

**PROPOSED STEELPOORT
PUMPED STORAGE SCHEME
AND ASSOCIATED INFRASTRUCTURE
MPUMALANGA AND LIMPOPO PROVINCES**

**DRAFT REPORT
SOCIAL IMPACT ASSESSMENT**

**As part of the
ENVIRONMENTAL IMPACT ASSESSMENT**

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EXECUTIVE SUMMARY

As part of its assessment of a range of electricity generating options, Eskom is currently investigating the possibility of developing a Pumped Storage Scheme in the Steelpoort area (SPSS).

To implement a project of this nature, Eskom requires authorisation from the National Department of Environmental Affairs and Tourism (DEAT) seeing as the proposed project includes activities listed under Regulations 386 and 387 in terms of Sections 24(5) and 44 of the National Environmental Management Act (NEMA), Act 107 of 1998. The environmental studies for this project were divided into three phases, namely:

- Phase 1: Environmental Scoping Study (ESS)
- Phase 2: Environmental Impact Assessment (EIA)
- Phase 3: Environmental Management Plan (EMP)

Phase 1 of the environmental studies, or the scoping phase of the EIA, was completed during 2006. The purpose of the scoping phase was to assess the identified three sites in terms of their environmental (biophysical, socio-economic and enviro-legal) feasibility. The social impact assessment (SIA) scoping results indicated that from a **social** perspective, Site B was identified as the preferred site, followed by Site A. This was mainly due to the close proximity of the sites to the surrounding settlements and the potential impact of construction activities on these settlements. Based on the results of the various specialist studies, **Site A** was selected as the preferred site for the location of the proposed SPSS.

The purpose of this SIA report is as follows:

- Provide an overview of the findings of the SIA during the scoping phase;
- Describe the existing baseline conditions of the social environment in the study area;
- Predict how the current social environment of the study area might change as a result of the development and operation of the proposed SPSS;
- Recommend mitigation measures to ameliorate the potential negative social impacts; and
- Recommend ways in which the potential positive social impacts could be enhanced.

Although both Limpopo Department of Environmental Affairs and Tourism (LEDET) and Mpumalanga Department of Agriculture and Land Affairs (MDALA) were consulted as key stakeholders in the process, the study area was defined as the area to the east of the Sehlakwane settlement that falls under the jurisdiction of the Elias Motsoaledi Local Municipality (EMLM), which

in turn is confined to the Limpopo Province (LP). Other communities in fairly close proximity to the study area include Nkosini, and Roossenekal. Nkosini was in this assessment due to its proximity to Sehlakwane, even though it might not be directly affected by the proposed SPSS. Due to the fact that Eskom proposes to house personnel of the SPSS at Roossenekal, this settlement was included in the assessment.

Roossenekal and Sehlakwane can be regarded as directly affected communities, although Roossenekal will only be affected during operation with mostly positive impacts in terms of housing and municipal infrastructure development.

Mathula and Nkosini can be regarded as indirectly affected communities, who would mostly benefit from down-stream employment opportunities. Mathula is located approximately 5km from the proposed SPSS site, whilst Nkosini is located some 15km away from the proposed site.

Mathula and Nkosini are more or less the same in character as those of Sehlakwane and Roossenekal. All of these areas can be regarded as fairly poor with high unemployment rates and a high dependency ratio on the EMLM. The fact that close on a third of the households in Mathula and Nkosini do have a monthly income supports the notion of migrant labour (i.e. the male works elsewhere and sends money home on a monthly basis). Again these areas are therefore characterised by a predominantly unskilled female population with a high unemployment rate, which might mean that the majority of work seekers might be female.

The issues and related potential impacts were divided into three main themes (social, land use and economic) and grouped according to the phases of the project (pre-construction, construction/decommissioning, and operation).

The pre-construction phase has a number of positive impacts that should be enhanced as this would lay the foundation for the rest of the project. If Eskom is perceived as a caring partner by the local community it would create community support of the project and would enhance the further phases of the project.

Negative impacts are mostly found during the construction/decommissioning phases of the project. This is mainly due to the nature of the activities that take place during these phases. Most of the negative impacts can be mitigated successfully.

The operational phase is also characterised by a number of positive impacts, which could be further enhanced if managed effectively. These impacts mostly relate to sustainable development in the affected community by means of employment opportunities (directly and indirectly) as well as infrastructure development.

Both the social and land use themes have a number of negative impacts. However all of these impacts can be mitigated successfully if effectively managed. Economic impacts as a result of the project are all positive in nature, which is mainly due to the economic investment and development that will take place in the community as a result of the project.

It can therefore be concluded that the social environment pose no fatal flaws to the development of the proposed SPSS, if the identified mitigation measures in this document and as recommended for inclusion in the EMP, are implemented and adhered to.

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ACRONYMS

DEAT	National Department of Environmental Affairs and Tourism
EIA	Environmental Impact Assessment
EIAR	Environmental Impact Assessment Report
EMLM	Elias Motsoaledi Local Municipality
EMP	Environmental Management Plan
ESI	Environmental Screening Investigation
ESS	Environmental Scoping Study
GSDM	Greater Sekhukhune District Municipality
LEDET	Limpopo Department of Environmental Affairs and Tourism
LP	Limpopo Province
MDALA	Mpumalanga Department of Agriculture and Land Affairs
NEMA	National Environmental Management Act
SIA	Social Impact Assessment
SPSS	Steelpoort Pumped Storage Scheme

1. BACKGROUND & INTRODUCTION

As part of its assessment of a range of electricity generating options, Eskom is currently investigating the possibility of developing a Pumped Storage Scheme in the Steelpoort area (SPSS). The proposed SPSS will consist of the following components:

- An upper and a lower reservoir (in the form of two separate dams);
- An underground powerhouse complex and waterways that would link the upper and lower reservoir with each other; and
- Associated infrastructure above ground such as roads, transmission lines, etc.

To implement a project of this nature, Eskom requires authorisation from the National Department of Environmental Affairs and Tourism (DEAT) seeing as the proposed project includes activities listed under Regulations 386 and 387 in terms of Sections 24(5) and 44 of the National Environmental Management Act (NEMA), Act 107 of 1998. Due to the provincial cross-boundary location of the project, the lead authorities would be DEAT with the Mpumalanga Department of Agriculture and Land Affairs (MDALA) and the Limpopo Department of Environmental Affairs and Tourism (LEDET).

The environmental studies for this project were divided into three phases, namely:

- Phase 1: Environmental Scoping Study (ESS)
- Phase 2: Environmental Impact Assessment (EIA)
- Phase 3: Environmental Management Plan (EMP)

Prior to the ESS in Phase 1, an Environmental Screening Investigation (ESI) was undertaken to determine possible sites for the SPSS. The ESI comprised mainly of a desktop study and made use of readily available information to identify potential environmental (biophysical, socio-economic and environmental) issues of concern. The ESI was not an environmental impact assessment and therefore did not quantify any environmental and/or social issues. The ESI was also not required by current legislation, but served as a valuable tool to identify issues that could have influenced the outcome of the project. The ESI served as a baseline for Phase 2 of the project, which entailed the EIA regulatory process in terms of the Environment Conservation Act.

The ESI identified 3 possible site locations for the proposed SPSS. The sites were as follows:

- Site A: located east of and in close proximity to Sehlakwane;
- Site B: located southeast of and in close proximity to Hlogotlou; and
- Site C: located northwest of and in close proximity to Eenzaam and Lahlakong.

The ESI concluded that overall Site A3 and C1 were the preferred sites. Based on the **social** impacts discussed in the ESI, Site A, then B, followed by Site C was the order of preference.

Upon completion of the ESI, an Environmental Scoping Study (ESS) was conducted, which formed part of the EIA process. The main objective of the ESS was to identify potential negative and positive biophysical and social impacts associated with the construction and operational phases of the proposed SPSS and its associated infrastructure at the various identified sites. Based on the results of the ESS a site was identified (Site B) that posed the least anticipated negative impacts. These were assessed in detail during the EIA phase of the proposed project.

The following sub-section gives a detailed breakdown of the social findings of the ESS.

1.1 Results of the SIA Scoping Phase

Phase 1 of the environmental studies, or the scoping phase of the EIA, was completed during 2006. The purpose of the scoping phase was to assess the identified 3 sites in terms of their environmental (biophysical, socio-economic and enviro-legal) feasibility. The social impact assessment (SIA) scoping results indicated that from a **social** perspective, Site B was the preferred site, followed by Site A. This was mainly due to the close proximity of the sites to the surrounding settlements and the potential impact of construction activities on these settlements. Based on the results of the various specialist studies, **Site A** was selected as the preferred site for the location of the proposed SPSS. It was further recommended that the proximity of settlements should be considered and that the Environmental Management Plan (EMP) should set out strict guidelines for conduct with local residents. The scoping SIA further indicated that safety aspects during operation should be considered, together with the potential economic gain for local residents. It was recommended to avoid land that has any agricultural potential.

The SIA scoping identified and assessed the social impacts as per

Table 1. Although all three sites were assessed during the scoping phase, the discussion column focuses mainly on Site A for clarity.

Table 1: Overview of the issues identified during the SIA Scoping Phase

Issue	Description	Findings	Rating for Site A (1 – not suitable; 5 – ideal)
<i>Agricultural potential / loss of income</i>	Although farming is not the main sector of income in the area, land with agricultural potential should be preserved. Subsistence farming does have an important role to play in providing for families. Agricultural land therefore needs to be protected and developed, and the disruption of farming activities should be avoided. Longer access roads imply more loss of land.	According to the agricultural potential assessment, the impact of the upper dam of Site A is of low significant impact for agricultural activities as no agricultural activities are currently taking place there. According to the assessment on potential loss of income, at Option A1 the dam will inundate existing farm land resulting in a loss of income to the farmer. At Option A3, some 25% of the farm portions would be lost for winter grazing purposes, potentially dropping below the break-even point for sustainable economic cattle farming.	4
<i>Displacement of persons</i>	The impact of relocation depends on the level of attachment to a place, and this will have to be assessed to get an indication of the possible effect. Level of attachment is linked to variables such as age and number of years spent in that particular area. Displacement should be avoided.	At site A, a number of people may be displaced, including a weekend farmhouse and a worker dwelling will be affected.	3
<i>Disruption of community activities</i>	The disruption of recreational and daily activities could potentially be a problem where heavy duty traffic occurs and roads are being built.		3
<i>Influx of workers</i>	The influx of a large number of outsiders is likely to result in a number of social ills such as prostitution/stock theft, other security problems and an increase in sexually transmitted diseases, particularly HIV/AIDS.	The proximity of Sehlakwane makes Site A a less favourable option.	3
<i>Safety hazard of water</i>	Due to rapid movement of water and fluctuation in water levels the dam will be a safety hazard for local	The proximity of Sehlakwane makes Site A a less favourable option.	3

Issue	Description	Findings	Rating for Site A (1 – not suitable; 5 – ideal)
	populace.		
Safety hazard of traffic	An increase in the number of vehicles using the road during the construction may result in a higher incidence of road injuries and/or deaths.	The proximity of Sehlakwane makes Site A a less favourable option.	3
Dust	<p>Transportation of material and construction activities could result in increase in dust, which could impact on the appearance of the area, and visibility.</p> <p>The upgrading of the existing gravel road R6-R5-R7 linking Roads R555 and R579 should be upgraded to a tarred road, which might reduce the impact of dust.</p> <p>Dust will not impact on health as health impacts are typically caused by dust particles of 10 microns and less. Dust caused by construction activities is greater than 10 microns and will not impact on health.</p>	The proximity of Sehlakwane makes Site A a less favourable option.	3
Vehicle emissions	Vehicle emissions can impact on health. Especially primary pollutants can be of concern where people are concerned.	The proximity of Sehlakwane makes Site A a less favourable option.	3
Noise	Noise levels could have an effect on the sense of place experienced during construction.	The proximity of Sehlakwane makes Site A a less favourable option.	3
Infrastructural development	<p>Infrastructural development will be necessary, e.g. upgrading of roads.</p> <p>The building of construction camps should benefit local communities. A social responsibility initiative should be part of the project.</p>		5
Creation of employment opportunities	<p>The use of local labour could boost the local economy, and empower people. A project such as this gives opportunity for training and development.</p> <p>The presence of contract workers could boost local businesses.</p>		5

1.2 Purpose of this Report

This report outlines the findings of the SIA and forms part of the Environmental Impact Assessment Report (EIAR) (Phase 2) for the construction and operation of the proposed SPSS.

