

15. CONCLUSIONS AND RECOMMENDATIONS

The Environmental Impact Assessment (EIA) process for the proposed establishment of a Concentrating Solar Power (CSP) Plant in the Northern Cape Province has been undertaken in accordance with the EIA Regulations published in Government Notice R1182 to R1184 of 5 September 1997 (as amended), in terms of the Environment Conservation Act (No 73 of 1989).

The essence of any EIA process is aimed at ensuring informed decision-making and environmental accountability, and to assist in achieving environmentally sound and sustainable development. In terms of NEMA (No 107 of 1998), the commitment to sustainable development is evident in the provision that *"development must be socially, environmentally and economically sustainable...and requires the consideration of all relevant factors..."*. NEMA also imposes a duty of care, which places a positive obligation on any person who has caused, is causing, or is likely to cause damage to the environment to take *reasonable steps* to prevent such damage. In terms of NEMA's preventative principle, potentially negative impacts on the environment and on people's environmental rights (in terms of the Constitution of the Republic of South Africa, Act 108 of 1996) should be anticipated and prevented, and where they cannot be altogether prevented, they must be minimised and remedied in terms of *"reasonable measures"*.

In assessing the environmental feasibility of the proposed project, the requirements of all relevant legislation has been considered. This relevant legislation has informed the identification and development of appropriate management and mitigation measures that should be implemented in order to minimise potentially significant impacts associated with the project.

The conclusions of this EIA are the result of comprehensive studies and specialist assessments. These studies were based on issues identified through the EIA process and the parallel process of public participation. The public consultation process has been rigorous and extensive, and every effort has been made to include representatives of all stakeholders within the process.

15.1. Evaluation of the Proposed Project

The preceding chapters of this report provide a detailed assessment of the predicted environmental impacts on specific components of the social and biophysical environment as a result of the proposed project. This chapter concludes the EIA report by providing a holistic evaluation of the most important environmental impacts identified through the process. In so doing, it draws on the information gathered as part of the EIA process and the knowledge gained by

the environmental consultants during the course of the EIA and presents an informed opinion about the proposed project.

In order to meet the objectives as set out in the South African Energy Policy as well as to meet developmental and socio-economic objectives in South Africa, the country needs to optimally use the available energy resources. Eskom Holding Limited (Eskom) is required to respond to the growing electricity demand of approximately 4% per annum. This growing demand is placing increasing pressure on Eskom's existing power generation capacity. In order to ensure that potential future electricity demands are met, Eskom is investigating a variety of options including conventional pulverised fuel power plants, pumped storage schemes, gas-fired power plants, nuclear plants (PBMR and other), greenfield fluidised bed combustion technologies, renewable energy technologies (mainly wind and solar projects), and import options within the Southern African region.

Eskom's renewable energy strategy supports the South African Government's white paper on renewable energy. Eskom is committed to investigate and evaluate the options for the diversification of the energy mix over time (including renewable energies).

All renewable energy resources available in South Africa will be evaluated for their applicability to Eskom. Eskom's strategy will have to be updated as Government policy is finalised.

A number of research demonstration facilities continue to be operated as part of Eskom's renewable energy research programme. These included the operation of Southern Africa's first wind energy demonstration facility in the Western Cape, which was opened in 2003. In addition, Eskom conducted a number of pilot projects to assess issues related to the green power market in South Africa.

Eskom has been involved with renewable energy technologies for some time, through various non-grid electrification initiatives. The programme's ultimate objective is to evaluate whether large scale, renewable electricity generation is a viable supply-side option for Eskom and South Africa. The four areas addressed by the programme are biomass, solar thermal, wave and wind energy.

The successful use of renewable energy technology in South Africa still requires extensive investigation, but the Concentrating Solar Power (CSP) technology has been identified as potentially being viable and capable of being employed on a large scale. In order to meet the future energy needs, Eskom is currently assessing the feasibility of constructing a Concentrating Solar Power (CSP) Plant in the Northern Cape Province.

The CSP Plant is proposed to be located in the Upington Area of the Northern Cape Province which is proposed to operate at an installed capacity of approximately 100 MW. The additional infrastructure will include the upgrading of an existing access road, the construction of a 132 kV sub-transmission line and a water pipeline to supply water to the plant, as well a visitors centre.

