

**PROPOSED STEELPOORT INTEGRATION PROJECT
SOCIAL IMPACT ASSESSMENT
DRAFT SCOPING REPORT
As part of the
ENVIRONMENTAL IMPACT ASSESMENT PROCESS**

July 2007



Prepared by:

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EXPERIENCE RECORD

This report was compiled by **Ms Nonka Byker** and reviewed by **Ms Anita Bron**, both of **MasterQ Research**.

Ms Byker holds a Bachelors degree in Psychology (specialising in Adult Mental Health) from the University of Pretoria and is registered with the Health Professions Council of South Africa (PRC0000396). She has extensive experience in the social development field, and has approximately 9 years experience in areas such as public participation and Social Impact Assessments.

Ms Bron attained her MA degree in Research Psychology at the University of Pretoria in 2000, and registered as a research psychologist with the Health Professions Council of South Africa in 2001 (PS0073075). Ms Bron is also a member of the South African Monitoring and Evaluation Association (SAMEA). As an independent consultant/director of MasterQ Research, she has established herself as a social scientist, focusing on Social Impact Assessments, Social Marketing Research and recently Monitoring and Evaluation. She is currently completing her MA degree in Social Impact Assessment at the University of Johannesburg. She has extensive experience in social impact assessments of linear developments.

The EIA regulations (1182 and 1183, as amended) states, amongst other, that an independent consultant must be appointed to act on behalf of the client and to ensure that the public participation process is managed properly. In this regard MasterQ Research submits that it has:

- The necessary required expertise to conduct social impact assessments, including the required knowledge and understanding of any guidelines or policies that are relevant to the proposed activity;
- Undertaken all the work and associated studies in an objective manner, even if the findings of these studies are not favourable to the project proponent;
- No vested financial interest in the proposed project or the outcome thereof, apart from remuneration for the work undertaken under the auspices of the above-mentioned regulations;
- No vested interest, including any conflicts of interest, in either the proposed project or the studies conducted in respect of the proposed project, other than complying with the required regulations;

- Disclosed any material factors that may have the potential to influence the competent authority's decision and/or objectivity in terms of any reports, plans or documents related to the proposed project as required by the regulations; and
- Ensured that any information related to the project, which would aid an informed and transparent public participation process, was made public. Furthermore, that all stakeholders (including spheres of government that may have jurisdiction over any aspect of the proposed activities) was afforded with a reasonable opportunity to participate in the project process.

EXECUTIVE SUMMARY

In order to integrate the proposed Steelpoort Pumped Storage Scheme into the electricity transmission network, Eskom Transmission proposes the construction of the following:

- A 400kV substation at Steelpoort;
- Two 400kV loops in and out of the Duvha-Leseding 400kV line into the new Steelpoort Substation;
- Construction of a 400kV transmission line between the Steelpoort and Merensky substations; and
- Associated works to integrate the substation into the transmission grid.

The proposed project falls within the Greater Tubatse Local Municipality (LIM475) and the Makhuduthamaga Local Municipality (LIM473). The proposed turn-in transmission power line, as well as the proposed site for the substation, falls partly within the jurisdiction of the Elias Motsaedi Local Municipality (LIM472), previously known as the Greater Groblersdal Local Municipality. All three of these local municipalities form part of the Greater Sekhukhune District Municipality (DC47) in the Limpopo Province. A baseline social profile of the study area was to determine the current conditions and to identify and predict potential social impacts.

This document presents the results of the Scoping Phase of the Social Impact Assessment (SIA) that was conducted as part of the Environmental Impact Assessment (EIA) for this project. The overall business objective of the Social Impact Assessment is to recommend the preferred route alignment and substation site from a social perspective. To meet this objective, two route alternatives for the proposed transmission power line, one route alternative for the turn-in transmission power line, and one proposed substation site had to be scoped within the context of the study area.

A number of primary objectives were derived from the overall business objective. These primary objectives were as follows:

- Gain an understanding of the proposed project, including the alternative transmission power line alignments and substation site, and the nature and timeframe of the proposed activities;
- Obtain information on the socio-economic, land use and tourism conditions characterising the area;
- Identify aspects of the social environment that might be affected by the project;
- Conduct a preliminary comparison among the alternatives in order to determine which of them is likely to have the fewest and least significant negative impacts on the social environment; and

- Formulate recommendations regarding more detailed studies to be conducted during the Impact Assessment Phase.

The identification of potential social impacts aimed to first understand and describe the social change processes that could be expected because of the implementation of the proposed project within a certain corridor and/or on a specific site. A change process can be defined as change that takes place within the receiving environment as a result of a direct or indirect intervention. A potential impact follows as a result of the change process. However, a change process can only result in an impact once it is experienced as such by an individual/community on a physical and/or cognitive level. The change processes that were identified and discussed for this proposed project included the following:

- **Demographic processes:** changes in the number and composition of people;
- **Economic processes:** the way in which people make a living and the economic activities in society;
- **Empowerment, institutional and legal processes:** the ability of local government to supply and maintain the necessary services, and the ability of people to participate and have an influence on decision-making;
- **Socio-cultural processes:** changes that affect the culture of a society.
- **Environmental processes:** changes in the way in which people perceive their environment; and
- **Geographical processes:** changes in land use patterns.

Demographic Processes

It was found that there are more females than males in the study area, 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 project. It is therefore necessary to take cognisance of the fact that the majority of work seekers might be female. There is also an indication that these females are poor, and therefore vulnerable. They might be exploited by construction labourers during the construction period.

The study area is also characterised by a predominantly unskilled female population, and has a high unemployment rate estimated at approximately 79.9%. Any employment opportunities (either directly or indirectly) created by the proposed Steelpoort Integration Project would therefore serve to alleviate poverty in the area to an extent and lessen the dependency ratio on the various local municipalities.

Depending on the flexibility of the receiving environment, the impact of an increase in population in an area that is already overpopulated and living in poverty, should not be viewed as purely negative. If the community has the capacity to accommodate additional people, the presence of construction workers could lead to a temporary boost in the local economy if construction workers make use of local services. However, these communities seem unable to meet their own needs and might be unable to sustain additional demands on the local services, which might lead to conflict if services are depleted (e.g. the local grocery store running out of supplies due to the extra demand) or not provided adequately (e.g. sanitation).

The potential impact that the presence of construction workers and job seekers might have on the composition and functioning of the local community, might be further intensified by the presence of construction workers and job seekers on other projects in the area, i.e. the construction of the De Hoop Dam, the construction of the PSS and possibly the construction of the underground water pipeline. More information is required on the timeframes of these respective projects in order to determine how the various construction timeframes would overlap, causing the potential for cumulative construction impacts in terms of demographic change processes.

Economic Processes

Economic processes relate to the way in which people make a living and the economic activities within that society. The employment status within a community gives an indication of the economic stability of such a community and also serves as an indicator of such a community's general well-being. Employment rates and the economic sectors of these areas are discussed, followed by a discussion on the household income profile of these areas.

