

**ENVIRONMENTAL IMPACT ASSESSMENT
PROCESS FOR THE PROPOSED 1 GW
UPINGTON SOLAR PARK WITHIN THE
//KHARA HAIS MUNICIPALITY, NORTHERN
CAPE PROVINCE**

**SCOPING SOCIAL IMPACT ASSESSMENT
REPORT
Draft 1**



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1 INTRODUCTION

CEF (SOC) Ltd. on behalf of the Department of Energy proposes the establishment of a 1GW Solar Park in //Khara Hais Municipality (1 GW Upington Solar Park) in the Northern Cape Province. The proposed Solar Park Initiative is envisaged to make use of different solar technologies, which among others could include; *Parabolic Trough (PT)* and Central Receiver (CR) and *Photovoltaic (PV)*; which include fixed and tracking crystalline PV, fixed thin film PV and Concentrated PV (CPV) with a total generating capacity of 1GW..

The proposed 1GW Upington Solar Park will be located within farm Klipkraal 451, which falls within the //Khara Hais Local Municipality in the Northern Cape Province. The site can be accessed via the N10 (to the north of the farm) and N14 (to the south of the farm) and also can be accessed via other secondary roads. The portion of the farm where the proposed development is suggested covers an area of approximately 5500 hectares. The actual development footprint (will be confirmed during the EIA Phase) of the various technologies will be smaller than the total extent of the site. It is planned that the different solar technologies and the associated infrastructure will be placed within the boundaries of the site and as far as possible avoid any impact on the identified environmental sensitive areas such as drainage lines.

A Basic Social Impact Assessment (desktop study) was undertaken during the Environmental Impact Assessment (EIA) scoping phase. A Social Impact Assessment (SIA) can be described as the systematic appraisal of the possible social as well as bio-physical impacts on the quality of life of persons and communities in an around a development during the construction, operational and possible decommissioning phases of a project. Seen from this viewpoint, social impacts include all the significant changes in the social and physical environment that might take place during the development and in this case the development of a 1GW Solar Park. The development is socially seen as positive because the development of the Solar Park will create employment opportunities, labour skill development and retention, development impact on local economy of the municipal area and surrounding areas and might have a positive influence on the economy of Upington.

An SIA should identify *undesirable* and *irreversible* consequences. Specific attention should normally be given to vulnerable groups in the affected population(s), such as the poor, the elderly, women, and the unemployed. In the case of this development, no immediate large communities will be affected by the proposed development; the site is approximately 10km from Upington.

In most cases, the assessment of social impacts is carried out *before* the impacts actually occur. The social impacts are already present from the moment a project is proposed (present whether or not the project proceeds) and the social impact assessment process must determine how substantial the Solar Park development will affect the surrounding communities, in this case farming communities as well as the population of the closest town, Upington. This means that an SIA is normally anticipatory and not empirical. It attempts to assist the planning process of a proposed development or decision, by identifying the likely impacts before they take place. Being anticipatory, however, also entails estimating the likely future impacts based on the existing empirical knowledge of the impacts of similar actions in the past.

It should be emphasised that no impact assessment – whether environmental or social – can supply totally accurate results. This is due to the fact that the causes and effects of environmental and social changes are complex and an assessment deals with future uncertainties. An SIA is neither a technical nor an economical exercise; the focus rather falls on *concerns in and impacts on the social environment*. In addition, regardless of how good the data and the understanding of the affected environment are, an SIA (and an EIA, for that matter) always involves an element of subjective judgement. As a planning tool, the SIA can assist project management in understanding, implementing and managing a project in such a way that negative impacts are avoided or mitigated and positive impacts are optimised.

The proposed 1GW Upington Solar Park is on state owned land, owned by the municipality, thus no private landowners will be negatively impacted by this proposed 1 GW Upington Solar Park development.

The following persons gave input to the whole process:

- **Moseketsi Mochesane** – research of social data and compilation of report; and
- **Frank van der Kooy** – site visit and social verification process.

2 DESCRIPTION OF PROJECT

The proposed 1GW Upington Solar Park development will consist of the following infrastructure development but not limited to :

- Construction of the Solar Park, be it various technologies;
- Solar panels.
- Workshop area for maintenance and storage
- Construction of pipelines for water supply;
- Subsoil stockpile area;
- Topsoil stockpile area – where possible foundations need to be constructed;
- Water treatment works and possible dam;
- Access/Haul road network

2.1 Methodology

The purpose of the Basic Social Impact Assessment is to conduct a systematic analysis in advance of the likely impacts that the project might have on the day-to-day life of individuals and communities within the study area. The assessment serves to identify issues that will need to be addressed by avoidance or mitigation as well as social impacts that cannot be resolved. Recommendations regarding mitigation measures are developed for inclusion in the Environmental Management Plan (EMP). The social assessment also highlights potential positive impacts of the project so that the possibility is investigated and these impacts can be enhanced.