The Environmental Scoping Study investigated three sites identified as potentially feasible sites for the establishment of the proposed CSP Plant. Through numerous specialist environmental studies (both social and biophysical) the following site was nominated for further investigation within the EIA phase of the project:

- the Farm Olyvenhouts Drift

The potentially significant environmental impacts associated with the proposed project as discussed in the EIA include:

- Potential impacts on surface and groundwater resources as a result of the proposed project.
- Potential visual impacts associated with the proposed project and associated impacts on tourism potential.
- Potential noise impacts.
- Potential impacts on flora, fauna and ecology including Avifauna.
- Potential social impacts.

No fatal flaws were identified since the impacts can be mitigated to acceptable levels.

Due to the outcome of the Environmental Scoping Study, additional investigations were required with regards to associated infrastructure. The Environmental Impact Assessment also evaluated the location of a 132 kV sub-transmission line, and access road, a water pipeline (to supply municipal water) and a visitors centre. The specialist studies undertaken, made recommendations which are included within the discussions below.

15.2. Final Conclusions of the Specialist Studies

15.2.1. *Surface water*

Due to the fact that the Local municipality will be supply water to the CSP Plant, no direct abstraction from the Orange River will be necessary. Therefore, the impacts associated with this issue are not relevant.

However, in the event that the CSP Plant abstracted water from the Orange River it is anticipated that the water abstraction would have an insignificant impact on the local and regional water resources.

15.2.2. Groundwater

Groundwater on the farm "Olyvenhoutsdrift" is currently used mainly for stock watering, with some more intensive use by smallholders in the south. Abstractions are generally low. Groundwater quality is moderate to poor, with nitrates and total dissolved solids both exceeding common recommended limits, but the resource is of critical importance for some users. The proposed development is likely to have only a marginal impact on the groundwater quality, unless a large spill of contaminants (e.g. hydrocarbon fuel) takes place, or large amounts of Na/K-NO₃ salt are left on the ground surface.

15.2.3. Ecology

The results of the vegetation and terrestrial animal assessment reveal that the site at Olyvenhouts Drift is suitable for a development such as the Concentrating Solar Power plant. However protected plants do occur in the area of the proposed development.

15.2.4. Avifauna

The comparison of the three original sites during scoping phase revealed Olyvenhouts Drift to be the second most preferred site, closely following Bokpoort. More detailed examination of the impacts of the proposed CSP on avifauna at Olyvenhouts Drift revealed the following key findings:

Impacts associated with CSP:

- Collision of birds with heliostats is likely to be of moderate significance. Burning of birds in focal points will be of moderate significance. Habitat destruction and disturbance of bird will be of moderate significance.

Impacts associated with new power lines:

- Collision of birds with overhead power lines is likely to be of moderate significance.

Impacts associated with new roads, pipe lines, and visitors centre:

- Habitat destruction and disturbance of birds will be of moderate to low significance.

15.2.5. Visual

The placement of the CSP plant and its associated structures will have a visual impact on the natural scenic resources of this region. The natural and relatively unspoiled wide-open views surrounding the CSP plant will be transformed for the entire operational lifespan (approximately 30 years) of the plant. The author is however of the opinion that the CSP plant has an advantage over other more conventional power generating plants (e.g. coal-fired power stations). The facility utilises a renewable source of energy to generate power and is therefore generally perceived in a more favourable light. It does not omit any harmful byproducts or pollutants and is therefore not negatively associated with possible health risks to observers.

The CSP plant further has a novel and futuristic design that invokes a curiosity factor not present with other conventional power generating plants. The advantage being that the CSP plant can become an attraction or a landmark within the region that people would actually want to come and see. As it is virtually impossible to hide the facility, the only option would be to promote it.

This opinion should however not distract from the fact that the CSP plant would be visible for a large area that incorporates various sensitive visual receptors that should ideally not be exposed to industrial style structures.

There are not many recommendations as to the mitigation of the visual impact of the core facility (central receiver and heliostats) as no amount of vegetation screening or landscaping would be able to hide a structure of these dimensions. The facility and its surrounds should generally be maintained in a neat and appealing way. This applies to the associated infrastructure (transmission line, auxiliary house, access road, etc.) of the CSP plant as well.

