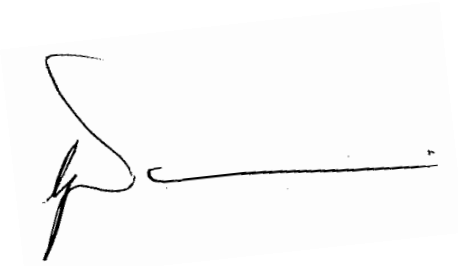
		implementation responses and impacts.
Appropriateness of the approach and methodology of to the assessment	Degree to which the methodology meets the formal requirements for SIAs within the context of South African environmental legislation, in tandem with internationally accepted best practices (IAIA and IFC Guidelines)	The Report describes the overarching methodology used for the assessment. Assessment methodology and associated indicators are appropriate and in line with what is required, based on internationally accepted best practice.
Appropriateness of the impact assessment and mitigation proposed	Accepted procedural and substantive best practice for assessment as well as for the formulation of mitigation measures, including IFC Guidelines	<ol style="list-style-type: none"> 1. Accepted best practice was used as basis for the assessment; 2. Accepted best practice was used as basis for the formulation of mitigation measures; 3. There seemed to be no specific and/or substantive violations of procedural compliance requirements; 4. No specific and/or substantive violations related to the actual conduct of the Assessment appeared obvious; 5. Possible cumulative impacts have been considered, although limited to the overall proposed solar power facility development. Diverse similar activities already proposed and awaiting approval or already approved were not considered; 6. Specific social risks (non-technical risks) have been described and attention has been drawn to the

		<p>potential future need for the development of additional management and mitigation measures (e.g. social mobilisation plans);</p> <p>7. Impacts and Benefits Agreements have been stated will be addressed</p> <p>8. Mechanisms related to the promotion of a Sustainable Livelihoods Approach have been lifted out without elaboration.</p>
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ISSUES NOT ADDRESSED

The following issues have not been evaluated/reviewed

1. Social Licence to Operate
2. Free, Prior and Informed Consent (FPIC)
3. A human rights-based approach
4. Human rights due diligence



GERALDINE SCHOEMAN

MAY 2016

27 May 2016

Reference No. 1400951_Let_002

Geraldine Schoeman
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RESPONSE TO THE PEER REVIEW OF THE SOCIAL IMPACT ASSESSMENT REPORT FOR THE 75 MW PHOTOVOLTAIC (PV1) SOLAR POWER DEVELOPMENT ON THE REMAINING EXTENT OF FARM BOKPOORT 390

Dear Geraldine

This letter is in response to the independent review of the Social Impact Assessment Report entitled "Socio-economic Impact Assessment for the Proposed 75 MW Photovoltaic (PV1) Solar Facility (Bokpoort II Solar Development); Golder Report No: 1400951- 302448-18; DEA Reference Number: 14/12/16/3/3/2/8881" undertaken by Schoeman and Associates on the 3rd May 2016.

The review findings were presented in a table which indicated the following review focus areas:

- Appropriateness of the baseline and identification of key issues to be assessed;
- Appropriateness of the approach and methodology of to the assessment; and
- Appropriateness of the impact assessment and mitigation proposed.

The reviewer found the above areas acceptable and compliant with procedural requirements. The reviewer also highlighted issues which were not included or reviewed by the in the Report. These were listed below along with Golder's response:

1) Social Licence to Operate;

Response: The social license to operate is addressed in the overall ESIA report based on the stakeholder engagement process. Adverts, site notices and background information letters were sent to stakeholders to announce the project and the availability of both the scoping and the impact assessment reports. Stakeholders also had the opportunity to comment and voice their opinions through two rounds of public comment period. A comment and response report has also been included in the Final ESIA which documents stakeholder responses to the project throughout the whole process.

2) Free, Prior and Informed Consent (FPIC);

Response: The SIA also takes into account that FPIC was being addressed in the stakeholder engagement process of the ESIA. The affected land owners and neighbouring farms were informed of the project through telephonic conversations and a face to face meeting. They were also invited to an open house held on the 18th of February 2015 in Groblershoop to discuss the project activities and the ESIA process. There is a public meeting scheduled for the 14th of June 2016 in Groblershoop to discuss the findings of the ESIA report and specialist studies.

3) A human rights-based approach; and

Response: Although there has been no specific mention of a human rights based approach in the SIA report, there are a number of components discussed in the SIA which would contribute to a rights based approach.



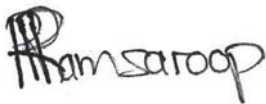
These components or rights topics have been addressed in sections such as indigenous people, equal employment opportunity, health and security, education and skills, economic and corporate social responsibility.

4) Human rights due diligence

Response: The methodology for a human rights due diligence would be to determine the extent to which a project interacts with the pre-existing social, economic and environmental conditions/context. The process for a Human Rights Impact Assessment (HRIA) is to develop a project overview, catalogue rights topics and rate impacts, verify ratings and recommend mitigation and monitoring steps (Nomogaia Human Rights and Business Initiative, 2012. *Human Rights Impact Assessment Toolkit for Practitioners conducting Corporate HRIA's*). This methodology is similar to the SIA methodology used in this study and identifies rights topics as mentioned in point 3 above, rates impacts and proposes mitigation and monitoring measures. The environmental component topics have been addressed in the ESIA report. The human rights due diligence forms part of the on-going risk management process included in the EMPR.

Yours sincerely,

GOLDER ASSOCIATES AFRICA (PTY) LTD.



Priya Ramsaroop
Social Scientist



Dr David de Waal
Technical Director: Social Management Services

PR/DdW/jep

CC: n.a.

Attachments: n.a.

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