Economic change processes relate to a change in the way in which people make a living and the economic activities within a society. Job opportunities are created as a result of the construction and maintenance of the transmission power lines and the substation. However, it is very likely that there are no skilled local contractors available in the study area able to construct a substation or the Transmission power lines, given the fact that very specific skills and knowledge are required to construct these.

Servitude compensation and land acquisition for the proposed transmission power line and substation will lead to a change in the living standard of the land owner as a result of compensation fees paid to the land owner (positive), as well as a loss of land (potentially negative). Compensation could either be monetary, and/or in the form of a new dwelling, should relocation be necessary.

Empowerment, Institutional and Legal Processes

Institutional processes relate to the role, efficiency and operation of government sectors and other organisations within the area.

Reflecting on the process that was conducted for the proposed Pumped Storage Scheme (PSS), which involved the same affected communities to an extent, in terms of the issues that were raised and the number of comments received from these communities on the project documentation, it has become evident that the affected communities are in a sense disempowered to fully participate in the process. The issue here is not that these communities are *misinformed* or lack information as such (i.e. a transparent process has been followed), but rather that these communities are *ignorant* about their rights and responsibilities as participants in the process. From a social perspective this lack of understanding or comprehension of the bigger picture, is of **concern** and has to be addressed throughout the process.

Another institutional change process is that additional municipal services will be required at the construction site(s) and the construction camp during the construction phase (also refer to the land use section). A point of concern that should be noted is the fact that the GTLM does not currently have either an ambulance or a fire fighting service that is operational.

Socio-Cultural Processes

Socio-cultural processes relate to the way in which humans behave, interact and relate to each other and their environment, as well as the belief and value systems which guide these interactions.

Socio-cultural change processes that are associated with the construction and operation of transmission power lines and a substation include changes such as health and safety aspects and sense of place.

Construction workers' situations seem to make them vulnerable to high-risk sexual behaviour. There are ample research results to indicate that there is a direct link between temporary migration and HIV infection. Research also seems to indicate that construction workers might be more at risk of contracting HIV *from* members of local communities, as opposed to transmitting the infection *to* community members.

Not only do health issues impact on communities, but the physical safety of communities can also be endangered as a result of the influx of job seekers and construction workers (e.g. potential increase in crime). This has a mental health impact, such as fear.

There are a number of guest lodges in operation in the area, as well as a few game farms/hunting lodges. Most game farmers believe that the visibility of a Transmission power line would not only decrease the value of their property, but would also have a negative impact on the economic viability of their businesses.

Geographical Processes

Geographical processes relate to land use patterns and infrastructure in the area.

Geographical change processes refer to land use change as a result of the actual or perceived changes in land use, whether it be on a temporary or permanent basis. The construction and maintenance of a substation, turn-in lines and transmission power line will lead to a change in the land use within the local area. The assessment of a land use change process from a social perspective takes into account how the substation and transmission power lines might affect the behaviour/lives of land owners and/or land users.

Potential land use impacts from a social perspective are considered within the context of change processes in the use of cultivated land, grazing land, mining, infrastructure, and current or future developments. In light of Eskom's guidelines, people are not allowed to reside in the servitude; and the servitude has to be cleared for the most part, with the exception of animals and crops, if crop heights are limited to a maximum height of 4 meters. No structures are allowed within the 55m servitude for a 400kV transmission power line.

Biophysical Processes

The biophysical environment can lead to indirect social impacts. For example, relocation of people can have an impact on income levels, which can lead to processes of rural to urban migration, which can result in further impacts on income levels and changes in food production. Social change processes can also lead to biophysical change processes. Economic developments to increase tourism numbers can change land use and water quality, which can have indirect human impacts because of the reduction in agricultural production, and subsequent lower income levels (Slootweg et al. 2001).

The construction workers might be housed in a construction village. Their presence in the village and on site will impact on the environment, which in turn will impact on the surrounding communities. The following change processes and impacts could develop due to the biophysical changes and changes in the physical environment as a result of construction and maintenance.

Conclusion

This report fulfilled the objectives of the Scoping Phase, which was to complete a broad assessment of the project from a social perspective to enable a more focussed study in the Impact Assessment Phase.

In conducting the preliminary comparison among the alternative route alignments, by broadly assessing the potential impacts, the **eastern alternative** emerged as the preferred alternative from a social perspective. The second preferred alignment is the **western alternative** following **the R555 sub-alternative** alignment. However, as this alternative passes in close proximity to settlements, established tourism areas (game lodges) or areas with tourism potential (the De Hoop Dam), and across an identified heritage site, careful consideration would have to be given during construction and operation to the mitigation measures that will be proposed during the next phase of the project.

ACRONYMS

DWAF	Department of Water Affairs and Forestry
EIA	Environmental Impact Assessment
EMLM	Elias Motsaledi Local Municipality
GDP	Gross Domestic Product
GTLM	Greater Tubatse Local Municipality
IDP	Integrated Development Plan
LP	Limpopo Province
MDB	Municipal Demarcation Board
MLM	Makhuduthamaga Local Municipality
SDM	Sekhukhune District Municipality
SDF	Spatial Development Framework
SIA	Social Impact Assessment
SPSS	Steelpoort Pumped Storage Scheme

1. INTRODUCTION

Eskom Holdings Limited is planning a new Pumped Storage Scheme approximately 40km north-west of the existing Siplon Substation in the Mpumalanga Province. This Pumped Storage Scheme is scheduled to be in operation by 2014. In order to integrate this Pumped Storage Scheme into the electricity transmission network, Eskom Transmission proposes the following:

- Construction of a 400kV substation at Steelpoort;
- Construction of two 400kV loops in and out of the Duvha-Leseding 400kV line into the new Steelpoort Substation;
- Construction of a 400kV transmission power line between the proposed Steelpoort and existing Merensky substations; and
- Associated works to integrate the substation into the transmission grid.

All of the above components, as well as the necessary access roads and the communication tower at the Steelpoort Substation will be considered within the Environmental Impact Assessment (EIA) studies. Two possible alternative alignments have been identified within the study area for the proposed transmission power line, one alignment for the proposed turn-in line from the existing Duvha-Leseding transmission power line, and one potential substation site. To come up with a final preferred route alignment for the transmission power line and substation site, an Environmental Impact Assessment (EIA) process has to be completed. The EIA consists of the following three phases:

- The Scoping Phase;
- The Impact Assessment Phase; and
- The Decision-Making Phase.

This report details the results of the Scoping Phase of the Social Impact Assessment conducted by MasterQ Research as part of the Environmental Impact Assessment process conducted by Savannah Environmental. The first subsection below gives a definition of a SIA, followed by details of the objectives of the study, and the third subsection details the approach and methodology that were followed to meet these objectives.

1.1 Definition of a SIA

This document presents the results of the Scoping Phase of the Social Impact Assessment (SIA) that was conducted as part of the Environmental Impact Assessment (EIA) for this project. The definition of a SIA as defined by the International Committee on Guidelines and Principles (1994) gives an understanding of the backdrop against

which the Scoping Phase was conducted. According to this definition, a SIA is defined as follows:

“The process of assessing or estimating, in advance, the social consequences that is 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 or 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 society.”