The construction phase of the facility should be sensitive to potential observers in the vicinity of construction camps. The placement of these camps should be carefully considered in order to not negatively influence the future perception of the CSP plant. Secondary visual impacts associated with the construction phase, such as the sight of construction vehicles, dust and construction litter must be managed to reduce visual impacts. The watering of the access road, or ideally the tarring of the road, timely removal of rubble and litter, and the erection of temporary screening will assist in doing this.

A lighting engineer should be consulted to assist in the planning and placement of light fixtures in order to reduce visual impacts associated with glare and light trespass.

Ancillary structures (the salt tanks and pipeline – supplying municipal water) should, if possible, be placed underground to avoid additional visual clutter. Proper re-instatement and re-vegetation is recommended for the pipeline.

The facility should be dismantled upon decommissioning and the site and surrounding area should be rehabilitated to its original (current) visual status.

15.2.6. Noise

The following may be concluded from the foregoing analysis:

- Although not all of the final baseline noise design data for the CSP Plant was available for the analysis, the loudest noise generating plant and equipment was available and, the assumptions made are for other minor plant were considered adequate to give a meaningful analysis of the noise impact situation.
- The area of potentially serious noise impact around the planned CSP Plant will be fairly small. It is predicted that any impacts will be contained an area within a radius of about 1 800 m of the centroid of the EPGS of the Plant. There are no noise sensitive sites within this area of influence.
- The Upington site is suitable for the construction of the CSP Plant as potential noise impacts will be minor.
- There are practical mitigating measures that can be implemented to prevent or reduce potential impact.

The following are recommended:

- The National Noise Control Regulations and SANS 10103 should be used as the main guidelines for addressing the potential noise impact on this project.
- Once all the plant /equipment technical details and the operating details of the CSP Plant are known, further more detailed analysis of the noise impact situation will need to be undertaken in order to confirm the final footprint of the CSP Plant.
- The noise mitigating measures indicated in Chapter 13 should be applied as guidelines for further design on the project.

15.2.7. Social

Based on the social impact assessment, a number of preliminary conclusions can be drawn:

- *Preliminary Positive Social Impacts*

The proposed concentrating solar thermal power plant will have the following anticipated positive social impacts:

- * developing a sustainable energy source has vast environmental benefits;
 - * the proposed project is expected to create a large number of temporary and a limited number of permanent jobs;
 - * the proposed project could attract businesses to the area to meet the additional infrastructure and support services demands;
 - * it could establish a desperately needed source of employment for the local communities;
 - * it will make a contribution to the local municipal tax base;
 - * it will improve employment equity and occupational opportunities;
 - * indirect local benefits could accrue to the local communities in the form of donations and financial assistance to the Local Authority to improve the existing infrastructure in the area;
 - * the proposed project could have regional economic benefits; and
 - * the proposed project may be of benefit to the tourism community.
- *Preliminary Negative Social Impacts*
 - * The proposed concentrating solar thermal power plant may have the following negative social impacts:
 - * there will be an inflow of temporary workers;
 - * there could be conflict between outsiders and locals regarding occupational opportunities and a disruption of the social network could materialise;
 - * the proposed project could therefore have a negative impact on the daily living and movement patterns of the residents surrounding the site;
 - * there may be an increase in the requirements for basic municipal infrastructure and services negative;
 - * there may be land use impacts,
 - * the proposed project may have a negative impact on the daily living and moving patterns of local residents;
 - * there may be a disruption in social networks by the influx of temporary workers;
 - * dust/air pollution impacts could be a nuisance especially during the construction phase of the project;
 - * there may be significant light intrusion impacts;
 - * noise impacts could be disturbing although it would not have a detrimental impact on the surrounding communities;
 - * the influx of additional people to the area could increase the HIV/Aids infection rates; and
 - * additional traffic could have safety and accessibility impacts.