The purpose of this SIA report is as follows:

- Provide an overview of the findings of the SIA during the scoping phase;
- Describe the existing baseline conditions of the social environment in the study area;
- Predict how the current social environment of the study area might change as a result of the development and operation of the proposed SPSS;
- Recommend mitigation measures to ameliorate the potential negative social impacts; and
- Recommend ways in which the potential positive social impacts could be enhanced.

This SIA report therefore aims to enhance the decision-making process in determining if the chosen site (Site A) for the proposed SPSS is both desirable as well as sustainable from a social perspective. Both positive and negative change in the environment challenges people's adaptive capacity to deal with the change. In view of the fact that any development brings about change to the social environment, this report also aims to provide insight into the inter-linkages between people and their environment. This is achieved by means of the following:

- Identifying and evaluating the potential social impacts associated with the proposed SPSS;
- Assessing the cumulative social impacts of the proposed SPSS in relation to other future developments that are not necessarily part of the SPSS development;
- Rating the impacts to determine whether the identified social impacts are positive, neutral or negative;
- Determining the significance of these impacts; and
- Recommending mitigation measures to decrease negative impacts and to enhance positive impacts.

1.3 Recommended Studies for the EIA Phase

The ESS recommended the following studies for the EIA Phase of the proposed project:

ISSUE	Studies for EIA Phase
<i>Agricultural potential / loss of income</i>	More detailed information about land use and planned land use.
<i>Displacement of persons</i>	More detailed information required on numbers of people who will have to be displaced, and level of place attachment.
<i>Disruption of community activities</i>	More detailed information is required on the movement patterns of the affected communities.
<i>Influx of workers</i>	None.
<i>Safety hazard of water</i>	Feedback from relevant specialists is necessary to better assess this impact.
<i>Safety hazard of traffic</i>	More detailed information required on numbers and size of vehicles.
<i>Dust</i>	None.
<i>Vehicle emissions</i>	More detailed information is required on numbers and size of vehicles.
<i>Noise</i>	The findings of a noise specialist should be consulted to make an informed assessment.
<i>Infrastructural development</i>	More detailed information about the planned infrastructural developments and how it might benefit the affected communities. The extent and possibility of social investment initiatives should be assessed.
Creation of employment opportunities	More detailed information required on numbers and skills levels of possible employment opportunities.

1.4 Approach and Methodology

This section discusses the approach and methodology employed to fulfil the requirements of the SIA as set out above.

1.4.1 Definition of a SIA

A **social impact assessment** can be defined as:

The process of assessing or estimating, in advance, the social consequences that are likely to follow from specific policy actions or project development, particularly in the context of appropriate national, state or provincial environmental policy legislation. Social impacts include all social and cultural consequences to human populations of any public and private actions that alter the ways in which people live, work, play, relate to one another, organise to meet their needs, and generally cope as members of society¹.

To reflect the definition of a SIA as stipulated above, the following approach and methodology was followed, as set out below.

1.4.2 The SIA Process

For the purpose of the SIA and to meet the objectives of this study as described in section 1.2, the following procedures were followed:

- Primary and secondary data collection. Primary data collection included a field trip to the area in January 2007, as well as discussions held with Eskom representatives and the regional and local chiefs of the area. Secondary data collection involved a desktop research that centred on tourism maps and information, census data (1996 and 2001 compared), SPSS related documentation, the Integrated Development Plan (IDP) of the local municipality, the Issues Trial developed by Bohlweki Environmental, and minutes of meetings held with stakeholders during the ESS phase;
- Based on the information derived from the desktop study and the fieldtrip, baseline socio-demographic, socio-economic, and land use profiles of the area were compiled;
- The current baseline conditions in the area in relation to the project requirements posed by the proposed SPSS were assessed, and future predictions of how the proposed project might change the baseline conditions were made;
- In light of this information, potential social impacts (positive and negative) were determined using an assessment matrix that the proposed SPSS might pose to the social environment of the local community;
- Estimate the significance of these impacts and based on the significance, determine mitigation measures; and
- Make recommendations to be included in the Environmental Management Plan (EMP).

¹International Committee on Guidelines and Principles (1994). Guideline and Principles for social impact assessment. Impact Assessment, 12, 107-152.

The following section describes the current baseline conditions in the study area. These profiles have been compiled using data sets from both Census 1996 and 2001. Neither 1996 nor 2001 census data should be regarded as static information regarding a community. The combination of these two sets of data should instead be viewed as indicative of broad trends within an area.

The data has been arranged as follows:

- Socio-demographic and socio-economic profiles of the EMLM; and the affected wards; and
- Land use profile.

2. PROFILE OF THE STUDY AREA

Although both LEDET and MDALA are consulted as key stakeholders in the process, the study area was defined as the area to the east of the Sehlakwane settlement that falls under the jurisdiction of the Elias Motsoaledi Local Municipality (EMLM), which in turn is confined to the Limpopo Province (LP). Other communities in fairly close proximity to the study area include Nkosini, and Roossenekal. Nkosini was included in this assessment due to its proximity to Sehlakwane, even though it might not be directly affected by the proposed SPSS. Due to the fact that Eskom proposes to house personnel of the SPSS at Roossenekal, this settlement was also included in the assessment. Figure 1 below depicts the location of the proposed SPSS in relation to the surrounding communities.

Figure 1: Project Location



The EMLM forms part of the greater district municipal area known as the Greater Sekhukhune District Municipality (GSDM). The study area is located within the LP. The following sections give an overview of the social context within which the study area is located and has been arranged as follows:

- Socio-demographic and socio-economic profiles of the EMLM; and the affected wards; and
- Land use profile.

2.1 Socio-Demographic and Socio-Economic Profile

The first sub-section below provides a profile of the socio-economic conditions in the EMLM. The affected wards (Roosenekal, Sehlakwane, Mathula and Nkosini) are then discussed briefly, but are also discussed as part of the impact tables in Section 4.2. to indicate the relevance of the impact in relation to the surrounding communities.

2.1.1 Limpopo Province

Refer to the *Social Impact Assessment: Draft Scoping Report* for a detailed overview of the Limpopo Province (LP).

2.1.2 Greater Sekhukhune District Municipality

Refer to the *Social Impact Assessment: Draft Scoping Report* for a detailed breakdown of the Greater Sekhukhune District Municipality (GSDM).

2.1.3 Elias Motsoaledi Local Municipality²

The EMLM lies to the south and southwest of the GSDM, on the western banks of the Olifants River. Table 2 below depicts the settlements that will be affected by the development of the proposed SPSS. However, it should be noted that not all of these settlements will be directly affected. Indirect impacts on these settlements are mostly positive in nature and relates to issues such as employment creation, etc.

² Unless otherwise specified, the data contained in this section has been derived from the Municipal Demarcation Board (www.demarcation.org.za). The MDB make use of data from Census 2001.

Table 2: Affected Settlements

Settlement	Ward	Affected
Elias Motsoaledi Local Municipality		
Roosenekal	Ward 16	Directly (housing during operation)
Sehlakwane (\pm 1km from site)	Ward 16	Directly (construction and operation)
Mathula (\pm 5km from site)	Ward 17/19	Indirectly (off-stream impacts)
Nkosini (\pm 15km from site)	Ward 19	Indirectly (off-stream impacts)

The Socio-Economic & Socio-Demographic Profile, Economic Sectors, and Municipal Services of the EMLM are discussed ahead.

▪ **Socio-Economic & Socio-Demographic Profile**

According to the Municipal Demarcation Board the total population of the EMLM is estimated at approximately 221 638 people living in 48 925 separate households, an average of 4.5 people per household. The projected growth rate for the period 2001 to 2010 is 1% per annum.

The EMLM has a profile similar to that of the GSDM. The predominant population group is Black African (98.9%), followed by White (1.0%). In total, 12.5% of the total population are under the age of 19. Just over half of the total population is female (55.1%). Most of the households are also headed by a female (57.7%), which might be ascribed to the migrant labour patterns in South Africa where the male moves to a different area in search of work. If this is the case, it can very well be assumed that these males are employed elsewhere and would therefore not be seeking work at the proposed SPSS. The proposed project therefore has to take cognisance of the fact that the majority of work seekers might be female. The indication is also that these females are poor, and therefore vulnerable. They might be exploited by construction labourers during the construction period.

Almost a half (45.7%) of the adult population reported having had no schooling, whilst a quarter (22.4%) completed some secondary schooling. The majority of the adult population is therefore unskilled, with a minority being semi-skilled. Unskilled and semi-skilled labour for the project could therefore be sourced locally.

More than half (58.3%) of all the households consist of four or more people per household. The majority of houses have at least four rooms (16.2%).

Slightly more than half (50.3%) of the properties are owned and fully paid for by their owners.

A quarter (24.1%) of all households reported an average household income of between R4 801 and R9 600 per month. However, a third of all households (37.9%) reported having no monthly household income. Only 16.9% of the adult population are employed (63.1% are not economically active), mostly in the community services sector (3.2%). The EMLM can therefore be regarded as a fairly poor community, as is the case with the LP which is regarded as the poorest province in South Africa. Where possible, employment opportunities should be afforded to the local community.

▪ **Economic Sectors**

The local economy of the EMLM is largely dominated by agriculture, which contributes 25.2% of the local economy, mostly due to commercial farming. Subsistence farming only has a negligible contribution. The trade sector (21.2%) is the second highest contributor and Government (20.6%) is the third highest contributor.

▪ **Municipal Services**

As far as municipal services are concerned, it would appear that more than a quarter of the households make use of coal for cooking (26.5%) and heating (34.0%). Despite this, by far the majority make use of electricity for lighting (84.1%). The EMLM does not seem to have an effective and operational refuse removal system, since three quarters (72.8%) of the households make use of their own refuse dump for this purpose. Also, three quarters (75.9%) only have access to a latrine pit without ventilation. Close on one fifth (19.6%) have no access to piped water, followed by piped water within the yard (13.4%). A lack of sufficient municipal services has an impact on people's quality of life, and makes them vulnerable.

▪ **Infrastructure**

Roads and storm water management in rural areas fall under the control of the province. However, this is largely confined to storm water control on the provincial main roads. Most roads are in a state of disrepair, with the provincial roads largely in need of resealing. This has a negative impact on the local economy.

The area has two hospitals supported by health centres and clinics. The hospitals are in Groblersdal and Philadelphia (Moutse). These facilities are inadequate as the norms prescribe that one clinic is required for every 10 000 people.

The settlements within the EMLM that could potentially be affected by the proposed project are Roosenekal, Sehlakwane, Mathula and Nkosini. As previously mentioned, these wards are also discussed as part of the impact tables in Section 4.2.