1.2 Objectives of the Study

The overall business objective of the Scoping Phase was to identify issues and concerns in order to focus the detailed assessment to follow in the EIA Phase, and to provide a framework within which the assessment is to be undertaken. To meet this objective, two route alternatives for the proposed transmission power line, one route alternative for the turn-in transmission power line, and one proposed substation site had to be scoped within the context of the study area.

A number of primary research objectives were derived from the overall business objective. These primary research objectives were as follows:

- Gain an understanding of the proposed project, including the alternative transmission power line alignments and substation site, and the nature and timeframe of the proposed activities;
- Obtain information on the current and future:
 - * **Demographic processes:** the number and composition of people;
 - * **Economic processes:** the way in which people make a living and the economic activities in society;
 - * **Empowerment, institutional and legal processes:** the ability of local government to supply and maintain the necessary services, and the ability of people to participate and have an influence on decision-making;
 - * **Socio-cultural processes:** processes that affect the culture of a society.
 - * **Environmental processes:** the way in which people perceive their environment and are affected by it; and
 - * **Geographical processes:** land use patterns including:
 - Settlement patterns and development;
 - Current and future agricultural activities; and
 - Current and future developments in tourism.
- Understand how the project might affect these change processes.

- Identify potential social impacts by investigating how these change processes could result in changes in the physical and/or cognitive experiences of people. An impact can only be defined as such when it is experienced cognitively and/or physically by an individual or collective individuals (communities). For example, population growth, or the influx of construction workers cannot be defined as an impact, but rather as a change process. Such a change process could, however, lead to experiences (impacts) such as fear, displacement, or lack of income. Potential impacts were therefore identified by acknowledging that the physical or cognitive experience of people could be affected in terms of the following (Vanclay 2002):
 - * **People's way of life:** how they live, work, play and interact with one another on a day-to-day basis;
 - * **Culture:** their shared beliefs, customs, values and language or dialect;
 - * **Community:** its cohesion, stability, character, services and facilities;
 - * **Political systems:** the extent to which people are able to participate in decisions that affect their lives, the level of democratization that is taking place, and the resources provided for this purpose;
 - * **Environment:** the quality of the air and water people use; the availability and quality of the food they eat; the level of hazard or risk, dust and noise they are exposed to; the adequacy of sanitation, their physical safety, and their access to and control over resources;
 - * **Health and well-being:** health is a state of complete physical, mental, social and spiritual wellbeing and not merely the absence of disease or infirmity;
 - * **Personal and property rights:** particularly whether people are economically affected, or experience personal disadvantage which may include a violation of their civil liberties;
 - * **Fears and aspirations:** their perceptions about their safety, their fears about the future of their community, and their aspirations for their future and the future of their children; and
 - * **Land use:** how people use and interact with the land to meet their needs.
- Identify aspects of the social environment that might be affected by the project;
- Identify gaps in the information available;
- Formulate recommendations regarding more detailed studies to be conducted during the Impact Assessment Phase; and
- Conduct a preliminary comparison among the alternatives in order to determine which of them is likely to have the fewest and least significant negative impacts on the social environment.

The approach and methodology that were followed to fulfil the objectives of the Scoping Phase are listed in section 1.2 below.

1.2 Approach and Methodology

The following procedures were implemented to not only address the information needs, but ultimately also meet the objectives of the study.

1.2.1 Data Collection

The data collection methods during the Scoping Phase included the following:

- **Primary Data**

The primary data collection method involved the following:

- * A field trip by motor vehicle and helicopter on 25-27 June 2007; and
- * Attendance of public participation meetings on 27 June 2007 with the GTM and on 2 July 2007 with land owners.

- **Secondary Data**

The secondary data collection mostly centred on a desktop study, in which the following documents were scrutinised:

- * Locality maps;
- * Census data (2001);
- * Integrated Development Plans (IDP) of District Municipality and Local Municipalities;
- * Spatial Development Frameworks (SDF) of the District Municipality and Local Municipalities; and
- * Tourism information (internet searches).

Information that was relevant to the project was identified and assessed from these sources, and within the context of the pre-construction, construction, operational, and decommissioning phases of the proposed Steelpoort Integration project.

The section which follows describes the project and study area and then proceeds to address the objectives of the Scoping Phase.

2. DESCRIPTION AND ASSESSMENT OF THE STUDY AREA

This section briefly assesses the information relevant to the study area and the project. The first subsection provides a description of the proposed project and alternative transmission power line alignments, followed by the description of the social processes, followed by a subsection on the anticipated social impacts as a result of the proposed project.

2.1 Introduction to the Project and Study area

2.1.1 Project Description

In order to integrate the proposed Steelpoort Pumped Storage Scheme into the electricity transmission network, Eskom Transmission proposes the construction of the following:

- A 400kV substation at Steelpoort;
- Two 400kV loops in and out of the Duvha-Leseding 400kV line into the new Steelpoort Substation (turn-in line);
- Construction of a 400kV transmission power line between the Steelpoort and Merensky substations; and
- Associated works to integrate the substation into the transmission grid.

2.1.2 Description of the study area

The proposed project falls within the Greater Tubatse Local Municipality (LIM475) and the Makhuduthamaga Local Municipality (LIM473). The proposed turn-in transmission power line, as well as the proposed site for the substation, falls partly within the jurisdiction of the Elias Motsaledi Local Municipality (LIM472), previously known as the Greater Groblersdal Local Municipality. All three of these local municipalities form part of the Greater Sekhukhune District Municipality (DC47) in the Limpopo Province (refer to Figure 1).

Figure 1: Greater Sekhukhune District Municipality Delineation



Source: Municipal Demarcation Board

The Limpopo Province (LP) is the northernmost province of the Republic of South Africa and is bordered by Botswana to the west and north-west, Zimbabwe to the north, and Mozambique to the east. To the south lies the Gauteng Province, this makes the LP the ideal link between South Africa and other African countries. The LP covers approximately 10% of South Africa's geographic area.

The Greater Tubatse Local Municipality (GTLM) is approximately 4 599km² in size and comprises of 29 wards in total. The Makhuduthamaga Local Municipality (MLM) covers an area of approximately 2 097km² and consists of 31 wards. The Elias Motsaledi Local Municipality (EMLM) covers an area of 3 713km² and also consists of 29 wards. The current study area potentially affects 6 wards, of which 2 wards are located within the GTLM, 2 wards within the MLM and another 2 wards within the EMLM.

- The affected wards within the GTLM are wards 28 and 29. Both these wards lie to the west of the proposed Western Alternative, and include settlements such as Kokwaneng (ward 28) and Mbelegane, Ga-Maepa, Masphepha and Mmaphoko (ward 29). Mmaphoko and parts of Kokwaneng are directly adjacent to the proposed Western Alternative. Ward 28 covers an area of approximately 15.8km², whereas ward 29 covers an area of approximately 72km².
- The potentially affected wards within the MLM are wards 6 and 13. Again ward 6 lies to the west of the proposed Western Alternative, and includes areas such as

Patantswana, Lehlakong and Eenzaam. This ward is approximately 57.2km² in size. Ward 13 lies to the northwest of the proposed Western Alternative and includes the settlement of Ga-Mogashoa. Ward 13 covers an area of approximately 58.3km².