The study area for the social impact assessment included:

- Communities and settlements that may be directly affected by physical proximity to the proposed project;
- Communities and settlements that may be affected by associated infrastructure;
- Individuals, communities and institutions that may be indirectly affected as a result of the economic repercussions of the project;
- Land resources and people who may be affected by construction of the Solar Park and associated infrastructure; and
- Institutions that may be involved in or affected by the policy and strategy and planning aspects of the project.

The steps followed for the Social Impact Assessment are outlined below.

- Initial problem analysis

The first phase of the Social Impact Assessment entailed conducting a literature review with the objective to gain a thorough understanding of the following:

- The *project*, including its background, design parameters, construction activities and schedules, reasonable alternatives, etc.;
- The *social context* of the project, including the national and regional social attributes or/and factors; and
- The *policy context* of the project, including the content and level of rigour required of the social impact.

Sources for the literature review included project background reports and studies and relevant legislation. Documentation/publications used during the desktop study also included the //Khara Hais Local Municipality (KHEM) Integrated Development Plan (IDP), the ZF Mgcawu District Municipality (Formerly Siyanda,) IDP, the Census 2011, Municipal Report Northern Cape, Locality Maps, Aerial Photographs, Solar Park Corridor Strategic Environmental Management Plan (SEMP. 2013) and the Arup Feasibility Socio economic Report.

In addition, site visits, Public Participation and consultation with stakeholders will be undertaken during the EIA Phase. This will enable the project team to identify some important needs, expectations and perceptions regarding the proposed development.

Information from these sources as well as the documents mentioned above, will be used to determine what possible social impacts the development of this magnitude may have on the social environment.

- *Social baseline assessment*

Issues addressed in this baseline assessment included:

- *Demographic profiles* of the study area (including population size, economic activities, employment rate, livelihoods, access to services, etc.);
- Current *development activities* in the study area;
- *Social characteristics* of potentially affected communities (e.g. community structures, social capital and cohesion, attitudes towards the project, future aspirations of individuals, etc.);
- Relationships between potentially affected communities and the environment (including *sense of place*, historical or cultural ties, etc.)

- *Assets* and *amenities* that may be lost, and activities that may be affected by the project;
- *Public health status* (including communicable and sexually transmitted diseases); and
- Current authority and capacity of *institutions* that may be involved in management and monitoring of the project's effects.

- Scoping study

The objectives of the scoping study are to:

- Form a preliminary assessment of the likely impacts of the project; and
- Identify issues to be investigated in greater detail during the impact assessment phase of the study.

- Projection and estimation of impacts

This phase concentrated on the anticipated impacts associated with the project during the scoping study:

- *Conceptualising social impacts*. This entailed assessing the differences between (a) predicted conditions *without* the development (extrapolated from the baseline projection) and (b) predicted conditions *with* the development.
- *Predicting responses to impacts*. This entailed determining the significance that affected individuals, communities and institutions attached to the identified social impacts.
- *Indirect and cumulative impacts*. This entailed estimating likely consequences and ripple effects of direct impacts. These might result from the incremental impacts of an action added to other past, present and reasonably foreseeable future.
- *Rating impacts* in terms of their nature, extent, duration, intensity, probability, overall significance and mitigation potential, this is to be done in the EIA phase.

- Development of mitigation and management measures

This phase involved the formulation of a detailed *Management Plan* containing the following:

- Description of *mitigation measures* for whatever is relevant; and
- Description of *monitoring requirements*. This component of the plan proposes detailed arrangements required for monitoring impacts and the implementation of mitigation measures. It includes a description of monitoring methodology, specific operations and features to be monitored, monitoring reporting relationships, and other relevant arrangements.

3 SOCIAL IMPACTS EXPECTED DURING ALL PROJECT STAGES (GENERALLY)

3.1 Construction

The construction/implementation stage begins when a decision is made to proceed with the project and an EIA is called for. The likely impacts during the various phases can be described in summary. For typical construction projects, this involves clearing land, building access roads, developing construction camps, etc.

Displacement and relocation of people, if necessary, occurs during this phase. Depending on the scale of the project, the build-up of a migrant construction work force may also occur. If significant migration into the study area occurs, the new residents may create a strain on community infrastructure, as well as creating social stresses due to changing patterns of social interaction. Communities may have difficulties in responding to the increased demands on schools, health facilities, housing and other social services. Further stresses may be created by resentments between newcomers and long-time residents, by sudden increases in the prices for housing and local services and even by increased uncertainty about the future. When new projects are implemented, local economies and organizations may change and old behaviour is replaced with new ways of relating to the environment and its resources. This will be evaluated with regard to this project to what degree this is foreseen to happen.