2.1.3.1 Directly Affected Communities

Roosenekal and Sehlakwane can be regarded as directly affected communities, although Roosenekal will only be affected during operation with mostly positive impacts in terms of housing and municipal infrastructure development.

Roosenekal and Sehlakwane consist mostly of young people, i.e. people under the age of 19 (60.8%). The total population is estimated at approximately 8 835 people living in 1 867 separate households, at an average of 4.7 people per household. The predominant population group is Black African (99.9%) with the remainder 0.1% being Coloured. Just over half (54.9%) of the total population is females.

As far as the educational profile of these areas are concerned, over half (58.6%) of the adult population have had no schooling, which is indicative of a fairly unskilled population. Every one in five (20.0%) have completed some secondary schooling (i.e. semi-skilled). Three quarters of the adult population (77.9%) are not economically active. Of the economically active population, 34.0% are employed, mostly in the community services (30%).

These areas are therefore characterised by a predominantly unskilled female population with a high unemployment rate estimated at approximately 66%. Any employment opportunities (either directly or indirectly) created by the proposed SPSS would therefore serve to eradicate poverty in the area to an extent and lessen the dependency ratio on the EMLM.

Half (49.9%) of all the households in these areas have no income. A quarter (22.3%) has a monthly household income of between R4 801 and R9 600. Most of these households (64.3%) are female-headed. Households tend to be quite large, with a third (32.9%) having six or more people, followed by four people (16.6%). It follows then that most of the houses (56.0%) have at least four or more rooms. In this ward, most of the residents occupy their property rent-free (60.2%).

Coal is a popular source of energy, with two thirds and more of all households using coal for cooking (61.2%) and for heating (67.0%). More than three quarters (76.8%) make use of electricity for lighting. The majority of households (88.6%) make use of their own refuse dump for refuse removal. For most households (77.9%) a pit latrine without ventilation is the only form of sanitation services. Almost a quarter (22.6%) has no access to water, whilst 18.3% obtain their water from a pipe more than 200m away from their dwelling.

In light of the above, it can be deducted that the households in the areas are quite poor. Despite the fact that most of the households have electricity, a lack of appliances and/or infrastructure necessitates the use of coal for cooking and heating purposes. These areas are also lacking in an effective

municipal services network, which further deteriorates the quality of life of these residents. Any infrastructure development in terms of the municipal services network would therefore be to the advantage of these communities.

2.1.3.2 Indirectly Affected Communities

Mathula and Nkosini can be regarded as indirectly affected communities, who would mostly benefit from down-stream employment opportunities. Mathula is located approximately 5km from the proposed SPSS site, whilst Nkosini is located some 15km away from the proposed site.

According to Census 2001 there are approximately 6 091 people residing in these areas in 1 266 separate households, at an average of 4.8 persons per household. More than half (57%) of the population in these areas are aged 19 years and younger. Females dominate at 55.8%, which again could be indicative of the work migration trend where males move into other areas in search of employment. The predominant population group is Black African (99.9%), with the remainder 0.1% being Coloured.

Close on two thirds of the adult population can be regarded as unskilled, with 62% who have had no schooling. These areas also have a very high unemployment rate, with more than two thirds (67.5%) of the economically active population being unemployed. Of those who are employed, the majority (20.5%) are employed in private households.

More than a third (37.2%) of all households reported having no income, followed by households with an average monthly income of between R4 801 and R9 600 (30.5%). Again most of these households are headed by a female (64.8%). These areas are characterised by fairly large households, with more than a third (67.1%) of the households consisting of four or more people. Close on two thirds (60.3%) occupy their property rent-free.

The majority of households (71.7%) make use of their own refuse dump for waste removal. By far the majority (95.3%) only has access to a pit latrine without ventilation. Almost a third (31.8%) has no access to water. Of those who do have access, 17.3% obtain their water from a river or stream and 16.7% from a borehole.

From the above it can be concluded that the areas of Mathula and Nksoni are more or less the same in character as those of Sehlakwane and Roossenekal. All of these areas can be regarded as fairly poor with high unemployment rates and a high dependency ratio on the EMLM. The fact that close on a third of the households in Mathula and Nkosini do have a monthly income supports the notion of migrant labour (i.e. the male works elsewhere and sends money home on a monthly basis). Again these areas are therefore characterised by a predominantly unskilled female population with a high unemployment rate, which might mean that the majority of work seekers might be female.

2.2 Land Use Profile

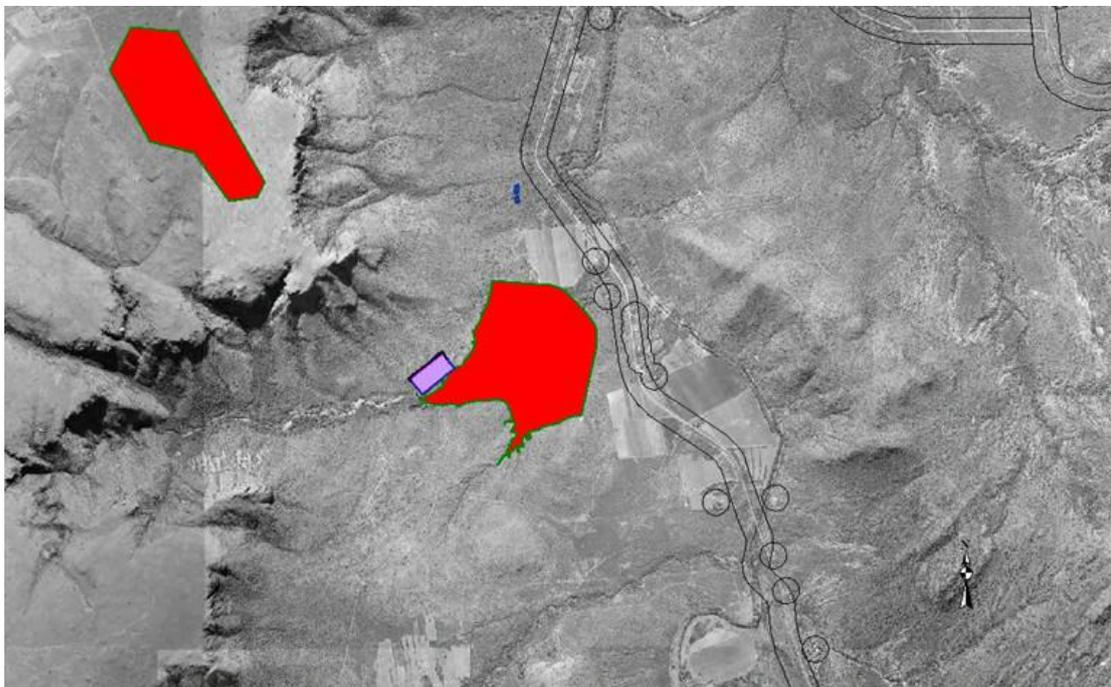
The study area is largely rural in nature with rolling hills and valleys. The Sehlakwane settlement is widely dispersed and mostly characterised by formal housing structures. No informal settlements were noticed during the field trip, but it would be safe to assume that there are informal settlements in the area due to the high poverty levels in the area as discussed above.

The area is serviced by two provincial roads, namely the R555 via Roosenekal and the R579 that runs through Sehlakwane. Municipal roads in the area consist mainly of gravel roads with very few tarred or semi-tarred roads. There is a railway line from Middelburg to Roosenekal, and this is the nearest rail terminal to the site.

The area adjacent to Sehlakwane and the proposed site is characterised by subsistence dry land farming. Sehlakwane is the closest settlement to the proposed SPSS and is located approximately 1km away from the site. The other affected areas are located between 5km to 10km away from the site.

Farmhouses in the vicinity of the site are mostly located along the road, as depicted in Figure 2 (the farmhouses are encircled along the road, the red areas indicate the location of the upper and lower dam). The displacement of persons is therefore not foreseen during the construction and operation of the proposed SPSS.

Figure 2: Location of Farmhouses



Source: Metro GIS

3. ISSUES AND RELATED POTENTIAL IMPACTS

An issue can only be regarded as a potential impact if no suitable mitigation measures can be implemented to negate the identified impact. The issues and related potential impacts were divided into three main themes, as shown in Table 3. There is also some overlapping with impacts between the various themes as these impacts are interrelated. These impacts have been derived from the ESS and include the issues raised and recommendations made during the ESS phase of the project. Refer to the Assessment Tables in Section 4.2 for an assessment of these impacts. Potential positive impacts are in *italics*.

Table 3: Impact Themes

Theme	Pre-Construction	Construction & Decommissioning	Operation
<i>Social</i>	<ul style="list-style-type: none"> ▪ Attitude formation against the project ▪ Fair negotiations 	<ul style="list-style-type: none"> ▪ Intra- and inter-conflict ▪ Increased social problems (e.g. crime, sexually transmitted infections) due to an influx of people ▪ Increase in traffic ▪ Noise pollution ▪ Dust pollution ▪ Visual impact of construction activities 	<ul style="list-style-type: none"> ▪ Health and safety ▪ Safety hazard of water ▪ <i>Employment opportunities</i> ▪ <i>Visual impact of installation</i>
<i>Land Use</i>	<ul style="list-style-type: none"> ▪ <i>Infrastructural development (e.g. access roads)</i> ▪ The impact of the location of 	<ul style="list-style-type: none"> ▪ Increased demand on municipal services (e.g. water, waste removal, etc.) 	<ul style="list-style-type: none"> ▪ <i>Housing developments in Roosenekal</i>

Theme	Pre-Construction	Construction & Decommissioning	Operation
	<p>the proposed SPSS on current and future development plans in the area</p>	<ul style="list-style-type: none"> ▪ Damage to roads ▪ Loss of agricultural land ▪ The location and management of construction villages ▪ <i>Development of local road network</i> 	<ul style="list-style-type: none"> ▪ <i>Maintenance of access roads</i>
Economic	<ul style="list-style-type: none"> ▪ <i>Land acquisition (benefit to community)</i> ▪ <i>Job opportunities and the related recruitment process</i> 	<ul style="list-style-type: none"> ▪ <i>Direct employment opportunities</i> ▪ <i>Indirect employment opportunities</i> ▪ <i>Local economic investment</i> 	<ul style="list-style-type: none"> ▪ <i>Indirect job opportunities</i> ▪ <i>Sustainable local economic development</i>

The respective impact themes and their related issues will be discussed in more detail in the various impact tables in Section 4.2.

3.1 Project Components

The proposed SPSS will comprise the following components:

- An upper dam on the top of the Nebo plateau;
- A lower dam at the foot of the escarpment, which would be in close proximity to the settlement of Sehlakwane;
- An underground powerhouse complex, which would include a cooling water system, drainage and dewatering system, and a compressed air system;
- Pump/turbines that are connected to the upper dam by a concrete lined headrace and pressure tunnel and a concrete line extended draft tube and tailrace tunnel that connects the pump/turbines to the lower dam; and
- Associated infrastructure including an administration building, a visitors' centre, standby diesel generator, ventilation system, sewage plant, overflow dams, oil handling plant, lifting equipment, screens, gates with hoists, new access roads, switchyard, transmission lines, and basic water supply pipeline.

These components were used to inform the assessment of the potential impacts.

4. IMPACT ASSESSMENT

4.1 Assessment Criteria

A SIA takes into account the extent, duration, intensity and probability of occurrence that a potential impact might have on this social environment. Impacts can either be negative, neutral or positive. The impacts are also categorised according to the various project stages, i.e. pre-construction, construction/decommissioning, and post construction (operation). Construction and decommissioning have been grouped together due to the fact that these processes are the same, except that decommissioning would be in reverse. Mitigation measures have also been identified with the aim to reduce the potential impact of a negative issue and to enhance the impact of a positive issue. Also included in the assessment table is a brief description of the potential impact, together with a rating of the significance of the impact.