From the I&AP inputs received to date, it is evident that there do not seem to be overwhelming criticisms of the proposed development. Mitigation

measures are expected to fully or partially resolve the negative impacts, especially those short-term impacts associated with the construction phase of the project. Mitigation measures must however be strictly implemented across the board. Continuous monitoring of these are critical to ensure that the mitigation measures are properly carried out and that recommendations made by the other specialist studies are adhered to.

- *Concluding*

However, based on the findings derived from the information available at this stage it is concluded that the proposed project does not pose severe social risks and/or threats to the local communities. A balance should be sought between what is socially desirable on the one hand, and technically, environmentally and financially feasible, on the other.

15.3. Recommendations for Appropriate Mitigation Measures

From the findings of the specialist studies undertaken, the following mitigation measures are proposed to be implemented in order to minimise any potentially significant impacts:

15.3.1. Groundwater

It is recommended that transport, transfer and storage of all potential groundwater contaminants (fuel, Na/K-NO₃ salt, herbicides, etc) be subject to strict controls, and that these substances are handled in bunded areas at the site. The leaking of underground fuel storage tanks is very common, and measures should be taken to ensure that this risk is as low as possible. It is likely that the eventual receptor of any groundwater contaminants will be the Orange River, together with the shallow groundwater used by smallholders along the banks. Contamination of groundwater is difficult and expensive to remediate once it has taken place.

15.3.2. Fauna and Flora

- Drainage lines:
 - * Care must be taken not to damage or pollute the drainage lines which are sensitive to impacts during the construction as well as operational phases.
 - * Damage to the riparian vegetation in the drainage canal must be limited to the minimum as it also contributes to lower the flow speed of the water.
- Erosion:
 - * Although the area is relatively flat it does slope slightly towards the Orange River. In view of the fact that a areas of land would be cleared of

any vegetation, erosion would become a major problem in case of heavy thunderstorms.

Erosion control measures such as berms, gabions etc must be constructed where necessary in the natural drainage line in order to slow down the speed of the water and therefore lowering its scouring effect on the sediment.

- * Stockpiles of soil must be protected from getting washed into the drainage lines during thunderstorms.
- Plants & animals:
 - * A search and rescue exercise must be conducted to relocate protected plants and animals to suitable habitats in the area. This can only take place after the exact location of the footprint of the site; access roads, stock pile areas, corridors for pipelines, etc. have been clearly marked. The search and rescue exercise has to be conducted by ecologists in collaboration with the officials of the McGregor Museum (Kimberley) and the National Museum (Bloemfontein).

15.3.3. Avifauna

- Impacts associated with CSP:
 - * Collision of birds with heliostats is likely to be of moderate significance. It is unlikely that mitigation of this impact will be possible, but this will need to be confirmed once the plant is operational and some experience is gained.
 - * Burning of birds in focal points will be of moderate significance. Again, it is unlikely that mitigation of this impact will be possible, but this will need to be confirmed once the plant is operational and some experience is gained.
 - * Habitat destruction and disturbance of birds will be of moderate significance. This can be mitigated by ensuring that the construction Environmental Management Plan incorporates guidelines as to how best to minimize this impact.
- Impacts associated with new power lines:
 - * Collision of birds with overhead power lines is likely to be of moderate significance. This will be mitigated for by marking the relevant sections of line with appropriate marking devices. These sections of line will be identified as part of the EMP phase.
- Impacts associated with new roads, pipe lines, and visitors centre:
 - * Habitat destruction and disturbance of birds will be of moderate to low significance. This will be mitigated by ensuring that the construction

Environmental Management Plan incorporates guidelines as to how best to minimize this impact.

15.3.4. Visual/Aesthetic Impacts

The potential to mitigate the visual impacts associated with the CSP plant has been stated in the above tables dealing with the issues related to the potential visual impact. In summary it can be said that some of the secondary visual impacts, such as the lighting, pipeline, salt tanks, etc. can be successfully mitigated or even negated. The primary visual impact, namely the appearance and dimensions of the CSP plant (central receiver and heliostats), is however not possible to mitigate. The functional design of the structures and the dimensions of the facility cannot be changed in order to reduce visual impacts. The potential for mitigation is thus low or non-existent (i.e. no amount of light blue powdered paint is going to hide the structures).

15.3.5. Noise Impacts

Potential noise mitigating measures for the project were assessed.