3.2 Operation

The operational phase occurs after the construction is completed and the project becomes fully operational. In many cases this stage will require fewer workers than during the construction phase. If operations continue at a relatively stable level for an extended period of time, effects during this stage can often be the most beneficial to the community at large. Communities seeking industrial development will often focus on this stage because of the long-term economic benefits that may follow from the development. It is also during this stage that the communities can adapt to new social and economic conditions and the expectations of positive effects-such as stable population, a quality infrastructure, and employment opportunities.

3.3 Decommissioning

Decommissioning begins when the proposal is made that the project and associated activity will cease at some time in the future. As in the planning stage, the social impacts of decommissioning begin when the intent to close down is announced and the community or region must again adapt, but this time to the loss of the project. At other

times, the disruptions to the local community may be lessened or at least altered if one type of worker is replaced by another but employment has actually increased as environmental clean-up or and rehabilitation specialists have been hired to help deal with rehabilitation.

4 DESCRIPTION OF THE SOCIAL ENVIRONMENT

Demographic information of the area in which the 1GW Upington Solar Park will be constructed was obtained from the sources discussed in the section on Methodology in this report.

The proposed project will be constructed within the //Khara Hais Local Municipality (KHLM) which is located in the Northern Cape province of South Africa along the N10 and N14 route and forms part of the Z.F Mgcawu District Municipality (former Siyanda District Municipality). Adjacent to the KHLM and also within the ZF Mgcawu District Municipality (ZFMDM) is the !Kheis Local Municipality and the Kai !Garib Local Municipality. The KHLM's municipality seat is in the town of Upington. There are 8 smaller rural which include; Lambrechtsdrift, Karos, Leerkrans, Leseding, Raaswater, Sesbrugge, Klippunt, and Kalksloot. The inhabitants of these settlements are mainly reliant upon agricultural activities for their daily living. Upington is the main town of the //Khara Hais Municipality and has, since its inception, been the hub of activities in the region.

According to the //Khara Hais Local Municipality IDP Upington has a number of broad descriptions and perceptions, including:

- Portal to Namibia and
- Frontier to the Kalahari and Kgalagadi Transfrontier Park.
- Oasis in the desert.
- Agricultural hub of the Northern Cape.
- Portal to the Kalahari's hunting grounds.

The Municipal area is approximately 344 446 ha and is categorised as a Rural Municipality.