- Within the EMLM the affected wards are wards 16 and 19. Ward 16 (Sehlakwane) lies to the southwest of the proposed Pumped Storage Scheme (PSS) and as such is in fairly close proximity to the proposed substation site. This ward is also fairly large when compared to the other affected wards, and covers an area of approximately 95.5km². Ward 19 lies to the north and partly adjacent to the proposed turn-in line, and include areas such as Hlogotlou, Magukubjane, Ga-Phetla and Maré. This ward covers an area of approximately 64.2km².
- The eastern alternative and the southern sub-alternative traverse mostly tribal land (i.e. land belonging to a Tribal Authority). Apart from two privately owned farms, the areas surrounding these alternatives appear to be fairly desolate, i.e. little evidence was found to suggest the presence of settlements/communities within the area.

2.1.3 Proposed Alignments

The proposed **Eastern Alternative** starts at the Merensky substation where it exits the substation from the northwest corner. From there on it follows a fairly straight south-westerly route until it terminates at the proposed Steelpoort substation site. This alternative passes through non-built up areas and southeast of the proposed De Hoop Dam.

The proposed **Northern Sub-Alternative** also starts at the Merensky substation, and also exits the substation to the northwest corner. This sub-alternative joins the eastern alternative northeast of the Benananqwedi substation, after which it splits from the eastern alternative to form the proposed **Western Alternative**. The western alternative also follows a fairly straight south-westerly alignment, northwest of and parallel to the eastern alternative. The western alternative for the most part follows the alignment of and to the northwest of the realigned R555. It is situated to the northwest of the proposed De Hoop Dam and again joins up with the eastern alternative before terminating at the proposed Steelpoort substation site. Apart from following the existing road (the R555), the western alternative also pass southeast of built-up areas and adjacent to parts of Wards 28 (Kokwaneng) and 29 (Mmaphoko) of the GTLM.

The proposed **R555 sub-alternative** splits from the eastern alternative to follow the alignment of the R555 where it travels on the border of and to the south of the proposed Spitzkop Platinum Mine area. This sub-alternative joins up with the western alternative, just north of Kenny's Vale on the Farm Belvedere 362KT.

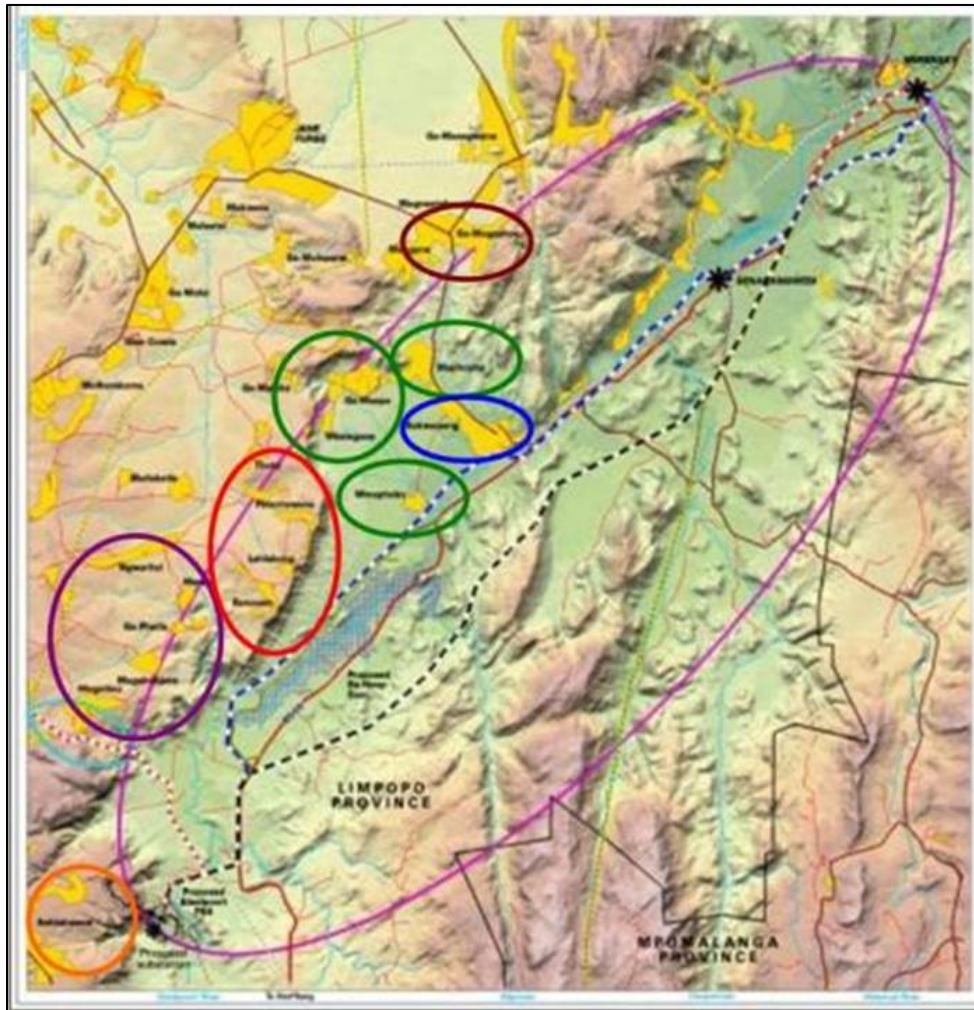
The **southern sub-alternative** connects the eastern alternative with the western alternative, parallel to the gravel road between Steelpoort Park and Kalkfontein. From where the southern sub-alternative connected with the western alternative, it follows the alignment of the western alternative.

The proposed **turn-in line** passes south of and adjacent to Hlogotlou (ward 19 of the EMLM) and travels in an easterly direction until it connects with the western alternative southwest of the proposed De Hoop Dam. From there on it travels with the western alternative up to the point where the western alternative meets up with the eastern alternative until it terminates at the proposed Steelpoort substation.

Only one technically feasible site has been identified for the proposed **Steelpoort substation**. This site is located to the northeast of the lower dam reservoir of the proposed Pumped Storage Scheme, and as such, to the northeast and in fairly close proximity to the Sehlakwane settlement (ward 16 of the EMLM).

The potentially affected wards in relation to the proposed alternative route alignments are depicted in Figure 2.

Figure 2: Affected wards in relation to Alternative alignments



- EMLM Ward 16 — EMLM Ward 19 — MLM Ward 6 — MLM Ward 13
- GTLM Ward 28 — GTLM Ward 29

To meet the overall objective of the project, it was necessary to compile a detailed description of the study area. The first subsection below provides a profile of the social processes in terms of demographic, economic, institutional, socio-cultural and landuse conditions in the study area. Environmental change processes are discussed in these subsections where applicable. These subsections conclude with a description of how the project is likely to change these baseline profiles, and the related impacts that could be expected as a result of the project, followed by suggestions on how these potential impacts should be addressed within the EIA Phase.