To determine the significance of each identified issue, the following criteria were used:

Extent

Extent refers to the magnitude of the impact and is classified as:

<i>Site:</i> (1)	The construction site and within a 2km radius of the construction site.
<i>Local:</i> (2)	In a radius of between 2 km – 10km of the construction site.
<i>Regional:</i> (3)	The impacted area is or could be the size of the whole province.
<i>National:</i> (4)	The impact extends to the whole of South Africa.

▪ **Duration**

Duration refers to the lifetime of the impact and can be classified as:

<i>Short-term:</i> (1)	The impact will last for the period of the construction phase, where after it will be entirely negated.
<i>Medium-term:</i> (2)	The impact will last for 6 months after the construction phase and will be mitigated by direct human and/or natural processes thereafter.
<i>Long-term:</i> (3)	The impact will continue or last for the entire operational life of the development, but will be mitigated by direct human action or by natural processes thereafter.
<i>Permanent:</i> (4)	The only class of impact which will be non-transitory. Mitigation either by man or natural process will not occur in such a way or in such a time span that the impact can be

considered transient.

▪ **Intensity**

Intensity refers to the degree to which the project affects or changes the environment, and is classified as:

Low:
(1) Impact affects the environment in such a way that natural, cultural and social functions and processes are not affected.

Medium:
(2) Effected environment is altered, but natural, cultural and social functions and processes continue albeit in a modified way.

High:
(3) Natural, cultural and social functions and processes are altered to such an extent that they can temporarily cease.

Very high:
(4) Natural, cultural and social functions and processes are altered to extent that they permanently cease.

▪ **Probability**

Probability refers to the likelihood or the chances that the impact will occur, and is classified as:

Improbable:
(1) It is not likely that the impact will occur.

Possible:
(2) Likelihood of the impact materialising is very low.

Highly probable:
(3) Likely that the impact will occur.

Definite:
(4) Impact will certainly occur.

▪ **Significance**

Based on the above criteria the significance of issues will be determined. This is the importance of the impact in terms of physical extent and time scale, and is rated as:

Low:
(4-7 points) A low impact has no permanent impact of significance. Mitigatory measures are feasible and are readily instituted as part of a standing design, construction or operating procedure.

Medium:
(8-10 points) Mitigation is possible with additional design and construction inputs.

High:
(11-13 points) The design of the site may be affected. Mitigation and possible remediation are needed during the construction and/or operational phases. The effects of the impact may affect the broader environment.

Very high: Permanent and important impacts. The design of the site
(14 and more points) may be affected. Intensive remediation is needed during construction and/or operational phases. Any activity which results in a "very high impact" is likely to be a fatal flaw.

▪ **Status**

Status refers to the effect of the potential impact on the receiving environment and is classified as:

Positive: The impact will benefit the receiving environment.
(+)

Negative: The impact will be to the detriment of the receiving environment.
(-)

Neutral: The impact will neither benefit nor be to the detriment of the receiving environment.
(/)

4.2 Assessment of Impacts

The identified issues as listed in Table 3 were assessed (grouped) according to the various phases of the project. This was done to determine the potential social impacts of these issues as per category (pre-construction, construction / decommissioning, and operation).

4.2.1 Pre-Construction Phase

THEME: SOCIAL		
Potential Impact: Attitude Formation against the project		
Attitudes are formed by means of people's perception. In this case attitude formation refers to the perception that people in the local community might form on the proposed project, which in turn would influence their attitude towards the project. A negative attitude could lead to social mobilisation against the project.		
Duration	Short term to Long term	3
Extent	Local	2
Intensity	Medium	2
Probability	Possible	2
Significance	Medium -	9
The significance of attitude formation is rated as medium negative before the implementation of mitigation measures. If the local community is unsupportive of the project, it could lead to social mobilisation. The probability of social mobilisation against the project is rated as possible, i.e. the likelihood of the impact materialising is low. The local community is currently in support of the project due to the proposed infrastructure development and employment opportunities created by the project. However, the risk for social mobilisation greatly increases if Eskom is perceived as distrustful, i.e. if they do not deliver on their undertakings with the community in terms of employment creation, etc. To ensure support of the project and reduce the risk of social mobilisation, Eskom should at all times be seen to care about the local community. The community need to feel that they receive some tangible benefits from the project, e.g. direct and indirect employment. The undertakings in the EMP should also be implemented effectively and with due diligence.		

Mitigation Measures:		
<ul style="list-style-type: none"> ▪ Transparent information should be supplied to the community from the outset of the project. ▪ The local community should play an active participatory role in the planning process to strengthen their current support of the proposed project. This could be achieved by means of establishing a community forum that meet quarterly or once a month to discuss issues and progress surrounding the project. ▪ Employment opportunities should first be offered to the local community if the skills are available within the community. ▪ Eskom should deliver on their undertakings with the community in terms of employment creation, etc. (tangible benefits to the community). ▪ The undertakings in the EMP should also be implemented effectively and with due diligence. 		
Duration	Long term	3
Extent	Local	2
Intensity	Low	1
Probability	Improbable	1
Significance	Low -	7
<p>The significance of attitude formation is rated as low negative after the implementation of mitigation measures.</p>		

THEME: SOCIAL		
Potential Impact: Fair Negotiations		
<p>This impact assesses the negotiation process to acquire the land for the proposed SPSS, and specifically focuses on unfair negotiations. The land currently belongs to the tribal authority.</p>		
Duration	Short term	1
Extent	Site	1
Intensity	Medium	2
Probability	Definite	4
Significance	Medium +	8
<p>The significance of this impact is rated as medium positive before the implementation of mitigation (reinforcement) measures.</p> <p>The negotiation process is undertaken directly by Eskom. Eskom should determine in consultation with the tribal authority who should form part of this process and then ensure that all the relevant parties are present.</p>		

Important points relating to the EIA process are as follows:

- Negotiation is a private matter between Eskom and the landowner concerned.
- The negotiation process involves a number of stages (see mitigation measures below), and culminates in the 'signing' of the site. Here Eskom enters into a legal agreement with the landowner.
- The agreements will detail such aspects as the exact location and extent of the site, and access arrangements and maintenance responsibilities.
- Compensation measures are agreed in each case.
- It may take place at any time in the planning process.
- It must be completed (i.e. the agreement must be signed) before construction starts on that property.
- It is independent of the EIA process.

However, if negotiations are not handled with the necessary sensitivity the impact of this process can be severely negative, i.e. a deadlock in negotiations resulting in an indefinite delay of the project. It would normally be preferable that the negotiation process begins after the EIA has been completed. At this stage there is greater confidence in the appropriateness of the site, and it would be supported by environmental authorisation. Although Eskom has the right to engage with any landowner at any time, they do so at risk if environmental authorisation has not been awarded.

Mitigation Measures:

A fair and transparent negotiation process involves the following:

- Initial meeting with the landowner.
- The signing of an 'option' to secure the site (this indicates that the owner will accept that the SPSS will be developed on his site, subject to conditions to be finalised in the negotiation of the site agreement). An option is valid for one year.
- An agreement should set out the conditions for the establishment and operation of the SPSS, and should be site specific (different landowners may have different requirements). Compensation payments are made when the servitude is registered at the Deeds office.
- Once the construction is complete and the land rehabilitated to the landowners satisfaction, the landowner signs a 'Final Release' certificate. Until such time Eskom remains liable for the condition of the land.
- Once the clearance certificate is signed, the responsibility for the site is handed over to the regional Eskom office. Prior to this the Eskom national office is responsible for the process.
- Negotiations in this instance should be approached with the necessary cultural sensitivity.
- Eskom should consider making use of an approved interpreter during the negotiation process to ensure that there are no misunderstandings as a result of language barriers.
- Also refer to the *Land acquisition process* impact table that follows.

Duration	Short term	1
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Extent	Site	1
Intensity	Medium	2
Probability	Definite	4
Significance	Medium +	8
The significance of this impact is rated as medium positive after the implementation of mitigation measures.		

THEME: LAND USE		
Potential Impact: Infrastructure Development		
This issue relates to infrastructure development prior to construction of the proposed SPSS, which would enable construction activities to take place (e.g. tarring of access roads to be able to carry construction traffic).		
Duration	Permanent	4
Extent	Site	1
Intensity	Medium	2
Probability	Definite	4
Significance	High +	11
<p>Infrastructure development is rated as a high positive impact before the implementation of mitigation (reinforcement) measures.</p> <p>The proposed site is located between the Stoffberg-to-Phokwane provincial road (R579) and the Roosenekal-to-Steelpoort provincial road (R555). The R579 is used by the Sehlakwane community for transport to Stoffberg. There are two access roads to the proposed site: The R1 from the R555 leads to the upper dam site; and the R8/R10 from the R579 that leads to the lower dam site. The R8/R10 road is currently a gravel road and passes through the Sehlakwane settlement. There is also a school located next to the R8/R10. Eskom intends to tar this road, which would also benefit the community in terms of ease of movement and a reduction in dust pollution. However, a tarred road might also lead to an increase in speeding on the road, which would have a negative impact on the school children using this road going to the school located on this road.</p> <p><u>The municipal services in the area is of a poor quality (refer to sections 2.1.3.1 and 2.1.3.2). The municipal services network would therefore have to be upgraded to ensure that it would be able to accommodate additional connections to the network for water, sanitation and refuse removal.</u></p>		

Mitigation Measures:

- Eskom or its appointed contractor(s) should enter into negotiations with the EMLM to ensure sustainable development. Such negotiations should include, but is not limited to:
 - The upgrade of the municipal services network;
 - The tarring of access roads through the community (R8/R10); and
 - The regular maintenance of the access roads by Eskom and/or its appointed contractor(s).
- Potential speeding in the vicinity of the school on the R8/R10 should be controlled, either by means of policing during peak hours of school traffic (normally between 07:00 and 08:00 in the morning and 13:30 to 14:30 in the afternoon) or through the use of speed bumps at regular intervals in close proximity to the school.
- Traffic signs should warn motorists of the presence of pedestrians and school children along the road.

Duration	Permanent	4
Extent	Site	1
Intensity	Medium	2
Probability	Definite	4
Significance	High +	11

The significance of the impact is rated as **high positive** after the implementation of mitigation (reinforcement) measures.

THEME: LAND USE**Potential Impact: Development Plans**

This impact assesses the potential impact that the proposed installation would have on the current and future development plans of the EMLM.

Duration	Permanent	4
Extent	Local	2
Intensity	Medium	2
Probability	Possible	2
Significance	Medium /	10

The impact is rated as **medium neutral** before the implementation of mitigation measures. At this stage the proposed site is not earmarked for any municipal developments. However, the location of the installation should take cognisance of the local development plans of the area and should fit in with

these plans.

The EMLM IDP identified the following priority developments for Roosenekal: A council office, primary school, pension payment facility, purification plant, bridges to link the area with main roads, road construction and repair, water pipes, tourism centre (Ekgoleni Magopo Caves). Agricultural and poverty alleviation projects need to be initiated. Poverty alleviation and agricultural projects are planned for Sehlakwane. A primary school is planned for Mathula, together with housing development and the upgrading of roads and sanitation.

The IDP does not mention the exact location of these proposed developments. However, the proposed tourist centre at the SPSS could enhance the EMLM's tourism development plans by drawing tourists to the area.