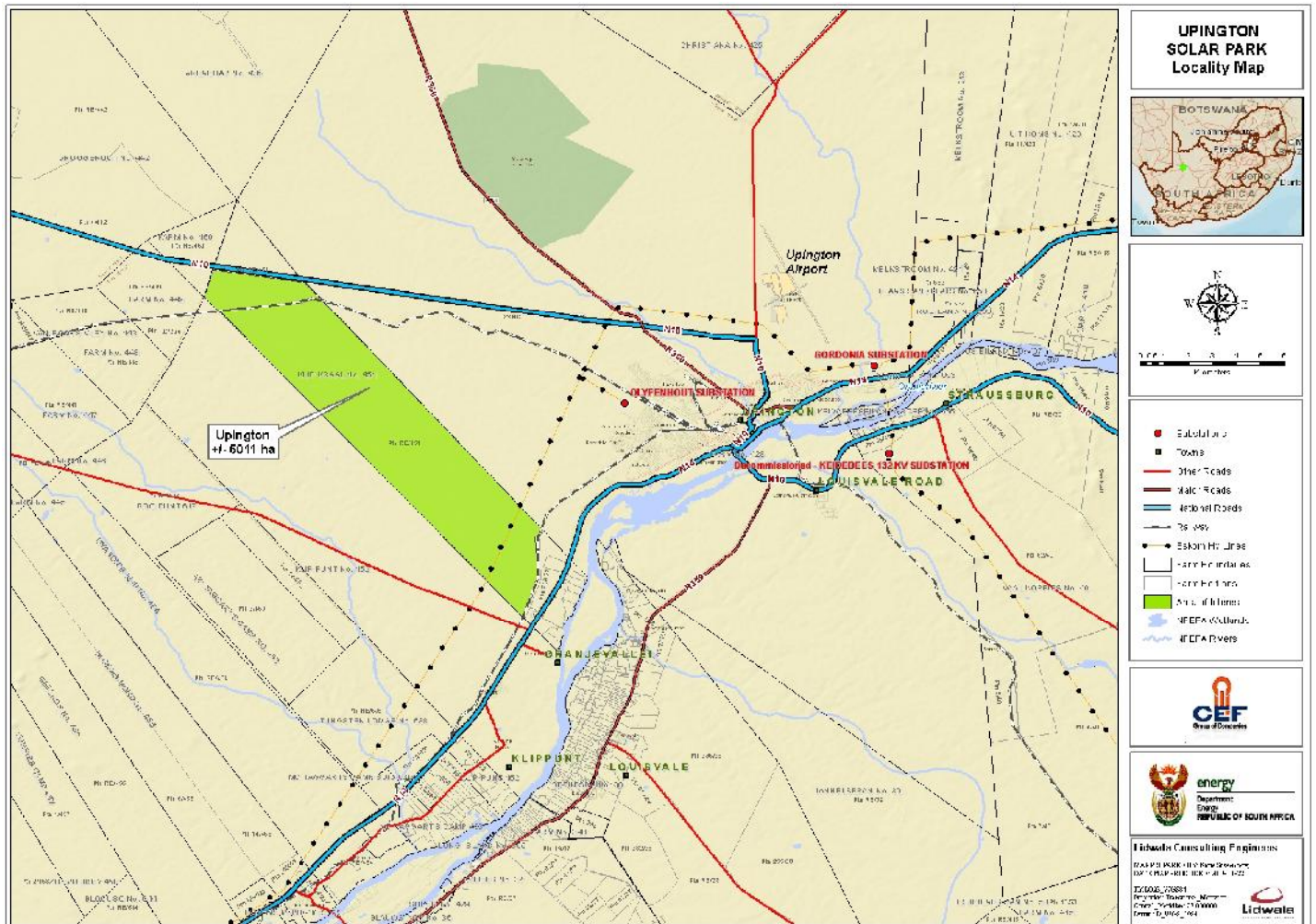


Figure 1: Locality of the proposed site in relation to Upington

4.1 Provincial demographic profile

Northern Cape Province has a population of 1 145 861 (Census 2011 Municipal report – Northern Cape). The province’s unemployment rate is listed in the Census 2011 results as 28.1% from 35.7% in 2001.

Most residents of the province (both males and females) fall within the age group 0-29 years. In the last 10 years (2001 to 2011) the population has aged to some extent, with numbers of female residents slightly decreasing in the age group 5-19 years and slightly increasing in the age group 45-59 years. Male residents’ numbers also decreased slightly in the age group 5-19 years, but increased most in the age groups 20-29 years old (Census 2011 Municipal report – Northern Cape).

4.2 District demographic profile

ZF Mgcau District Municipality (Formerly Siyanda District Municipality) has a population of 236 783 making it the second largest District Municipality in the Northern Cape in terms of population size. The district has experienced a drastic increase from a negative to a higher positive growth in population between 1996 and 2011, as indicated in **Figure 3**.

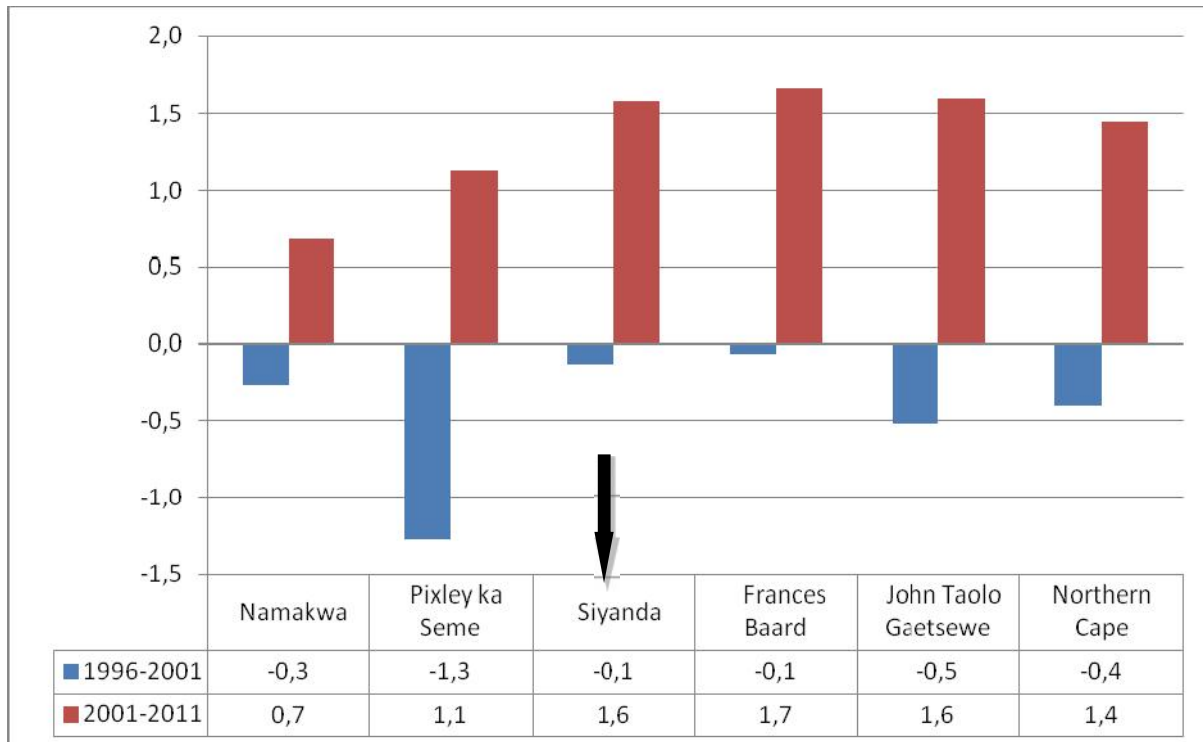


Figure 2: Population growth rates by district municipality – 1996, 2001 and 2011 (Source: Census 2011 Municipal report – Northern Cape)

Unemployment rates were high in 2001 at 26.5% for the ZFM (Formerly Siyanda), but dropped to 21.0% in 2011. This is slightly lower than the provincial unemployment rate of 28.1% but still higher than the national unemployment rate of 25.2%.