2.2 Social Processes

This section intends to address the objective:

- Assess the affected communities, settlements and institutions in terms of:
 - * Demographic processes: the number and composition of people;
 - * Economic processes: the way in which people make a living and the economic activities in society;
 - * Empowerment, institutional and legal processes: the ability of local government to supply and maintain the necessary services, and the ability of people to participate and have an influence on decision-making;
 - * Socio-cultural processes: the way in which humans behave, interact and relate to each other and their environment and the belief and value systems which guide these interactions; and
 - * Geographical processes: land use patterns and infrastructure.

Unless otherwise stated, the baseline social profile of the study area was compiled based on data obtained from the Municipal Demarcation Board. Note that this data should only be viewed as indicative of the broad trends within the area and not as a rigid representation of the area.

2.2.1 Demographic Processes

Demographic processes relate to the number of people and composition of a community and include an overview of the population size and the educational profile of the affected communities.

- **Population**

The LP covers an area of approximately 122 839km², with a total population of approximately 4 994 326 people living within its borders. This brings the population density to an average of 40.7 people per km². The province is largely rural in nature, with only 11% of its population residing in urban areas. The predominant population group by far is Black African (97.0%) followed by White (2.6%). Females dominate slightly at 54.3%. More than half (52.2%) of the total population is below the age of 19.

The Sekhukhune District Municipality (SDM), which is situated within the LP, extends over approximately 13 382km² and has a total population of approximately 967 144 people at a population density of approximately 72.3 people per km². The SDM consists of five local municipalities, of which the MLM, GTLM and EMLM are relevant to this study. The racial distribution within the SDM, much like the LP as a whole, consists of a large majority of Black African (99.1%) followed by a distribution of 0.8% White. As is the

case with the LP as a whole, more than half (55.0%) of the total population are below the age of 19. Again females dominate slightly at 55.3%.

The Greater Tubatse Local Municipality (GTLM) covers an area of approximately 4 599km² with a total population of 270 116 people with a fairly low population density of approximately 58.7 people per square kilometre. The predominant population group is Black African (99.0%), followed by White (0.8%). Again more than half (55.8%) of the total population are aged 19 or younger. There are more females (55.0%) than males. In comparison, the Makhuduthamaga Local Municipality (MLM) extends over 2 097km² with a total population of 261 996 with a much higher population density as the GTLM, estimated at 124.9 people per km². The racial distribution remains in line with the racial distribution of the Province and District Municipality as a whole with 99.9% Black African. Again the majority (56.0%) of the total population is below the age of 19, as well as 56.3% being female.

The Elias Motsaledi Local Municipality (EMLM) has a profile very similar to that of the GTLM. This local municipality covers an area of approximately 3 713km² and has a total population of 221 638 with a population density of 59.7 people per km². Again the dominant population group is Black African (98.9%) and more than half of the total population segment (54.1%) is aged 19 years or younger. The predominant gender group is female (55.1%).

The total population of the GTLM Ward 28 is estimated at 9 424 people living in 1 723 separate households, at an average of 5.5 persons per household. The population density in ward 28 is the highest of all the wards and stands at approximately 589 people per km². This ward accounts for approximately 3.5% of the total population within the GTLM. By far the majority of the total population is Black African (99.9%). Again more than half of the total population (56.6%) are aged 19 or younger. Also, more than half (54.7%) are female. In comparison, ward 29 has a total population of approximately 11 482 people in 2 038 separate households at an average 5.6 persons per household. Ward 29 is proportionately bigger than ward 28 and covers an area of approximately 72km². It has a much lower population density than ward 28, estimated at 159.5 persons per km². Again the dominant population group is Black African (99.9%), of which most (57.7%) are aged 19 years or younger. As is the case with ward 28, most of the population in ward 29 is female (56.3%).

Ward 6 of the MLM has a total population of 9 163 in 1 694 separate households at an average of 5.4 persons per household. The population density in this ward is on par with that of ward 29 of the GTLM and stands at approximately 160.8 people per km². Ward 13 is slightly bigger in area size and population as ward 6, and has a total population of 10 514 people living in 2 101 separate households at an average of 5.0 persons per household. Due to the larger population size, the population density is slightly higher

than that of ward 6 and stands at approximately 178.2 people per km². As with the previous wards and in line with the SDM and province as a whole, the dominant population group is Black African (99.9% in ward 6 and 100% in ward 13). Again, the majority of the population within these wards fall within the not economically active segment (aged 19 years or younger) – 58.7% for ward 6 and 56.9% for ward 13. In both wards more than half of the population is female.

The total population of ward 16 of the EMLM is estimated at 8 835 people living in 1 866 separate households at an average of 4.7 persons per household. In comparison, ward 19 has a total population of 6 091 people in 1 265 separate households at an average of 4.8 persons per household, very much similar to that of ward 16. Both these wards have a slight high population density of 92.5 people per km² for ward 16 and 94.9 people per km² for ward 19. Although these wards have similar population densities, it is much higher than the average for the EMLM as a whole, which stands at 59.7 people per km². Black African is again the dominant population group at 99.9% for both wards. Again more than half of the total population in these wards are aged 19 years or younger (60.7% for ward 16 and 57.0% for ward 19). More than half of the population is also female (54.9% in ward 16 and 55.8% in ward 19).

Table 2 below provides an overview of the population demographics of the study area in relation to South Africa as a whole, the province and the district. From this table it is evident that there are more females than males in the study area, 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 project. It is therefore necessary to take cognisance of the fact that the majority of work seekers might be female. Equal opportunities for employment should be created to ensure that the local female population also have access to these opportunities. Females should be encouraged to apply for positions. There is also an indication that these females are poor, and therefore vulnerable. They might be exploited by construction labourers during the construction period.

Table 2: Summary of Population Characteristics

	Transmission Power Lines									Substation Site		Turn-in Line
	South Africa	LP	SDM	GTLM	Ward 28 GTLM	Ward 29 GTLM	MLM	Ward 6 MLM	Ward 13 MLM	EMLM	Ward 16 EMLM	Ward 19 EMLM
Area size (km ²)	1 219 912	122 839 (10% of SA)	13 382 (10.9% of LP)	4 599 (34.4% of SDM)	16 (0.3% of GTLM)	72 (1.6% of GTLM)	2 097 (15.7% of SDM)	57 (2.7% of MLM)	59 (2.8%)	3 713 (27.7% of SDM)	95.5 (2.6% of EMLM)	64.2 (1.7% of EMLM)
Total population	47 390 900	4 994 326 (11% of SA)	967 144 (19.4% of LP)	270 116 (27.9% of SDM)	9 424 (3.5% of GTLM)	11 482 (4.3% of GTLM)	261 996 (27.1% of SDM)	9 163 (3.5% of MLM)	10 514 (4.0% of MLM)	221 638 (22.9% of SDM)	8 835 (4.0% of EMLM)	6 091 (2.8% of EMLM)
Population density (people per km ²)	38.9	40.7	72.3	58.7	589.0	159.5	124.9	160.8	178.2	59.7	92.5	94.9
Total households	11 205 705	1 193 351	204 774	56 231	1 723	2 038	54 030	1 694	2 101	48 947	1 866	1 265
Avg. persons per household	4.0	4.2	4.7	4.8	5.5	5.6	4.9	5.4	5.0	4.5	4.7	4.8
Population group	Black African (79.5%)	Black African (97.0%)	Black African (99.1%)	Black African (99.0%)	Black African (99.9%)	Black African (99.9%)	Black African (99.9%)	Black African (99.9%)	Black African (100.0%)	Black African (98.9%)	Black African (99.9%)	Black African (99.9%)
Gender	Female (50.8%)	Female (54.3%)	Female (55.3%)	Female (55.0%)	Female (54.7%)	Female (56.3%)	Female (56.3%)	Female (56.0%)	Female (57.1%)	Female (55.1%)	Female (54.9%)	Female (55.8%)