Mitigation Measures:

- Consultation with the EMLM and local community representatives (community leaders) to ensure that the installation benefits the local development plans.

Duration	Permanent	4
Extent	Local	2
Intensity	Medium	2
Probability	Possible	2
Significance	Medium +	10

The impact is rated as **medium positive** after the implementation of mitigation measures.

THEME: ECONOMIC		
Potential Impact: Land acquisition process		
The site belongs currently belongs to the tribal authority. The land would have to be acquired in return for compensation.		
Duration	Short term	1
Extent	Site	1
Intensity	Low	1
Probability	Definite	4
Significance	Low +	7
This impact is rated as low positive before the implementation of mitigation measures. This is due to the fact that, in the event of financial compensation (i.e. a lump sum being paid over to the tribal authority), it is difficult to determine how the tribal authority would use the money or if the money would be used for the development of the community.		

It should be noted that compensation for the land is not necessarily only restricted to financial compensation. Eskom should enter into negotiations with the tribal authority to determine their needs and the most appropriate form of compensation.

Mitigation Measures:

- Financial compensation should be fair and market related.
- Negotiations should be fair and transparent. Also refer to the impact table on *Negotiations* above.
- Consider establishing a trust fund (as a form of compensation) for the community that is jointly administrated by Eskom and the tribal authority. Community development projects can then be funded from the trust fund, which would aid sustainable development in the area.

Duration	Long term	3
Extent	Local	2
Intensity	Medium	2
Probability	Definite	4
Significance	High +	11

The impact is rated as **high positive** after the implementation of mitigation (reinforcement) measures, especially if a trust fund is established to fund community development projects (sustainable development).

THEME: ECONOMIC

Potential Impact: Job opportunities and the related recruitment process

This impact relates to the job opportunities that will be created during the construction phase of the proposed SPSS and the way in which workers will be sourced.

Duration	Short term	1
Extent	Local	2
Intensity	Medium	2
Probability	Definite	4
Significance	Medium +	9

The significance of this impact is rated as a **medium positive** before the implementation of mitigation measures. It is estimated that approximately 2 570 construction workers in total (at the upper and lower dam) will be used at the site at the peak of construction, of which 70 will be housed at the upper reservoir and 2 500 will be housed at the lower reservoir. It is estimated that approximately 66% of these workers will be unskilled and

semi-skilled and the intention is to source these workers from the local community.

If "local community" is defined as the settlements within a 15km radius from the proposed SPSS site, the "local community" includes the settlements of Sehlakwane, Roosenekal, Mathula and Nkosini. All of these areas can be regarded as fairly poor with high unemployment rates (more than two thirds of the respective communities) and a high dependency ratio on the EMLM. *These areas are characterised by a predominantly unskilled female population, which might mean that the majority of work seekers might be female.*

In the areas of Roosenekal and Sehlakwane there are approximately 991 people in the economically active population (this excludes the segment of the population who are currently not economically active). An economically active population can be defined as the persons who are willing and able to work and who are actively seeking employment. Of the economically active population, 654 (or 66%) are currently unemployed, which would enable Eskom or its appointed contractor(s) to source local labour from within these communities. As far as the educational profile of these areas are concerned, over half (58.6%) of the adult population have had no schooling, which is indicative of a fairly unskilled population.

The areas of Mathula and Nkosini have an economically active population of approximately 468, of which 67.5% (or 316) are unemployed. Close on two thirds of the adult population can be regarded as unskilled, with 62% who have had no schooling.

Mitigation Measures:

- The positive status of this impact should be enhanced through the use of a transparent recruitment process.
- Eskom or its appointed contractor(s) should set up a construction recruitment office where potential candidates can register. Only registered workers should be allowed to work on the site, possibly on a rotary basis (i.e. a person is employed to perform a certain task and once that task is completed a different person is employed for the next task). Such a rotary scheme would benefit the whole of the community and not only certain members of the community.
- Identify local structures such as trade unions and/or local NGO's who might be able to assist with the recruitment of unskilled and semi-skilled labour. This would enhance the transparency of the process.

Duration	Short term	1
Extent	Local	2
Intensity	High	3
Probability	Definite	4
Significance	Medium +	10

The impact is rated as **medium positive** after the implementation of mitigation (reinforcement) measures.

4.2.2 Construction/Decommissioning Phase

THEME: SOCIAL		
Potential Impact: Conflict		
Conflict can take place on two levels. On the one side is intra-conflict amongst construction workers (typically over the structuring of salary packages) and on the other hand is inter-conflict amongst construction workers and the local community (typically over job opportunities).		
Duration	Short term	1
Extent	Intra: site	1
	Inter: local	2
Intensity	High	3
Probability	Possible	2
Significance	Intra: Low -	7
	Inter: Medium -	8
<p>Intra-conflict is rated as a low negative impact. This kind of conflict will be amongst construction workers either at the construction village and/or on site. Intra-conflict takes place between construction workers themselves in terms of housing offered, and potentially in terms of salary packages. In a construction village conflict might be more intense due to the concentrated living and working conditions of the construction workers.</p> <p>Inter-conflict is rated as a medium negative impact. This kind of conflict will be between the construction workers and members of the local community. Conflict will take place if local community members perceive "outsiders" as taking away their job opportunities. Inter-conflict can take place either at the construction village or at the construction site, as these two locations will be perceived as central points where conflict can be directed. Inter-conflict situations can lead to a dead lock and a subsequent delay in construction.</p>		
Mitigation Measures:		
<ul style="list-style-type: none"> ▪ Intra-conflict: <ul style="list-style-type: none"> ○ Weekly forum meetings between contractors and construction workers to address any issues and/or concerns pro-actively. ○ Consider the use of a uniformed salary structure whilst construction workers are on site. ▪ Inter-conflict: <ul style="list-style-type: none"> ○ Ensure that a transparent recruitment process takes place prior to construction. Also refer to the impact table on <i>Job opportunities and the related recruitment process</i> above. ○ Consider making use of the local trade unions, if available, to enhance the recruitment process. Also refer to the impact table on <i>Job opportunities and the related recruitment process</i> above. 		

Duration	Short term	1
Extent	Site	1
Intensity	High	3
Probability	Possible	2
Significance	Low -	7
This impact is rated as low negative for both intra- and inter-conflict after the implementation of mitigation measures.		

THEME: SOCIAL		
Potential Impact: Increased social problems		
An influx of people to the area could lead to an increase in social problems like crime and the spread of sexually transmitted infections (STI), including HIV/AIDS.		
Duration	Permanent	4
Extent	National	4
Intensity	High	3
Probability	Highly probable	3
Significance	Very high -	14
<p>An increase in social problems is rated as a very high negative impact before the implementation of mitigation measures. Construction workers are separated from their families for a prolonged period of time. It is therefore not uncommon for construction workers to engage in temporary sexual relationships with members of the local community and/or for sex workers to visit/loiter at the construction village. <u>The higher the amount of people who move into the area on a temporary basis, the more the likelihood increases of such relationships and the risk associated with the spread of HIV/AIDS and other STIs.</u></p> <p>The duration is given as permanent due to the nature of HIV/AIDS and other STI that is incurable. The extent is listed as national due to the fact that infected persons from the community are mobile and could infect more people in other parts of the country.</p>		

Mitigation Measures:		
<ul style="list-style-type: none"> ▪ An aggressive STI and HIV/AIDS awareness campaign should be launched, which is not only directed at construction workers but also at the community as a whole. ▪ Condoms should be distributed by placing them at centrally located points and by ensuring that construction workers and community members are aware of the availability and location of condoms. The distribution of condoms should be approached with the necessary cultural sensitivity. ▪ Access at the construction site should be controlled to prevent sex workers from either visiting and/or loiter at the construction village. ▪ Construction workers should be clearly identifiable. Overalls should have the logo of the construction company on it and/or construction workers should wear identification cards. ▪ Local women should be empowered. This could be achieved by employing them to work on the project, which in turn would decrease their (financial) vulnerability. ▪ The construction village should be located some distance away from the local community. 		
Duration	Permanent	4
Extent	National	4
Intensity	Medium	2
Probability	Possible	2
Significance	High -	12
<p>The impact is rated as high negative after the implementation of the mitigation measures.</p>		

THEME: SOCIAL		
Potential Impact: Increase in traffic		
An increase in traffic could lead to a disruption of local movement patterns.		
Duration	Short term	1
Extent	Local	2
Intensity	Medium	2
Probability	Definite	4
Significance	Medium -	9
<p>This impact is rated as medium negative before the implementation of mitigation measures. According to the <i>Traffic/Transportation Study</i>, approximately 30 buses will be used to transport construction workers to and</p>		

from the site. This amounts to 60 buses per day (30 busses during the morning peak and 30 buses during the afternoon peak). These buses might move through the portion of Sehlakwane adjacent to the site and would therefore most likely affect the peak hour movement patterns of the community.

In addition to the busses, there will also be construction traffic in the form of trucks. There will be approximately 50 trucks per day, of which 40 will be at the lower dam (20 during the morning and 20 during the afternoon) and 10 at the upper dam (5 during the morning and 5 during the afternoon).

The majority of community members' (from all 4 areas) only means of transport is on foot. The R579 also divides the Sehlakwane settlement. It is therefore safe to assume that pedestrians cross this road between the two segments of the settlement. The presence of the school on the R8/R10 also generates pedestrian traffic during the morning and mid-afternoon in the form of school children going to and from school.

Although the R579 is a tarred road, this road is currently in a state of disrepair (numerous potholes) and in need of maintenance. The presence of construction vehicles will further damage the road and hinder the movement of the local community.

Mitigation Measures:

- Road rehabilitation should take place prior to and once construction is completed.
- Construction traffic should only make use of an approved route.
- The number of trucks that pass through the community should be kept to a minimum and should be restricted to certain times of the day, i.e. avoid peak hours when community members are on their way to or from school and work.
- Traffic signs should warn construction vehicles of the presence of pedestrians and school children along the road.
- General road rules should be enforced.

Duration	Short term	2
Extent	Local	2
Intensity	Low	1
Probability	Possible	2
Significance	Low -	6

The impact is rated as **low negative** after the implementation of mitigation measures.

THEME: SOCIAL
Potential Impact: Noise pollution

Construction vehicles and activities on site could lead to an increase in noise pollution.		
Duration	Short term	1
Extent	Local	2
Intensity	Medium	2
Probability	Highly probable	3
Significance	Medium -	8
<p>Noise pollution is rated as a medium negative before the implementation of mitigation measures. A constant high level of noise has a prolonged detrimental effect on a person's general well-being and functioning. People living in close proximity to a construction site will be exposed to such a constant level of noise generated by the construction activities taking place.</p> <p>There will be construction traffic in the form of trucks, which amounts to approximately 50 trucks per day, of which 40 will be at the lower dam (20 during the morning and 20 during the afternoon) and 10 at the upper dam (5 during the morning and 5 during the afternoon).</p> <p>The area is rural in nature and therefore very quiet at the moment. Any activity that takes place in the area will increase the noise levels. The adjacent community of Sehlakwane has been identified as a noise sensitive site by the noise specialist study.</p>		
<p>Mitigation Measures:</p> <ul style="list-style-type: none"> ▪ Construction activities should be restricted to daytime hours between 07:00 and 19:00. ▪ Adjacent property owners should be consulted and notified of any activities that could lead to excessive noise levels, e.g. blasting. ▪ Adjacent property owners should also be consulted if any night time construction activities were to take place. ▪ The construction village at the lower dam site should be located away from the local community to ensure that noise levels at the village do not affect the local community during the night time. 		
Duration	Short term	1
Extent	Local	2
Intensity	Low	1
Probability	Possible	2
Significance	Low -	6
The impact is rated as low negative after the implementation of mitigation measures.		