Pre-construction Phase

Local residents are to be notified of any potentially noisy field survey works or other works during the planning and design phase and these activities are to be undertaken at reasonable times of the day.

During this phase, consideration must be given to the noise mitigating measures required during the construction phase and which should be included in the tender document specifications and the design.

Construction Phase

The noise mitigating measures to be considered during the construction phase are as follows:

- Construction site yards, concrete batching plants, asphalt batching plants, construction worker camps (accommodation) and other noisy fixed facilities should be located well away from noise sensitive areas adjacent to the development site.
- All construction vehicles and equipment are to be kept in good repair.
- Construction activities, and particularly the noisy ones, are to be contained to reasonable hours.

- With regard to unavoidable very noisy construction activities in the vicinity of noise sensitive areas, the contractor should liaise with local residents on how best to minimise impact.
- In general operations should meet the noise standard requirements of the Occupational Health and Safety Act (Act No 85 of 1993).
- Construction staff working in areas where the 8-hour ambient noise levels exceed 75 dBA should wear ear protection equipment.

Operational Phase

The following noise mitigating measures, which will need to be considered where appropriate:

- The design of the CSP Plant is to incorporate all the necessary acoustic design aspects required in order that the overall generated noise level from the new installation does not exceed a maximum equivalent continuous daytime rating level ($L_{Req,d}$), namely a noise level of 70 dBA (just inside the *property projection plane*, namely the property boundary) as specified for industrial districts in SANS 10103. Refer to Appendix H. Notwithstanding this provision, the design is also to take into account the maximum allowable equivalent continuous day/night rating level of the potentially impacted sites outside the new installation's property. Where the $L_{Req,d}$ for the external site is presently lower than the maximum allowed, the maximum shall not be exceeded. Where the $L_{Req,d}$ for the external site is presently at or exceeds the maximum, the existing $L_{Req,d}$ shall not be increased. (It has been assumed that the Plant will only operate during the daytime period).
- The latest technology incorporating maximum noise mitigating measures for the CSP Plant components should be designed into the system.
- The design process is to consider, *inter alia*, the following aspects:
 - * The position and orientation of buildings on the site.
 - * The enclosure of noisy plant in buildings where possible and practical.
 - * The design of the buildings to minimise the transmission of noise from the inside to the outdoors.
 - * The insulation of particularly noisy plant and equipment.
- Normal operations of the CSP Plant should be limited to the period between 06h00 and 20h00, unless conditions necessitate 24 hour operation.

15.3.6. Social Impacts

The following specific recommendations are made:

- the proposed development (in particular the traffic and services impacts) should take cognisance of any other developments planned in the area;
- local labour should be used as far as possible to:

- ensure direct local benefits of the proposed development;
- avoid conflict between the local community members and outsiders, as well as a disruption of the social networks due to dissimilarity in age, gender, racial and ethnic composition; and
- limit the need for additional infrastructure such as contractors housing.
- the existing roads may need to be upgraded to accommodate the possible increase in traffic.
- a project focused HIV and Aids awareness campaign and education programme should be launched;
- a communication and liaison forum should be established;
- safety and security issues must be addressed proactively. In this regard:
 - * *the site must be fenced;*
 - * *no labour should overnight on site unless the necessity arises; and*
 - * *all labourers and contractual staff should wear a unique item of identifiable clothing.*
- catering and related facilities should be formalised on site. Informal businesses in the near area should be discouraged by providing those services and requirements on site;
- finalising a permanent and acceptable solution to the accommodation needs of the on site household; and
- the EMP should reflect the relevant recommendations.