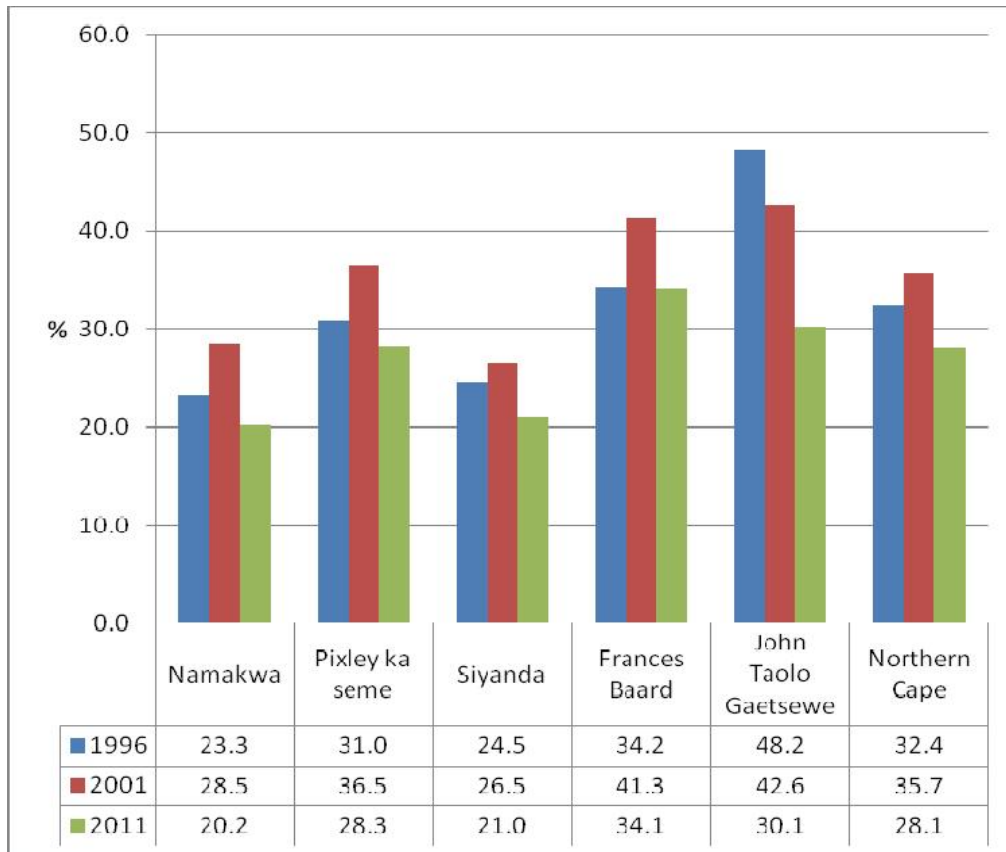


Figure 3: Distribution of the population aged 15–64 by unemployment rate and district municipality – 1996, 2001 and 2011 (Source: Census 2011 Municipal report – Northern Cape)

The majority of residents in the ZFMDM (Formerly Siyanda District) are Coloured (61.2%), followed by Black/African (29.8%), White (8.3%) and Indian or Asian (0.7%), (Census 2011 Municipal Report Northern Cape). This is consistent with provincial and national figures.

4.3 Local demographic profile

According to Statistics 2011, the population of KHLM is 93 494 with slightly more females, 47 447 than males, 46 047. This could be attributed to the males going outside the municipality in search of employment opportunities.

A large number of the municipal population are Coloureds at 60 947 in comparison to the lowest population group of Indians/Asians at 623. About 40, 5% of municipal households are headed by females and about 0,4% are headed by children.