	Transmission Power Lines									Substation Site		Turn-in Line
	South Africa	LP	SDM	GTLM	Ward 28 GTLM	Ward 29 GTLM	MLM	Ward 6 MLM	Ward 13 MLM	EMLM	Ward 16 EMLM	Ward 19 EMLM
Age Group	≤19 (42.6%)	≤19 (52.2%)	≤19 (55.0%)	≤19 (55.8%)	≤19 (56.6%)	≤19 (57.7%)	≤19 (56.0%)	≤19 (58.7%)	≤19 (56.9%)	≤19 (54.1%)	≤19 (60.7%)	≤19 (57.0%)

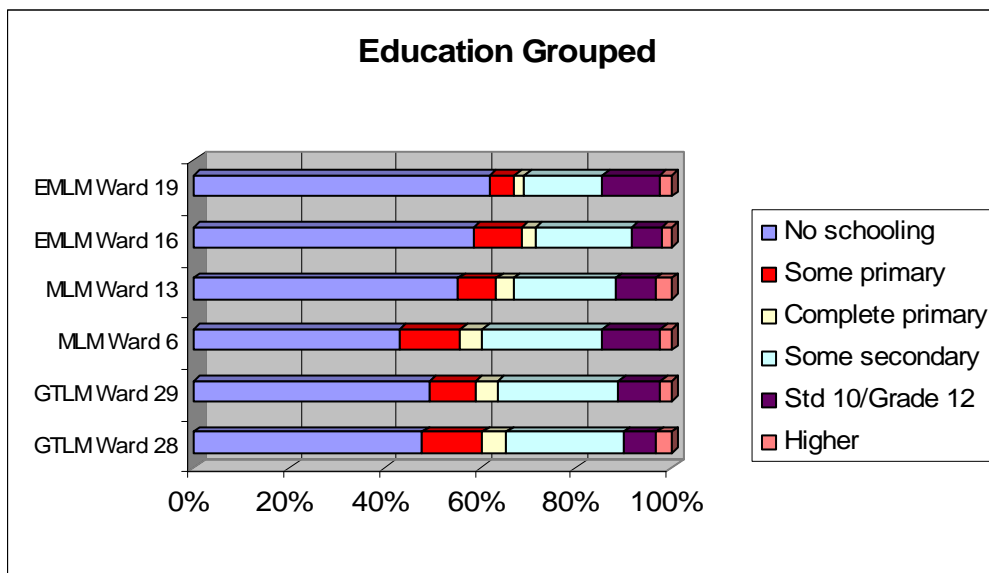
- **Education**

A third (33.1%) of the adult population in the LP had no schooling, closely followed by just over a quarter (26.3%) of the adult population who completed at least some secondary schooling. A total of 20.9% completed an education equivalent to Grade 12 (14.1%) and higher (6.8%). A much larger segment of the adult population within the SDM has had no schooling (42.7%), when compared to the educational profile of the LP. This is followed by almost a quarter (24.7%) of the adult population who have completed at least some secondary education. A total of 15.9% completed Grade 12 or higher.

Within the GTLM close on half of the adult population (40.0%) had no schooling. Only slightly more than a quarter (27.7%) completed some secondary schooling. The MLM has a similar educational profile where 44.3% of the adult population had no schooling, followed by 24.1% who completed some secondary education. Again, the EMLM has a similar profile, with close on half (45.7%) of the adult population who have had no schooling. Slightly more than one in every five persons (22.4%) has completed some secondary schooling. These profiles fit in with the various Integrated Development Plans (IDPs) where most of the municipalities identified the lack of education as an area of concern. The GTLM IDP specifically stated that there is a great need for unskilled job opportunities within the area as a result of the poor educational profile within the area.

The educational profile for the various affected wards is as per Figure 2.

Figure 2: Educational profile (Grouped) for affected wards



The educational profile of these wards are in line with that of the local municipalities, where the bulk of the adult population have had no schooling, followed by a fairly large segment of the adult population who have completed some secondary schooling. The

MLM Ward 6 (which includes the areas of Eenzaam, Lehlakong, and Phatantswane) appears to have the strongest educational profile in comparison with the other wards: fewer people within the adult population did not have any schooling, whilst more people have completed some secondary schooling, including Grade 12. Most people who have completed a higher education reside in ward 13 of the MLM and within ward 28 of the GTLM. Even so, these groups represent a very small segment of the adult population (3.4% for ward 13 and 2.3% in ward 28).

These areas are therefore characterised by a predominantly unskilled female population.

2.2.2 Economic Processes

Economic processes relate to the way in which people make a living and the economic activities within that society. The employment status within a community gives an indication of the economic stability of such a community and also serves as an indicator of such a community's general well-being. Employment rates and the economic sectors of these areas are discussed, followed by a discussion on the household income profile of these areas.

- **Employment and Economic Sectors**

In the LP there is an almost equal split between the employment and unemployment rate of the economically active population, with 52.7% being employed. Of those employed, 4.1% are employed in the community services sector. The profile for the SDM differs significantly from that of the province as a whole, with an employment rate of approximately 39.1% amongst its economically active population. For the majority of those employed, the economic sector was listed as "undetermined", which could be indicative of a large informal employment sector. However, according to the SDM IDP Review of 2005/06, the main contributors to the Gross Domestic Product (GDP) within the district are Community Services (52%), Mining (20%) and Trade (17%).

The employment rate in the GTLM is slightly lower than that of the SDM and currently stands at 38.5%. Again the predominant economic sector is undetermined for most (93.3%). The GTLM IDP states that the area is very reliant on the primary economic sector, particularly agriculture. The IDP further states that most people are employed in *elementary* occupations. In addition, of concern to the GTLM is the lack in growth of existing job opportunities. This situation is further worsened by the low levels of literacy, which in turn increase the percentage of unskilled labour and the need for unskilled job opportunities.

The employment within the MLM is even lower than that of the SDM or the GTLM, with only a quarter of the economically active population employed (25.0%). Again the

predominant economic sector is undetermined for most (96.2%). Despite this low employment rate, the MLM IDP Review of 2006 is of the opinion that there has been an increase in formal job opportunities within most of the economic sectors, except for the private household sector which showed a decline of approximately 5%.