15.4. Summary of Significance Ratings

Impact	Temporal	Spatial	Severity	Significance	Risk or likelihood	Degree of confidence
SURFACE WATER						
Effects of water demand by the CSP on local and regional water resources	Long term	Regional	Slight	Not significant	Unlikely to Occur	Definite
GROUNDWATER						
Contaminants from Orange River water used at the plant migrate into groundwater.	Long term	Household or localised	Moderately severe	Low	May occur	Possible
Migration of hydrocarbon fuel spillage at the plant into the groundwater.	Long term	Household or localised	Moderately severe (a catastrophic spill of large amounts of fuel will however have a severe impact on the local groundwater)	Moderate	May occur	Possible
Leaching of herbicides used in ground sterilisation beneath the mirrors into the groundwater.	Long term	Household or localised	Moderately severe	Moderate	May occur	Possible
Leaching of Na/K-NO ₃ salts into the groundwater (the salt is used as the power station's coolant).	Long term	Household or localised	Moderately severe	Moderate	May occur	Possible
ECOLOGY						
Vegetation	Long-term	Localised	Moderately severe	Moderate to low	definite	Probable
Fauna	Medium to short term	localised	slight	Moderate to low	definite	Probable

AVIFAUNA – CSP PLANT						
Collision with heliostats	Permanent	Localized	Severe – mitigation not possible	Moderate	Will definitely occur	Probable
Collision with central receiver tower	Permanent	Localized	Severe – mitigation not possible	Low	May occur	Probable
Roosting on central receiver tower	Permanent	Localized	Don't know	Low	May occur	Unsure
Burning in vicinity of central receiver tower	Permanent – operational phase	Localized	Slight	Low	May occur	Unsure
Burning in focal points	Permanent – operational phase	Localized	Severe – mitigation not possible	Moderate	Will definitely occur	Probable
Habitat loss	Permanent	Localized	Moderately severe	Moderate	Will definitely occur	Definite
Disturbance	Short term	Localized	Moderately severe	Moderate	Will definitely occur	Probable
Nesting	Permanent	Localized	Moderately severe	Low	May occur	Unsure
AVIFAUNA – POWERLINES						
Collision of birds	Permanent	Localized	Moderate	Moderate	May occur	Probable
Electrocution of birds	Permanent	Localized	Don't know – depends on tower design	Don't know	Don't know	Don't know
Nesting	Permanent	Localized	Don't know – depends on tower design	Don't know	Don't know	Don't know

Habitat destruction	Permanent	Localized	Slight	Low	Will definitely occur	Definite
Disturbance	Short term	Localized	Slight	Low	Will definitely occur	Definite
AVIFAUNA – ACCESS ROAD						
Disturbance	Short term	Localized	Moderate	Moderate to low	Will definitely occur	Definite
Habitat destruction	Permanent	Localized	Moderate	Moderate to low	Will definitely occur	Definite
VISUAL						
Major Tourism Routes	Long term	Regional	High	High	-	Highly Probable
Residential Areas: Upington	Long term	Regional	Medium - High	High	-	Probable
Residential Areas: Louisvale, Louisvale Road, Kanon Eiland	Long term	Regional	Medium	Medium - high	-	Probable
Residential Areas: Oranje Vallei, Ses Brugge, Klippunt	Long term	Regional	Low	Medium	-	Probable
Protected Areas: Spitkop NR	Long term	Regional	High	High	-	Highly Probable
Protected Areas: Augrabies Falls NP	Long term	Regional	Low	Low	-	Improbable
Orange River	Long-term	Regional	Low - medium	Low - medium	-	Probable
Ancillary Infrastructure: Salt tanks	Long term	Local	Medium	Low	-	Probable
Ancillary Infrastructure: Auxiliary house	Long term	Local	Low	Low	-	Improbable

Ancillary Infrastructure: Trans-mission line	Long term	Local	Medium	Low	-	Probable
Ancillary Infrastructure: Pipe line	Long term	Local	Low	Low	-	Probable
Lighting: Glare: Floodlights	Long term	Local	Medium	Medium	-	Probable
Lighting: Glare: Aircraft warning lights	Long term	Local	Medium	Medium	-	Probable
Lighting: Spill light	Long term	Local	Low	Low	-	Improbable
Lighting: Sky glow	Long term	Local-regional	Low-medium	Low	-	Probable
NOISE						
Construction phase – with mitigation	Short-term	Local	Minor	Low		Medium
Construction phase – without mitigation	Short-term	Local	Low	low		Medium
Operational phase – with mitigation	Long term	Local	Low	Low		Low
Operation phase – without mitigation	Long term	Local	Low	Low		Low
SOCIAL - CONSTRUCTION						
Inflow of Temporary Workers	Short term	localised	Moderately severe	Moderate	May	Probable
Introduction of people dissimilar in demographic profile	Medium term	Localised	Moderately severe	Moderate	May	possible
Relocation of Individuals and Families	Long term	household	slight	low	unlikely	unsure
Change in Community Infrastructure	Short term	localised	Moderately severe	moderate	may	probable
Projected Impacts on Local Government - Municipal service requirements	Short term	localised	Moderately severe	high	definite	probable
Projected Impacts on Local Government - Localised land uses	Short term	Localised	Moderately severe	may	definite	possible
Impact on daily living and movement patterns	Short term	Localised and regional	Moderately severe	moderate	May occur	probable
Disruption of Social Networks and Alteration of Family Structure	Short term	localised	slight to moderately severe	high	may	probable