Table 4-1: Distribution of population by age and sex, //Khara-Hais Municipality, 2001 and 2011 (Statistics South Africa, 2011)

NC083://Khara-Hais	2001			2011		
	male	female	total	male	female	total
0-4	4117	4059	8176	4771	4601	9371
5-9	4227	4202	8430	4606	4542	9148
10-14	4055	4052	8107	4785	4583	9368
15-19	4221	4183	8404	4667	4574	9242
20-24	3336	3331	6667	4220	4053	8274
25-29	3192	3126	6318	4077	3787	7864
30-34	3156	3102	6259	3586	3423	7009
35-39	2672	2901	5573	3151	3150	6301
40-44	2277	2470	4747	3010	3157	6168
45-49	1762	2009	3770	2450	2853	5303
50-54	1358	1613	2972	2051	2305	4356
55-59	1034	1290	2324	1470	1845	3315
60-64	904	1155	2059	1106	1486	2592
65-69	723	886	1608	752	1060	1811
70-74	461	579	1040	606	845	1451
75-79	276	419	695	380	603	983
80-84	182	281	463	191	295	486
85+	104	205	309	168	284	452
Total	38056	39863	77919	46047	47447	93494

The three main types of dwellings are the formal, traditional and the informal. Although there was an increase in the number of formal dwellings, from 14 554 in 2001 to 17 481 in 2011, some of these houses fall below the RDP standard. Current housing backlogs are being worsened by the increase in population within the municipality. There was however a significant decrease in the number of traditional dwellings, from 511 in 2001 to 136 in 2011 and an increase in the number of informal dwellings, from 2 814 in 2001 to 5 348 in 2011.

4.4 Economic activities, Tourism and farming

4.4.1 Economic activities

The KHLM has a so-called "dual economy". This is because the informal economies in the rural areas, townships and agriculture form part of the one economy and the more "advanced" sectors of the economy such as banking, manufacturing, government services and trade form another part of the economy. Agriculture accounts for the largest percentage share of all sectors within the KHLM, followed by the electricity and finance sectors.

The natural resource base and economy does not have the capacity to support the total population, forcing the labour force to seek employment opportunities outside of the Municipality (e.g. Kimberley). Furthermore low levels of income obtained in the area imply low levels of buying power and, therefore, few opportunities for related activities such as trade. This in turn also supports the leakage of buying power in that the higher income groups tend to buy elsewhere. The manufacturing sector is currently not doing well in the KHLM according the IDP.

4.4.2 Agriculture

Agricultural activities take up portions of land abutting the Orange River in the Municipality. The Agricultural sector is important to the local economy and therefore represents an emerging strength for the Municipality. Agriculture creates further opportunities for expansion as well as the development of linkages with other sectors of the economy creating further opportunities for job creation.

The largest dried vine fruit processing and packaging plant (SAD Vine Fruit (Pty) Ltd) in South Africa is based in Upington which is served by six intake depots located in Groblershoop, Mylpaal, Louisvaleyweg, Keimoes, Kakamas and Vredendal. The Orange River Wine Cellars Co-Op which is based in Upington is the second largest wine making co-operative in the world and has wine cellars in Groblershoop, Grootdrink, Upington, Keimoes and Kakamas. The co-operative was established in 1965 and has over 740 members. About 445 members produce grape juice and the remainder wine. At present most of the wine is produced for the local South African market.

4.4.3 Game Farming

Game farming is well established and contributes significantly to the economy of the area. Game farming products include eco-tourism, hunting, rearing of game for the production of venison and game breeding for the sale of live animals. In places game farms occur in large-scale conservancies. There is significant potential to expand tourism within the game farming especially if it is focussed on the development of high quality specialised niche markets.

4.5 Tourism

Upington is well situated as a base for exploration of the region and has an outstanding infrastructure in the form of accommodation. Various areas are classified as nature conservation areas. Spitskop Nature Reserve lies 13km north of Upington. This nature reserve, of approximately 6000 hectares, supports gemsbok, zebra, springbok, ostrich,

eland, blue wildebeest, as well as smaller game and can be viewed from a circular route running through the park.

There are a variety of routes and distances winding through the KHLM area for hikers.

Other nature areas within the jurisdiction of //Khara Hais are Gariep Lodge and Uizip.

The Kalahari Oranje Museum Complex has the status of a regional and provincial museum. It conserves cultural items and is exhibited as a community focus point.

The following features are declared under the national monument act and are tourist attractions:

- Donkey Monument;
- Camel and Rider Statue;
- D. Date Palm Avenue (Planted in 1935 at the Eiland Holiday Resort, there are over 200 palms, measuring a distance of 1 041 meters, making it the longest palm avenue in the southern hemisphere);
- Oranjerivier Wine Cellars (The largest in the country and the second largest in the world);
- Scotty Smith's Grave (The Robin Hood of)the Northern Cape;
- 405 Philani Street in Paballelo;
- The home of the Reverend Schröder;
- Roman Catholic Church in Le Roux Street (still in use);
- NG Mother Community in Schroder Street (still in use);
- Hortentia water mill; and
- Missionary complex in Schröder Street (building is being used as a museum).

4.6 Employment rates and livelihoods

Employment rates are higher for males than for females. In 2011, 24748 persons from the economically active group, e.g. between 15 and 65 years, were employed while 7034 were unemployed. The unemployment rate in the economic active group is approximately 22.1 %. Agriculture is respectively the biggest employer in the KHLM.