THEME: SOCIAL		
Potential Impact: Dust pollution		
Construction activities and vehicle movement could lead to dust pollution.		
Duration	Short term	1
Extent	Local	2
Intensity	Medium	2
Probability	Highly probable	3
Significance	Medium -	8
This impact is rated as medium negative before the implementation of mitigation measures. High levels of dust pollution could lead to a disruption in the quality of life and health of the local community.		
Mitigation Measures:		
<ul style="list-style-type: none"> ▪ Dust pollution could be restricted by the tarring of the access roads. ▪ If access roads are not tarred, it should be watered down regularly to compact the soil and restrict dust pollution to an extent. ▪ Residents should be consulted prior to activities that could cause large amounts of dust pollution. 		
Duration	Short term	1
Extent	Local	2
Intensity	Medium	2
Probability	Possible	2
Significance	Low -	7
This impact is rated as low negative before the implementation of mitigation measures. High levels of dust pollution could lead to a disruption in the quality of life and health of the local community.		

THEME: SOCIAL		
Potential Impact: Visual impact of construction activities		
This impact assesses the social impact that the visibility of the construction activities might have on the surrounding (adjacent) community.		
Duration	Short term	1
Extent	Site	1

Intensity	Medium	2
Probability	Definite	4
Significance	Medium -	8
<p>This impact is rated as medium negative before the implementation of mitigation measures.</p> <p>Construction activities will bring about a change in the local view and can be considered as a visual impact. Visual impacts are mostly subjective and based on a person's perception. It is considered most significant when the activities are not of a similar nature as the rest of the area and could be readily viewed from the adjacent area. Construction activities will not blend in with the area, since the site is currently fairly untouched. It can be expected that the visual impact would be greater if there is attitude formation against the project, because in such an instance the presence of construction activities will be regarded as a disregard for the community's opinion of the project.</p> <p>However, the topography of the area will screen the visibility of the construction activities from the community to an extent, although it will still be visible to the community from some parts.</p>		
<p>Mitigation Measures:</p> <ul style="list-style-type: none"> ▪ See the impact table on <i>attitude formation against the project</i>. ▪ Construction activities should be screened from view as far as possible. This could be achieved by the use of screens that blend in with the natural environment. 		
Duration	Short term	1
Extent	Site	1
Intensity	Low	1
Probability	Highly probable	3
Significance	Low -	6
<p>The impact is rated as low negative after the implementation of mitigation measures.</p>		

THEME: LAND USE		
Potential Impact: Increased demand on municipal services		
<p>An influx of people to the area would mean an increased demand on the municipal services in the area.</p>		
Duration	Short term	1
Extent	Local	2
Intensity	Medium	2

Probability	Definite	4
Significance	Medium -	9
<p>An increased demand on municipal services is rated as a medium negative impact before the implementation of mitigation measures. Issues that were raised in the past in relation to this impact are that the water and sanitation supply is currently insufficient in the area. Additional connections could lead to an overload of the network.</p> <p>However, it would appear as if the EMLM is currently not delivering an effective municipal service. This is apparent from the high level of households who still make use of a pit latrine without ventilation (due to a lack of a waterborne sewerage system), dispose of their refuse at their own refuse dump and who do not have access to piped water within their yard and/or dwelling.</p> <p><u>The municipal services in the area is of a poor quality (refer to sections 2.1.3.1 and 2.1.3.2). If Eskom is unable to employ a large segment of the local community, it would imply that a large number of people would have to be brought into the area, which would increase and intensify the impact on the already suffering municipal services in the area. In this instance it then becomes crucial that the municipal services network would have to be upgraded to ensure that it would be able to accommodate additional connections to the network for water, sanitation and refuse removal.</u></p>		
<p>Mitigation Measures:</p> <ul style="list-style-type: none"> ▪ In the event that Eskom or its appointed contractor(s) do not engage in the upgrade of the municipal services network, they should ensure that these services are available on site, by means of the following: <ul style="list-style-type: none"> ○ Sufficient portable chemical toilets on site and at the construction village; ○ Refuse on site should be discarded in sealed bins and/or covered skips. Refuse should be removed from the site on regular intervals (at least once a week) and disposed of at an approved waste disposal site; and ○ Contractors are liable for the costs involved with connecting to the electricity network and the water services network. ▪ Contractors should consult with the EMLM prior to construction to assess the availability of municipal services such as water and electricity to ensure that these services would be available and if not, to determine what steps could be implemented to lessen the burden on the EMLM during the time of construction. ▪ Consider the development of a capacity assessment report on the availability of municipal services. 		
Duration	Short term	1
Extent	Local	2
Intensity	<u>Medium</u>	<u>2</u>
Probability	<u>Highly probable</u>	<u>3</u>

Significance	Medium -	8
An increased demand on municipal services is rated as a medium negative impact after the implementation of mitigation measures.		

THEME: LAND USE		
Potential Impact: Damage to roads		
Heavy vehicles used during construction could damage the local road network, which in turn could disturb the movement patterns of the local community.		
Duration	Short term	1
Extent	Local	2
Intensity	Medium	2
Probability	Possible	2
Significance	Low -	7
<p>The impact is rated is low negative before the implementation of mitigation measures. The impact is rated as low largely due to the fact that the majority of community members commute on foot, which means that damaged roads would not have a detrimental effect on their movement patterns. However, damaged roads will restrict the movement patterns of public transport (busses, taxies) in the area if roads are impassable. A cumulative impact could occur if these busses and taxies start using other roads that might not be able to handle/accommodate the additional traffic.</p> <p>Although the R579 is a tarred road, this road is currently in a state of disrepair (numerous potholes) and in need of maintenance. The presence of construction vehicles will further damage the road and hinder the movement of the local community.</p>		
<p>Mitigation Measures:</p> <ul style="list-style-type: none"> ▪ Road rehabilitation should take place prior to and once construction is completed. ▪ Construction traffic should only make use of an approved route. ▪ General road rules should be enforced. 		
Duration	Short term	1
Extent	Local	2
Intensity	Low	1
Probability	Possible	2
Significance	Low -	6

The impact is rated as **low negative** after the implementation of mitigation measures.

THEME: LAND USE

Potential Impact: Loss of agricultural land

The temporary loss of agricultural land during construction, which could impact on the livelihood of subsistence farmers.

Duration	Short term	1
Extent	Site	1
Intensity	High	3
Probability	Possible	2
Significance	Low -	7

The impact is rated as **low negative** before the implementation of mitigation measures.

The *soil/agricultural specialist study* determined that the land around the upper and lower dam site has low to moderate agricultural potential, with the more moderate potential soil located at the lower dam site. The area is currently used (albeit it informally) as grazing field for cattle. Based on the small amount of cattle it is safe to assume that the cattle does not form part of commercial farming but rather subsistence farming. Subsistence farmers must be able to let their cattle graze somewhere.

Mitigation Measures:

- Assist with the temporary relocation of livestock.
- Prevent cattle movement through the site by erecting a fence around the site.

Duration	Short term	1
Extent	Site	1
Intensity	Medium	2
Probability	Possible	2
Significance	Low -	6

The impact is rated as **low negative** after the implementation of mitigation measures.

THEME: LAND USE

Potential Impact: Construction Villages

The potential impact that the location of construction villages might have on current and planned land uses.		
Duration	Permanent	4
Extent	Site	1
Intensity	Medium	2
Probability	Highly probable	3
Significance	Medium /	10
<p>The impact is rated as medium neutral before the implementation of mitigation measures. Two construction villages will be used: one at the upper dam and one at the lower dam. The construction villages in itself will not have a negative effect on the environment, if these villages are managed properly in terms of access, water, sanitation and refuse removal.</p> <p>Eskom and/or its appointed contractor are considering the possibility of handing the large construction village (at the lower dam) over to the EMLM upon completion of the construction project.</p>		
<p>Mitigation Measures:</p> <ul style="list-style-type: none"> ▪ The location of the large construction village should be determined in consultation with the EMLM in view of the fact that it would potentially be a permanent structure. It is therefore vital that the location is appropriate and in line with the EMLM development plans. ▪ Proper management plans for construction villages should be developed and implemented, which should include but is not limited to: <ul style="list-style-type: none"> ○ Controlled access; ○ Sufficient portable chemical toilets on site and at the construction village; ○ Refuse on site should be discarded in sealed bins and/or covered skips. Refuse should be removed from the site on regular intervals (at least once a week) and disposed of at an approved waste disposal site; ○ Construction village rules (“house rules”) that aims to control noise levels, conduct, etc. ▪ A demobilisation plan should be developed and implemented to ensure that construction workers move out of the construction village upon completion of the construction phase. 		
Duration	Permanent	4
Extent	Site	1
Intensity	Low	1
Probability	Possible	2
Significance	Low /	7

The impact is rated as **low neutral** after the implementation of the mitigation measures.

THEME: LAND USE

Potential Impact: Development of local road network

The development and maintenance of the local road network in the form of access roads.

Duration	Permanent	4
Extent	Local	2
Intensity	Medium	2
Probability	Definite	4
Significance	High +	12

This impact is rated as **high positive** before the implementation of mitigation (reinforcement) measures. If access roads are developed and maintained effectively, it could enhance the movement patterns of the local community.

The proposed site is located between the Stoffberg-to-Phokwane provincial road (R579) and the Roosenekal-to-Steelpoort provincial road (R555). The R579 is used by the Sehlakwane community for transport to Stoffberg. There are two access roads to the proposed site: The R1 from the R555 leads to the upper dam site; and the R8/R10 from the R579 that leads to the lower dam site. The R8/R10 road is currently a gravel road and passes through the Sehlakwane settlement. There is also a school located next to the R8/R10. Eskom intends to tar this road, which would also benefit the community in terms of ease of movement and a reduction in dust pollution. However, a tarred road might also lead to an increase in speeding on the road, which would have a negative impact on the school located on this road.

Mitigation Measures:

- The location of access roads should be determined in consultation with key stakeholders, e.g. the EMLM and representatives of the local community.
- Potential speeding in the vicinity of the school on the R8/R10 should be controlled, either by means of policing during peak hours of school traffic (normally between 07:00 and 08:00 in the morning and 13:30 to 14:30 in the afternoon) or through the use of speed bumps at regular intervals in close proximity to the school.
- Traffic signs should warn motorists of the presence of pedestrians and school children along the road.

Duration	Permanent	4
Extent	Local	2
Intensity	Medium	2

Probability	Definite	4
Significance	High +	12
The impact is rated as high positive after the implementation of mitigation (reinforcement measures).		

THEME: ECONOMIC

Potential Impact: Direct employment opportunities

This issue relates to employment opportunities that will be created during the construction and decommissioning phases.

Duration	Short term	1
Extent	Local	2
Intensity	Medium	2
Probability	Definite	4
Significance	Medium +	9

This impact is rated as **medium positive** before the implementation of mitigation (reinforcement) measures and is closely related to the recruitment issue assessed in Section 4.2.1.

The construction of the proposed SPSS will lead to the creation of approximately 1 500 jobs of which 1 000 is earmarked for local community members. Local community members should be given the first opportunity to work on the project, as far as possible in terms of available skills and skills requirements.