Introduction of New Social Classes	Short term	localised	slight	low	may	possible
Formation of attitudes toward the project and interest group activity	Short term	localised	slight	low	unlikely	possible
Social impacts derived from industrial diversification	Short term	localised	Slightly beneficial	low	may	probable
Employment Equity and Occupational Opportunities	Short term	Localised and regional	slight	high	may	probable
Creation of employment opportunities	Short term	localised	Very beneficial	high	Will definitely occur	definite
Change in tourism and leisure opportunities	Short term	localised	Slightly beneficial	low	may	definite
Air/Dust Pollution	Short term	On site	moderate	Moderate to high	-	Very probable
Light intrusion	Short term	localised	Moderately severe	high	Definite	probable
Noise Intrusion	Short term	localised	Moderately severe	moderate	definite	probable
SOCIAL – OPERATION						
Introduction of people dissimilar in demographic profile	Long term	localised	slight	low	may	possible
Relocation of Individuals and Families	Long term	Household	slight	low	unlikely	unsure
Change in Community Infrastructure	Long term	localised	low	low	may	possible
Projected Impacts on Local Government - Municipal service requirements	Medium term	localised	slight	low	definite	probable
Projected Impacts on Local Government - Localised land uses	Long term	localised	slight	may	definite	possible
Impact on daily living and movement patterns	Long term	Localised and regional	slight	low	May occur	probable

Disruption of Social Networks and Alteration of Family Structure	Long term	localised	Very slight	low	Very unlikely	unsure
Introduction of New Social Classes	Long term	localised	slight	none	unlikely	possible
Formation of attitudes toward the project and interest group activity	Long term	localised	slight	low	unlikely	possible
Social impacts derived from environmental and economic benefits of solar power	Long term	national	beneficial	high	may	probable
Social impacts derived from industrial diversification	Long term	Localised and regional	Moderately beneficial	moderate	may	probable
Employment Equity and Occupational Opportunities	Long term	localised	slight	high	may	probable
Creation of employment opportunities	Long term	localised	beneficial	moderate	Will definitely occur	definite
Change in tourism and leisure opportunities	Long term	localised	Moderately beneficial	low	may	Definite
Air/Dust Pollution	Long term	On site	low	low		improbable
Light intrusion	Long term	localised	Moderately severe	Very high	Definite	definite
Noise Intrusion	Long term	localised	low	low	may	possible

15.5. Overall Conclusion

The findings of the specialist studies undertaken within this EIA provide an assessment of both the benefits and potential negative impacts anticipated as a result of the proposed project. The findings conclude that there are no environmental fatal flaws that should prevent the proposed project from proceeding, provided that the recommended mitigation and management measures are implemented.

15.6. Overall Recommendations

In order to achieve appropriate environmental management standards and ensure that the findings of the environmental studies are implemented through practical measures, the recommendations from this EIA must be included within an Environmental Management Plan (EMP). This EMP should form part of the contract with the contractors appointed to construct and maintain the proposed plant and associated infrastructure. The EMP would be used to ensure compliance with environmental specifications and management measures. The implementation of this EMP for all life cycle phases (i.e. construction, operation and de-commissioning) of the proposed project is considered to be key in achieving the appropriate environmental management standards as detailed for this project.

It is also recommended that the process of communication and consultation with the community representatives is maintained after the closure of this EIA process, and, in particular, during the construction phase associated with the proposed project.