Table 4-2: Distribution of the population aged between 15 and 64 years by employment status – 2001 and 2011 in the //Khara-Hais local municipality (Statistic SA, 2011)

Employed		Unemployed		Unemployment Rate	
2001	2011	2001	2011	2001	2011
19 207	24748	9 893	7034	34.0	22.1

4.7 Access to services:

4.7.1 Access to water and sanitation facilities

There is a lack of proper sanitation facilities and pit latrines are constructed in most rural areas for households. Despite the lack of proper knowledge on pit latrine construction this could be contributing to the high concentration of nitrates in the groundwater of most rural areas? In 2011, only 17 390 of the Municipality's households had chemical/flush toilets in comparison to 1 581 which had pit latrines, 2 528 who used a bucket system and 1 153 who had no toilets. The municipality does however offer a free Basic Water and Sanitation to all poor household within their database.

The Blue Drop score for KHLM was 37.8% in 2010 (Department of Water Affairs (DWA), 2010). According to the stats 2011, 21 005 of the people in the municipality have access to piped water inside their dwelling, 1 679 access piped water from communal stands and 561 of the people have no access to tap/piped water in the KHLM.

4.7.2 Transport infrastructure

The KHLM has a good primary tarred road network that links the major towns with each other. The major road network consists of:

- The N14 highway that links Upington to the east with Kuruman and to the west with Springbok, passing through Keimoes and Kakamas;
- The N10 highway links Upington to the South with Britstown (passing through Groblershoop) and the N12 and to the north-west and with the Namibian border at Nakop/Ariamsvlei.

The secondary network is less developed and vast areas with sparse populations are served only by means of a vast network of gravel roads of varying quality. Many of these roads are in such a bad state that it is an impediment to the development of the tourism potential of the area.

Railway

A Railway line links Upington with De Aar to the south-east and splits just to the north of Upington with the one line going to the border of Namibia at Nakop and the other following a route along the Orange River to Kakamas

Airport

Upington Airport's runway can accommodate a Boeing 747 with a full load of passengers, cargo and fuel – allowing planes to take off for Europe directly. Upington was chosen to

accommodate these airport facilities because of its height above sea-level, position and available land. There was however some other motive behind the construction of this airport stemming back before 1994 which is not known. The airport's 4 900m-long runway is the longest in Africa.

4.7.3 Educational facilities and libraries

Primary and secondary schools occur throughout the Municipality. The number of females classified as having no education is generally higher than those of Males. However, the number of females with tertiary education is higher than the number of males at 2052 for males and 2275 for females. Library and satellite library services are available in most parts of the municipality including the rural areas.

5. SOCIAL IMPACTS ENVISAGED - SOLAR PARK DEVELOPMENT:

5.1 Positive impacts

- Creation of employment- during construction and operation of Solar park;
- Increased tax base for local authority, stimulation of local economy and service industry- local Manufactures;
- Transfer of skills (Creation of employment and business opportunities during the operational phase will also create opportunities for skills development and training);
- Security of electricity supply;
- Reduced carbon footprint due to renewable energy(electricity generated by solar energy);
- Impact on tourism and the creation of potential tourist opportunities;
- The establishment of infrastructure to generate renewable energy

5.2 Potential negative impacts

- Influx of construction workers employed on the project;
- Increased risk of stock theft, poaching and damage to farm infrastructure associated with construction workers;
- Increased risk of veld fires associated with construction related activities;
- Impact of heavy vehicles, including damage to roads, safety, noise and dust;
- Increased pressure on infrastructure such as sewerage treatment works and transportation associated with construction;
- Noise and from the construction and operation of the Solar Park; and
- Visual impact and possible mirror glare from the mirrors of the different technologies of solar energy generation.

5.3 Potential health impacts

The potential health risks associated with solar plants are linked to the hazardous materials used in the process of electricity generation and the materials and possible waste stored on site. These include liquids such as oils or molten salts that may be hazardous and present a possible spill risks. In addition, various fluids are commonly used in most industrial facilities, such as hydraulic fluids, coolants, and lubricants. These fluids may in some cases be hazardous, and present a spill-related risk. PV panels may also contain hazardous materials and although they are sealed under normal operating conditions there is the potential for environmental contamination if they were damaged or improperly disposed upon decommissioning.

5.4 Cumulative impacts

The cumulative impacts associated with large (Solar Park developments), renewable energy facilities, are largely linked to the impact on sense of place and visual impacts. Due to other solar plants being proposed and some already being constructed in proximity to the proposed Solar Park site, significance of the potential cumulative social impacts, specifically the impact on the landscape, sense of place and visual impacts, associated with the proposed facility has to be assessed.