If "local community" is defined as the settlements within a 15km radius from the proposed SPSS site, the "local community" includes the settlements of Sehlakwane, Roosenekal, Mathula and Nkosini. All of these areas can be regarded as fairly poor with high unemployment rates (more than two thirds of the respective communities) and a high dependency ratio on the EMLM. *These areas are characterised by a predominantly unskilled female population, which might mean that the majority of work seekers might be female.*

However, women in the area might not have the insight to apply for positions that is traditionally regarded as "men's work" (i.e. hard labour). Eskom should therefore encourage women to apply for these positions wherever possible.

- Mitigation Measures:**
- The positive impact can be enhanced through a transparent recruitment process.
 - Employ a rotary job allocation scheme to enable all unskilled labour to have an equal opportunity of employment.

Duration	Short term	1
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Extent	Local	2
Intensity	Medium	2
Probability	Definite	4
Significance	Medium +	9
The impact is rated as medium positive after the implementation of mitigation (reinforcement) measures.		

THEME: ECONOMIC		
Potential Impact: Indirect employment opportunities		
This impact assesses the potential of indirect job opportunities as a result of the presence of more people in the area.		
Duration	Short term	1
Extent	Local	2
Intensity	Medium	2
Probability	Highly probable	3
Significance	Medium +	8
<p>The impact is rated as a medium positive impact before the implementation of mitigation (reinforcement) measures. The presence of construction workers and activities could lead to downstream job opportunities. A downstream job opportunity is defined as a job opportunity that is not a direct result of or involvement with the construction activities.</p> <p>Local community members should be afforded the opportunity to benefit indirectly from the project, e.g. food vendors outside the construction village, or through the use of local caterers to prepare meals for the construction workers. The impact will be positive as long as the process is managed effectively.</p> <p>Again it should be noted that the areas are characterised by a predominantly unskilled female population, which might mean that the majority of work seekers might be female. Indirect job opportunities such as catering and domestic work would be appropriate for females.</p>		
<p>Mitigation Measures:</p> <ul style="list-style-type: none"> ▪ Food vendors should register with the project to prevent unwanted loitering outside the construction village and/or site. ▪ Indirect job opportunities should also be offered to the local community, e.g. by employing local domestic workers. 		
Duration	Short term	1
Extent	Local	2

Intensity	Medium	2
Probability	Highly probable	3
Significance	Medium +	8
<p>The impact is rated as medium positive after the implementation of mitigation (reinforcement) measures. The mitigation (reinforcement) measures are aimed at the social impact and not at the economical impact.</p>		

THEME: ECONOMIC		
Potential Impact: Local economic investment		
Construction workers make use of the local facilities.		
Duration	Short term	2
Extent	Local	2
Intensity	Medium	2
Probability	Definite	4
Significance	Medium +	10
<p>The impact is rated as medium positive before the implementation of mitigation (reinforcement) measures. Construction workers will most probably make use of local facilities, e.g. shops, etc. to obtain produce. This will lead to local economic investment for the duration of the project and could also result in more job opportunities, e.g. where a shop has to hire more assistants to deal with the increased demand. The presence of construction workers also leads to a temporary boost in the local economy.</p> <p>No large chain shops were noticed during the site visit. The shops in the area are small and for the most part contained to the area (i.e. they only serve the local community). These shops might experience discontinuity in their stock levels due to a broader customer base, and also in view of the fact that they are not supported by a larger chain.</p>		
Mitigation Measures:		
<ul style="list-style-type: none"> ▪ Construction workers should be encouraged to make use of the local facilities. 		
Duration	Short term	1
Extent	Local	2
Intensity	Medium	2
Probability	Definite	4
Significance	Medium +	10

The impact is rated as **medium positive** after the implementation of mitigation (reinforcement) measures.

4.2.3 Operational Phase

THEME: SOCIAL		
Potential Impact: Health and safety		
This issue relates to the health and safety of the local community during operation in the event that water from the scheme is consumed.		
Duration	Long term	3
Extent	Local	2
Intensity	Medium	2
Probability	Possible	2
Significance	Medium /	9
<p>Health and safety is rated as medium neutral if effectively managed.</p> <p>The Department of Water Affairs and Forestry (DWAF) are considering a co-operative agreement with Eskom to use the proposed SPSS to pump water to the Nebo Plateau. DWAF will purify the water after which it will be reticulated to the community.</p> <p>The movement of the water between the upper and lower dams should prevent the development of bacteria in the water that could lead to waterborne diseases that might affect the local community if the water is consumed.</p>		
<p>Mitigation Measures:</p> <ul style="list-style-type: none"> ▪ Water should be tested regularly by scientifically accepted standards for any form of bacteria. ▪ If any bacteria are found, the community should be notified and the problem should be rectified. 		
Duration	Long term	3
Extent	Local	2
Intensity	Low	1
Probability	Possible	2
Significance	Low /	7
The impact is rated as low neutral after the implementation of the mitigation measures.		

THEME: SOCIAL		
Potential Impact: Safety hazard of water		
Due to rapid movement of water and fluctuation in water levels the dam will be a safety hazard for local community.		
Duration	Long term	3
Extent	Local	2
Intensity	Medium	2
Probability	Possible	2
Significance	Medium -	9
The impact is rated as medium negative before the implementation of mitigation measures. Uncontrolled access to the dams as well as the rapid movement of the water could lead to drowning.		
Mitigation Measures:		
<ul style="list-style-type: none"> ▪ The area should be fenced and access should be controlled by means of a security access point. ▪ The community should be educated on the operation of the scheme and the dangers involved with rapid moving water, e.g. at open days or through school excursions to the scheme. ▪ An emergency plan should be developed outlining standard operating procedures if a person should fall into one of the dams. 		
Duration	Long term	3
Extent	Local	2
Intensity	Low	1
Probability	Possible	2
Significance	Low -	7
The impact is rated as low negative after the implementation of the mitigation measures.		

THEME: SOCIAL		
Potential Impact: Employment opportunities		
Employment opportunities for locals at the installation.		
Duration	Long term	3
Extent	Local	2

Intensity	Medium	2
Probability	Possible	2
Significance	Medium +	9
<p>The impact is rated as medium positive before the implementation of mitigation (reinforcement) measures.</p> <p>Approximately 40 employment opportunities will be created at the installation. It is anticipated that the majority of employment opportunities at the operation will be for skilled to highly skilled persons. Where possible these positions should be allocated to local community members, if the necessary skills are available in the community.</p>		
<p>Mitigation Measures:</p> <ul style="list-style-type: none"> ▪ Enhance the positive impact by employing local community members if the skills are available in the community. ▪ Consider on-the-job training for local community members who show the necessary capabilities and potential to become skilled in the operation. 		
Duration	Long term	3
Extent	Local	2
Intensity	Medium	2
Probability	Possible	2
Significance	Medium +	9
<p>The impact is rated as medium positive after the implementation of mitigation (reinforcement) measures. Employment of local community members will further enhance the positive impact.</p>		

THEME: SOCIAL		
Potential Impact: Visual impact of installation		
<p>This impact assesses the social significance that the visual quality of the installation will have on the adjacent community.</p>		
Duration	Permanent	4
Extent	Local	2
Intensity	Low	1
Probability	Definite	4
Significance	High / to +	11
<p>The impact is rated as high neutral to positive before the implementation</p>		

of mitigation (reinforcement) measures.

The operation and its associated infrastructure will bring about a change in the local view and can be considered as a visual impact. Visual impacts are mostly subjective and based on a person's perception. It is considered most significant when the activities are not of a similar nature as the rest of the area and could be readily viewed from the adjacent area. Overall water is regarded as having a calming effect on people. The impact can therefore be regarded as neutral to positive.

The topography of the area will screen the visibility of the operation from the community to an extent, although it will still be visible to the community from some parts. It is also not foreseen that there will be any floodlights at the installation. Appropriate lighting will only be installed at the security gate and at the office buildings.

Mitigation Measures:

- Landscape the site, especially around the lower dam to ensure aesthetic quality.
- Promote the operation as a tourist attraction to further enhance the positive visual impact.
- Administrative buildings and access roads should blend in with the natural environment. Where this is not possible, shield this type of infrastructure from view through the use of plants, trees, etc.

Duration	Permanent	4
Extent	Local	2
Intensity	Medium	2
Probability	Definite	4
Significance	High / to +	12

The impact is rated as **high neutral to positive** after the implementation of mitigation (reinforcement) measures.

THEME: LAND USE

Potential Impact: Housing developments in Roosenekal

This impact assesses housing developments in Roosenekal to house installation employees.

Duration	Short term	1
Extent	Local	2
Intensity	Medium	2
Probability	Definite	4
Significance	Medium +	9

<p>The impact is rated as medium positive before the implementation of mitigation (reinforcement) measures.</p> <p>Houses will have to be developed at Roosenekal for employees, which could be viewed as a sustainable development. The housing development will also create temporary job opportunities for local contractors and unskilled labour during the construction of these houses. This development could also imply the upgrade of the municipal services network.</p>		
<p>Mitigation Measures:</p> <ul style="list-style-type: none"> ▪ Housing developments should be co-ordinated with the EMLM. ▪ Make use of local contractors and labour for the construction of these houses. 		
Duration	Short term	1
Extent	Local	2
Intensity	Medium	2
Probability	Definite	4
Significance	Medium +	9
<p>The impact is rated as medium positive after the implementation of mitigation (reinforcement) measures. The mitigation measures are aimed at enhancing the positive indirect impacts such as employment opportunities, which in turn would have an economic advantage to these community members.</p>		

THEME: LAND USE		
Potential Impact: Maintenance of access roads		
The regular maintenance and upkeep of access roads to the site.		
Duration	Long term	3
Extent	Local	2
Intensity	Medium	2
Probability	Definite	4
Significance	High +	11
<p>The impact is rated as high positive before the implementation of mitigation (reinforcement) measures.</p> <p>The regular maintenance of roads to the site will be would ensure a safe passage way to and from the site and would also enhance the movement patterns of the local community who have safe and maintained roads to travel on.</p>		

Mitigation Measures:		
<ul style="list-style-type: none"> ▪ The regular maintenance of the roads should form part of the EMP. ▪ Local labour should be used where possible in the maintenance of roads. 		
Duration	Long term	3
Extent	Local	2
Intensity	Medium	2
Probability	Definite	4
Significance	High +	11
<p>The impact is rated as high positive after the implementation of mitigation (reinforcement measures). Indirect impacts such as job opportunities should be enhanced.</p>		

THEME: ECONOMIC		
Potential Impact: Indirect job opportunities		
Indirect job opportunities as a result of additional households in Roossenekal.		
Duration	Long term	3
Extent	Local	2
Intensity	Medium	2
Probability	Highly probable	3
Significance	Medium +	10
<p>The impact is rated as medium positive before the implementation of mitigation (reinforcement) measures.</p> <p>Additional households in Roossenekal might need the services of and employ for example domestic workers, which would result in the creation of additional job opportunities, albeit on a limited scale.</p>		
Mitigation Measures:		
<ul style="list-style-type: none"> ▪ Enhance the positive impact by encouraging installation employees to make use of and employee local community members in their households. 		
Duration	Long term	3
Extent	Local	2
Intensity	Medium	2
Probability	Highly probable	3

Significance	Medium +	10
The impact is rated as medium positive after the implementation of mitigation (reinforcement) measures.		