The EMLM recorded the highest employment rate amongst the affected municipalities, and currently has an employment rate of approximately 45.7%. This employment rate is still fairly low when compared within the context of the LP and South Africa as a whole. The DMB listed the predominant economic sector in the EMLM as undetermined. However, the EMLM IDP Review of 2005/06 lists the commercial agricultural and the government services sectors as the main source of employment. The IDP also identified the lack of formal employment opportunities as a factor that has reinforced the migration of significant proportions of the rural population to the larger urban centres, particularly to the Gauteng Province. The EMLM is further of the opinion that it is crucial to develop other services sector apart from those already mentioned, to ensure diversified economic activities that could lead to overall economic growth within the EMLM.

Most of the affected wards within the study area also recorded low levels of employment, notably GTLM Wards 28 and 29 as well as MLM Wards 6 and 13. Ward 6 of the MLM has the lowest employment rate (13.9%), which would imply that these areas are in great need of employment opportunities. However, when linked back to the educational profile of these areas, most of these job opportunities should be either unskilled and/or semi-skilled positions, despite the fact that the MLM Ward 6 has a fairly diverse educational profile (as discussed in the previous sub-section).

Table 3 below provides an overview of the employment and economic sectors of the study area in relation to South Africa as a whole, the province and the district. From this table it is clear that these areas are not only characterised by a predominantly unskilled female population, but also a high unemployment rate estimated at an average of approximately 78% between the six affected wards. Any employment opportunities (either directly or indirectly) created by the proposed Steelpoort Integration Project would therefore serve to alleviate poverty in the area to an extent and lessen the dependency ratio on the various local municipalities.

Table 3: Overview of Employment and Economic Sectors

	Transmission Power Lines									Substation Site	Turn-in Line	
	South Africa	LP	SDM	GTLM	Ward 28 GTLM	Ward 29 GTLM	MLM	Ward 6 MLM	Ward 13 MLM	EMLM	Ward 16 EMLM	Ward 19 EMLM
Employed*	33.7%	23.6%	13.7%	13.3%	7.4%	4.3%	7.9%	2.2%	5.5%	16.9%	7.5%	4.9%
Unemployed*	24.0%	21.2%	21.4%	21.2%	34.9%	19.9%	23.7%	13.6%	27.6%	20.1%	14.6%	10.2%
Not economically active	42.3%	55.1%	64.9%	65.5%	57.6%	75.8%	68.4%	84.2%	66.8%	63.1%	77.9%	84.9%
Employment rate**	58.4%	52.7%	39.1%	38.5%	17.6%	17.6%	25.0%	13.9%	16.6%	45.7%	34.0%	32.5%
Industry	Community services (29.1%)	Community services (4.1%)	Undetermined (93.3%)	Undetermined (93.3%)	Mining and quarrying (27.0%)	Community services (30.2%)	Undetermined (96.2%)	Community services (42.0%)	Community services (37.6%)	Undetermined (91.5%)	Community services (30.0%)	Private household (20.5%)

* This is the percentage employed/unemployed of the entire working age population and should not be read as the unemployment rate, i.e. the *not economically active* population is included in this segment.

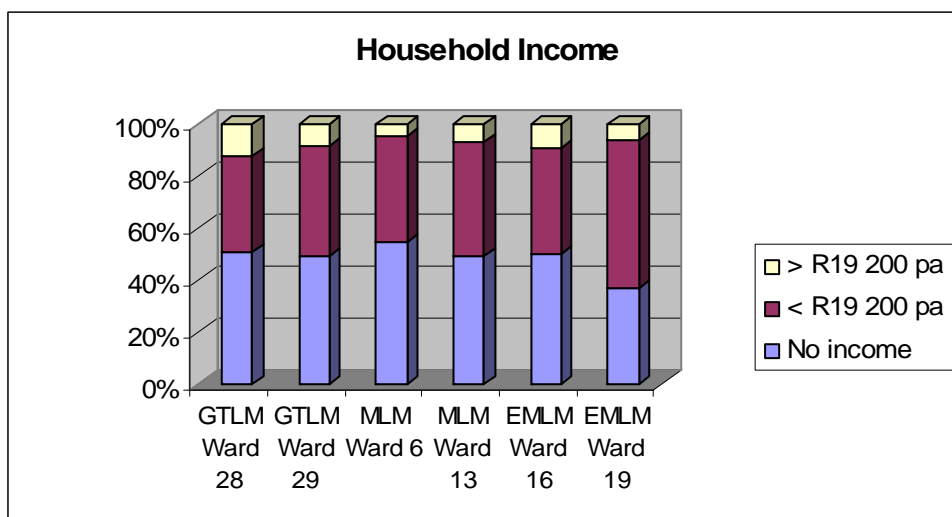
** In order to reflect a more accurate employment rate, the *not economically active* population has been excluded from this segment.

- **Income**

The majority of households (72.9%) in the LP have some form of income. However, the levels of income ranges from below the acceptable minimum standard (classified as earning at least R18 000 per annum) to very affluent. The remainder of households (27.1%) have no annual income. A significant amount of households within the SDM (39.3%) have no household income. The same profile holds true for the GTLM where slightly more households have no annual household income (42.8%), the MLM (41.5%), and the EMLM (37.9%). The MDB defines households who live in poverty as those households who have a household income of R18 000 or less per annum. As such the majority of households within these municipal areas can be classified as living in severe poverty. The lack of education, employment and income in these areas further complicates upliftment and creates a down-spiral effect in terms of social well-being.

The graph below provides an overview of the household income levels of the affected wards within the study area.

Figure 3: Overview of Annual Household Income



From the graph it is clear that by far the majority of the households across all the affected wards live below the national poverty line of R18 000 or less per annum. These extremely low levels of household income also correspond with the high dependency ratio on affected local municipalities, and the low employment rates in these areas, which in turn corresponds with the low education levels.

2.2.3 Empowerment, Institutional and Legal Processes

Institutional processes relate to the role, efficiency and operation of government sectors and other organisations within the area.

- **Municipal Services**

Despite the fact that almost two thirds of all households (63.2%) within the LP have access to electricity and make use of it for lighting, the majority of households make use of wood for cooking (57.1%) and heating (57.8%). In terms of other municipal services, two thirds (66.7%) of households make use of their own refuse dump for waste removal. Close on half (49.0%) of all households' only access to sanitation services is a pit latrine without ventilation. Very few households have direct access to water within either their dwelling or yard and have to make use of a communal stand (11.1%), a borehole (9.9%) or a river/stream (4.4%).

According to the SDM IDP the district overall is very underdeveloped in terms of infrastructure and services. Very few households have direct access to water: approximately 33% of people in the SDM obtain water from a public tap and 32% through natural means (rivers, streams, and boreholes). Sanitation services are also lacking and are mostly provided through the use of pit latrines without ventilation (64.4%). Despite the fact that close on half of all the households (47.0%) have access to electricity and use it for lighting, wood is still the dominant energy source for both cooking and heating.