6. DISCUSSION OF ALTERNATIVES

The Solar Park development will use different solar technologies alternatives which are explained in more detail below:

Photovoltaic (PV) solar power generation for peak load application **Concentrated photovoltaic (CPV)** systems employ sunlight concentrated onto photovoltaic surfaces for the purpose of electrical power production. Solar concentrators of all varieties may be used and these are often mounted on a solar tracker in order to keep the focal point upon the cell as the Sun moves across the sky. CPV is generally installed in "solar farms" and uses reflective or transmissive optics-either mirrors or Fresnel lenses-that concentrate light rays (photons) from the sun onto a photovoltaic (PV) module to increase its conversion efficiency. The photons, which are individual quantum units of light energy, are directly converted into electricity by the PV module

Parabolic trough solar thermal power generation for mid-merit application a parabolic trough power plant consists basically of a solar field and a conventional power block. Parabolic trough-shaped mirrors in the solar field concentrate the incident solar radiation onto an absorber tube located in the focus line of the collector. A heat transfer fluid inside the absorber tube is heated by the absorbed solar radiation and produces steam in the power block by means of heat exchangers. From there, the steam is fed into a turbine to generate electricity in the same way it is done in conventional power plants. With an integrated thermal energy storage system, the supply of electricity can be stored and made available in a plannable manner.

Central receiver solar thermal power generation for mid-merit application Concentrating Solar Power (CSP) technologies use mirrors to concentrate (focus) the sun's light energy and convert it into heat to create steam to drive a turbine that generates electrical power. CSP technology utilizes focused sunlight. CSP plants generate electric power by using mirrors to concentrate (focus) the sun's energy and convert it into high-temperature heat. That heat is then channelled through a

conventional generator. The plants consist of two parts: one that collects solar energy and converts it to heat, and another that converts the heat energy to electricity

7. ALTERNATIVE PREFERENCE FROM A SOCIAL OF VIEW POINT

Solar parks and associated power lines should not as far as possible;

- be built in areas close to existing settlements (due to the mirror glare);
- be built in areas that are currently occupied by infrastructure or settlements (relocation must be avoided as much as possible);
- be built on productive agricultural land;
- be constructed close or within a Nature Reserves and protected areas;
- be constructed on areas earmarked for future developments i.e. residential;
- be located on densely populated areas, where relocation may be necessary; and
- Solar parks can be established on areas with low or no populations.

8. PLANNED ACTIVITIES DURING THE EIA PHASE:

For the scoping phase this report was compiled from existing information and is thus a desktop assessment. Fieldwork during the EIA phase will be an important activity required to validate and refine the findings of this report. This will include the following studies and activities:

- Site Visit, and particular attention will be paid to the presence of settlements within the site and or adjacent farms;
- Map the presence of settlements/farms or populations;
- Evaluate, based on the site social attributes what the most applicable mitigation measures are to reduce the impact of the development on the livelihoods of the surrounding settlements if any are present;
- Public Participation will be undertaken and consultation with stakeholders will enable the project team to identify some important needs and expectations of the Upington community from the project;
- Determine the real and perceived social impacts in the area that will include migrant labour of various educational levels; and
- Determine the possible cumulative growth factor for the area in order to forecast any likely pressure on existing amenities like schools and hospitals.

9. CONCLUSION

The proposed Solar Park will possibly result in job creation which is a positive impact. The duration of the operational phase of the Solar Park will determine the duration of work opportunities at various educational levels and through the outcome of the EIA some areas can be identified in order for the local community to benefit in the long term. This is especially true on tertiary training and bursaries that can start parallel to the development. Employment and electricity production will impact possible growth to the local economy. The development will increase the tax base of the Municipality through the use of local manufactures for the different parts of the solar technologies; this will also create jobs as people will be employed in the manufacturing plants.

A Solar Park has much more reduced carbon footprint and air emissions than a coal power station, thus the air pollution will be minimal as the electricity is generated directly from the sun rays and no burning of coal or diesel.

The population increase and the rise of unemployment combined with the low levels of skills makes unskilled work highly important – new projects creates opportunities for the unskilled labour market as discussed above.

Due to more solar plants being developed in and around the municipal area, significant cumulative social impacts are expected, specifically the impact on the landscape, associated with the development of solar plants/ Park, and the sense place impact.

This report has outlined the social setting of the proposed study area, discussed possible impacts (both positive and negative) and a conclusion. More detailed findings, impact ratings (importance of identified impacts) and recommendations will form part of the EIA phase.

10. REFERENCES

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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:	12/12/20/
NEAS Reference Number:	DEAT/EIA/
Date Received:	

Application for authorisation in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended and the Environmental Impact Assessment Regulations, 2010

PROJECT TITLE

Environmental Impact Assessment for the Proposed 1 GW Upington Solar Park, Northern Cape

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E-mail:	environmental@lidwala.com		


4.2 The specialist appointed in terms of the Regulations_

I, Frank vd Kooy, 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:


Frank vd Kooy

Name of company (if applicable):

Date:

25/06/2014