THEME: ECONOMIC		
Potential Impact: Sustainable local economic development		
The creation of jobs and the development of infrastructure lead to sustainable economic development.		
Duration	Long term	3
Extent	Local	2
Intensity	Medium	2
Probability	Definite	4
Significance	High +	11
The impact is rated as high positive before the implementation of mitigation (reinforcement) measures.		
The presence of employees in the area would lead to the development of houses, the creation of job opportunities and investment into the local economy, e.g. through the use of local facilities such as shops, etc.		
Mitigation Measures:		
<ul style="list-style-type: none"> Enhance the positive impact by encouraging installation employees to make use of local facilities. 		
Duration	Long term	3
Extent	Local	2
Intensity	Medium	2
Probability	Definite	4
Significance	High +	11
The impact is rated as high positive after the implementation of mitigation (reinforcement) measures. The impact is rated as positive because of the long term duration of the project.		

5. EMP REQUIREMENTS

From a social perspective, it is recommended that the following mitigation measures be included in the EMP.

5.1 Construction Site

- Sufficient portable chemical toilets on site.
- Refuse on site should be discarded in sealed bins and/or covered skips. Refuse should be removed from the site on regular intervals (at least once a week) and disposed of at an approved waste disposal site.
- Construction activities should be screened from view as far as possible. This could be achieved by the use of screens that blend in with the natural environment.
- Prevent cattle movement through the site by erecting a fence around the site.

5.2 Construction Villages

- The location of the large construction village should be determined in consultation with the EMLM in view of the fact that it would potentially be a permanent structure. It is therefore vital that the location is appropriate and in line with the EMLM development plans.
- Proper management plans for construction villages should be developed and implemented, which should include but is not limited to:
 - Controlled access;
 - Sufficient portable chemical toilets on site and at the construction village;
 - Refuse on site should be discarded in sealed bins and/or covered skips. Refuse should be removed from the site on regular intervals (at least once a week) and disposed of at an approved waste disposal site;
 - Construction village rules (“house rules”) that aims to control noise levels, conduct, etc.
- A demobilisation plan should be developed and implemented to ensure that construction workers move out of the construction village upon completion of the construction phase.

5.3 Employment Opportunities

- Make use of local labour force where possible, and employ women.
- Consider making use of the local trade unions, if available, to enhance the recruitment process.
- Food vendors should register with the project to prevent unwanted loitering outside the construction village and/or site.
- Indirect job opportunities should also be offered to the local community, e.g. by employing local domestic workers.
- Make use of local contractors and labour for the construction of these houses.

5.4 Health and Safety

- An aggressive STI and HIV/AIDS awareness campaign should be launched, which is not only directed at construction workers but also at the community as a whole.
- Condoms should be distributed by placing them at centrally located points and by ensuring that construction workers and community members are aware of the availability and location of condoms. The distribution of condoms should be approached with the necessary cultural sensitivity.
- Access at the construction site should be controlled to prevent sex workers from either visiting and/or loiter at the construction village.
- Construction workers should be clearly identifiable. Overalls should have the logo of the construction company on it and/or construction workers should wear identification cards.
- Water should be tested regularly for any form of bacteria.
- If any bacteria are found, the community should be notified and the problem should be rectified.
- The area should be fenced and access should be controlled by means of a security access point.
- The community should be educated on the operation of the scheme and the dangers involved with rapid moving water, e.g. at open days or through school excursions to the scheme.
- An emergency plan should be developed outlining standard operating procedures if a person should fall into one of the dams.

5.5 Noise and Dust Pollution

- Construction activities should be restricted to daytime hours between 07:00 and 19:00.
- Adjacent property owners should be consulted and notified of any activities that could lead to excessive noise levels, e.g. blasting.
- Adjacent property owners should also be consulted if any night time construction activities were to take place.
- The construction village at the lower dam site should be located away from the local community to ensure that noise levels at the village do not affect the local community during the night time.
- Dust pollution could be restricted by the tarring of the access roads.
- If access roads are not tarred, it should be watered down regularly to compact the soil and restrict dust pollution to an extent.
- Residents should be consulted prior to activities that could cause large amounts of dust pollution.

5.6 Public Relations

- Intra-conflict:
 - Weekly forum meetings between contractors and construction workers to address any issues and/or concerns pro-actively.
 - Consider the use of a uniformed salary structure whilst construction workers are on site.
- Inter-conflict:
 - Ensure that a transparent recruitment process takes place prior to construction.
- Assist with the temporary relocation of livestock.

5.7 Rehabilitation

- Landscape the site, especially around the lower dam to ensure aesthetic quality.
- Promote the operation as a tourist attraction to further enhance the positive visual impact.
- Administrative buildings and access roads should blend in with the natural environment. Where this is not possible, shield this type of infrastructure from view through the use of plants, trees, etc.
- Road rehabilitation should take place prior to and once construction is completed.

5.8 Roads and Traffic

- Potential speeding in the vicinity of the school on the R8/R10 should be controlled, either by means of policing during peak hours of school traffic (normally between 07:00 and 08:00 in the morning and 13:30 to 14:30 in the afternoon) or through the use of speed bumps at regular intervals in close proximity to the school.
- Traffic signs should warn motorists of the presence of pedestrians and school children along the road.
- Road rehabilitation should take place prior to and once construction is completed.
- Construction traffic should only make use of an approved route.
- The number of trucks that pass through the community should be kept to a minimum and should be restricted to certain times of the day, i.e. avoid peak hours when community members are on their way to or from school and work.
- The tarring of access roads through the community (R8/R10).
- The regular maintenance of the access roads by Eskom and/or its appointed contractor(s).
- General road rules should be enforced.

6. CONCLUDING REMARKS

The tables below summarises the findings of the social impact assessment. The impacts are grouped per project phase in Table 4, and grouped per theme in Table 5.

The positive impacts are given in italics.

Table 4: Impacts per Phase

THEME	IMPACT	SIGNIFICANCE (pre-mitigation)	SIGNIFICANCE (post-mitigation)
PRE-CONSTRUCTION			
Social	Attitude formation against the project	Medium -	Low -
	<i>Fair negotiations</i>	Medium +	Medium +
Land Use	<i>Infrastructure development</i>	High +	High +
	Development plans	Medium /	Medium /
Economic	<i>Land acquisition process</i>	Low +	High +
	<i>Job opportunities and related recruitment process</i>	Medium +	Medium +
CONSTRUCTION / DECOMMISSIONING			
Social	Intra-conflict	Low -	Low -
	Inter-conflict	Medium -	Low -
	Increased social problems	Very high -	High -
	Increase in traffic	Medium -	Low -
	Noise pollution	Medium -	Low -
	Dust pollution	Medium -	
	Visual impact of construction activities	Medium -	Low -
Land Use	Increased demand on municipal services	Medium -	Medium -
	Damage to roads	Low -	Low -
	Loss of agricultural land	Low -	Low -
	Construction villages	Medium /	Low /
	<i>Development of local road network</i>	High +	High +
Economic	<i>Direct employment opportunities</i>	Medium +	Medium +
	<i>Indirect employment opportunities</i>	Medium +	Medium +

THEME	IMPACT	SIGNIFICANCE (pre-mitigation)	SIGNIFICANCE (post-mitigation)
	<i>Local economic investment</i>	Medium +	Medium +
OPERATION			
Social	Health and safety	Medium /	Low /
	Safety hazard of water	Medium -	Low -
	<i>Employment opportunities</i>	Medium +	Medium +
	<i>Visual impact of installation</i>	High / to +	High / to +
Land Use	<i>Housing developments in Roossenekal</i>	Medium +	Medium +
	<i>Maintenance of access roads</i>	High +	High +
Economic	<i>Indirect job opportunities</i>	Medium +	Medium +
	<i>Sustainable local economic development</i>	High +	High +

The pre-construction phase has a number of positive impacts that should be enhanced as this would lay the foundation for the rest of the project. If Eskom is perceived as a caring partner by the local community it would create community support of the project and would enhance the further phases of the project.

Negative impacts are mostly found during the construction/decommissioning phases of the project. This is mainly due to the nature of the activities that take place during these phases. Most of the negative impacts can be mitigated successfully.

The operational phase is also characterised by a number of positive impacts, which could be further enhanced if managed effectively. These impacts mostly relate to sustainable development in the affected community by means of employment opportunities (directly and indirectly) as well as infrastructure development.

Table 5: Impacts per Theme

PHASE	IMPACT	SIGNIFICANCE (pre-mitigation)	SIGNIFICANCE (post-mitigation)
SOCIAL			
Pre-Construction	Attitude formation against the project	Medium -	Low -
	<i>Fair negotiations</i>	Medium +	Medium +
Construction/ Decommissioning	Intra-conflict	Low -	Low -
	Inter-conflict	Medium -	Low -
	Increased social problems	Very high -	High -
	Increase in traffic	Medium -	Low -
	Noise pollution	Medium -	Low -
	Dust pollution	Medium -	Low -
Operation	Visual impact of construction activities	Medium -	Low -
	Health and safety	Medium /	Low /
	Safety hazard of water	Medium -	Low -
	<i>Employment opportunities</i>	Medium +	Medium +
	<i>Visual impact of installation</i>	High / to +	High / to +
LAND USE			
Pre-construction	<i>Infrastructure development</i>	High +	High +
	Development plans	Medium /	Medium /
Construction/ Decommissioning	Increased demand on municipal services	Medium -	Medium -
	Damage to roads	Low -	Low -
	Loss of agricultural land	Low -	Low -
	Construction villages	Medium /	Low /
	<i>Development of local road network</i>	Medium +	High +
Operation	<i>Housing developments in Roossenekal</i>	Medium +	Medium +
	<i>Maintenance of access roads</i>	High +	High +
ECONOMIC			
Pre-construction	<i>Job opportunities and related recruitment process</i>	Medium +	Medium +

PHASE	IMPACT	SIGNIFICANCE (pre-mitigation)	SIGNIFICANCE (post-mitigation)
	<i>Land acquisition process</i>	Low +	High +
Construction/Decommissioning	<i>Direct employment opportunities</i>	Medium +	Medium +
	<i>Indirect employment opportunities</i>	Medium +	Medium +
	<i>Local economic investment</i>	Medium +	Medium +
Operation	<i>Indirect job opportunities</i>	Medium +	Medium +
	<i>Sustainable local economic development</i>	High +	High +

Both the social and land use themes have a number of negative impacts. However all of these impacts can be mitigated successfully if effectively managed. Economic impacts as a result of the project are all positive in nature, which is mainly due to the economic investment and development that will take place in the community as a result of the project.

It can therefore be concluded that the social environment pose no fatal flaws to the development of the proposed SPSS, if the identified mitigation measures in this document and as recommended for inclusion in the EMP, are implemented and adhered to.

7. SOURCES CONSULTED

Project Documentation:

- Final minutes of the Focus Group Meeting held with Chief Maphepha on 13 November 2006;
- Final minutes of the Focus Group Meeting held with Steelpoort Traditional Leaders on 14 November 2006;
- Final minutes of the Public Meeting held in Roosenekal on 23 November 2006;
- Impact matrix (rev 2);
- JKA325t003: Project description; and
- SPSS Issues trial (rev 7) dated 23 January 2007.

Specialist Reports:

- Project Lima EIA: Traffic Impact Study;
- Project Lima SIA: Draft Scoping Report;
- Project Lima EIA: Heritage Report;
- Visual Impact Assessment: Rating matrix; and
- Environmental Scoping Report for the proposed Steelpoort Pumped Storage Scheme.

Maps:

- 16103GTA: Road infrastructure map
- SPSS: Site options locality map (BKS)
- Project Lima: General layout (map C-010)
- Untitled: 1:50 000 map depicting location of farmhouses in relation to site (Metro GIS)

Other Sources:

- Municipal Demarcations Board (www.demarcation.org.za)
- International Committee on Guidelines and Principles (1994). Guideline and Principles for social impact assessment. *Impact Assessment*, 12, 107-152.