In comparison, the local municipalities do not fare any better than the district municipality when it comes to municipal service infrastructure and delivery. Legislative Standards require that communities should have access to at least 20-30 litres per person per day of clean safe water, within a distance of 200m from all households. This is not the case in the GLTM as at least 50.0% of households obtain their water from natural sources such as rivers, streams and rainfall. Only 31.5% of households have access to water from a public tap. In terms of sanitation, more than half (53.8%) of households make use of a pit latrine without ventilation, while a further 25.7% of households have no access to any form of sanitation service. The latter raises the concern for general surface and groundwater pollution, especially in the areas where the majority of households are reliant on these water sources as their only means of water. This concern has also been raised by the GTLM in their reviewed IDP of 2004/05. Less than half of the households (47.0%) have access to electricity and use it mostly for lighting. Most households make use of wood for cooking (67.0%) and heating (69.5%). Again close on two thirds (65.4%) of all households make use of their own refuse dump for waste removal, which further intensifies the concern for surface and groundwater pollution.

Both the MLM as well as the EMLM have similar municipal service profiles to that of the GTLM, except that in the case of the EMLM, coal is the dominant energy source for most households for cooking and heating. There was no indication of where the coal was sourced from.

As far as service delivery is concerned, it is not clear whether and how the local municipalities will be responsible for the service delivery to this project. This includes municipal services such as the use of municipal waste disposal sites, sewerage systems (either directly or indirectly), water delivery, and possible connection to the electricity services network during the construction period (in the event of a construction camp being used). This will have to be confirmed in the next phase of this study. Because of the extent of poverty in the area, it follows that service delivery is a problem.

Table 4 below provides an overview of the municipal services of the affected wards within the study area in relation to the province and the district as a whole. No data could be obtained for the overall municipal service delivery in South Africa. From this table it is evident that the majority of households in the affected wards lack efficient municipal services infrastructure and delivery, which further impacts on the already poor living conditions and quality of life for most households in these areas.

Overall these areas appear to be poorly developed and characterised by poverty. This is evident in the high population density, low education levels, the very high unemployment rate, the low levels of household income, and the overall lack of proper municipal services in the area.

Table 4: Overview of Municipal Services

	Transmission Power Lines									Substation Site		Turn-in Line
	South Africa	LP	SDM	GTLM	Ward 28 GTLM	Ward 29 GTLM	MLM	Ward 6 MLM	Ward 13 MLM	EMLM	Ward 16 EMLM	Ward 19 EMLM
Energy cooking		Wood (57.1%)	Wood (53.7%)	Wood (67.0%)	Wood (68.6%)	Wood (79.2%)	Wood (56.0%)	Wood (44.2%)	Wood (71.2%)	Coal (26.5%)	Coal (61.2%)	Coal (79.0%)
Energy heating		Wood (57.8%)	Wood (54.2%)	Wood (69.5%)	Wood (67.1%)	Wood (81.0%)	Wood (56.4%)	Wood (45.4%)	Wood (76.2%)	Coal (34.0%)	Coal (67.0%)	Coal (80.1%)
Energy lighting		Electricity (63.2%)	Electricity (63.5%)	Electricity (47.0%)	Electricity (78.5%)	Candles (56.8%)	Electricity (62.4%)	Candles (95.5%)	Electricity (89.9%)	Electricity (84.1%)	Electricity (76.8%)	Electricity (97.7%)
Refuse		Own dump (66.7%)	Own dump (74.8%)	Own dump (65.4%)	No disposal (49.7%)	Own dump (55.3%)	Own dump (88.1%)	Own dump (81.8%)	Own dump (92.3%)	Own dump (72.8%)	Own dump (88.6%)	Own dump (71.7%)
Toilet		Pit without ventilation (49.0%)	Pit without ventilation (64.6%)	Pit without ventilation (53.8%)	Pit without ventilation (73.5%)	Pit without ventilation (45.8%)	Pit without ventilation (70.3%)	Pit without ventilation (55.7%)	Pit without ventilation (78.9%)	Pit without ventilation (75.9%)	Pit without ventilation (77.9%)	Pit without ventilation (95.3%)
Water		Pipe in yard (15.5%)	No access (20.9%)	No access (18.5%)	River or stream (32.3%)	No access (40.7%)	No access (26.9%)	No access (38.4%)	Pipe <200m (17.0%)	No access (19.6%)	No access (22.6%)	No access (31.8%)

2.2.4 Socio-Cultural Processes

Socio-cultural processes relate to the way in which humans behave, interact and relate to each other and their environment, as well as the belief and value systems which guide these interactions.

- **Cultural Landscape**

From the various IDPs it could be deduced that a number of Tribal Authorities are still active in the area. The following Tribal Authorities have been identified through the public participation process:

- Ndebele Traditional Authority (Chief Mahlangu)
- Bahlakwana Ba Malekane Traditional Authority (Kgosi Malekane)
 - * A portion of Tigerhoek 140JS
 - * A portion of Steelpoort Park 366KT
 - * A land claim on De Hoop 886KS
 - * Uitvlucht 887KS
 - * A portion of Steelpoortdrift 365KT
- Phathane Tribal Authority (Kgosi Masha)
 - * A portion of Aapjesboom 884KS
 - * A land claim on Belvedere 362KT
- Bahlakwana ba Rantho Tribal Authority (Kgosana Rantho)
 - * A land claim on Kennedy's Vale 361KT
 - * A portion of Steelpoort Park 336KT
 - * A land claim against De Hoop 886KS
- Batlokwa Tribal Authority (Kgosi Magolego)
 - * A portion of Steelpoort Park 366KT
 - * A portion of Aapjesboom 884KS
- Tshehla Trust
 - * A portion of Steelpoort Park 366KT
- Roka Phasha Phokwane Tribal Authority (Kgosi Phasha)
 - * De Goedverwachting 332KT
 - * Eerste Geluk 322KT
- Ba Bina Noko ba Mampuru Tribal Authority (Kgosi Mampuru)
 - * Mooimeisjesfontein 363KT
 - * Boschkloof 331 KT
 - * A land claim on De Goedeverwachting 332KT

The implication is that the area will have a rich cultural landscape with a strong sense of place present amongst communities. This will have to be further assessed during the EIA

Phase. A large number of cultural heritage sites have also been identified by the Heritage Specialist that range from settlement to initiation sites, industrial and farming sites as well as cemeteries, more so in the areas surrounding the western alternative (refer to the Heritage Impact Scoping Report).

The presence of such sites accentuates the possibility of a strong sense of place, given the cultural landscape and the number of land claims in the area. Land claims form part of South Africa's land restitution process, whereby individuals (or their descendants) and/or communities who were dispossessed of their land rights under the previous regime, now have the right to claim restitution against the State. However, as far as could be determined through the public participation process, it would appear as if land claims in the area are being made by one Traditional Authority against another Traditional Authority's land. In some instances more than one land claim has been lodged by two different Traditional Authorities or families against the same piece of land (De Hoop 886KS being a case in point).

2.2.5 Geographical Processes

Geographical processes relate to land use patterns and infrastructure in the area. This section therefore describes the land use in the study area from a social perspective, specifically in terms of the following:

- Settlement patterns and development;
 - Existing and future agricultural activities; and
 - Existing and future developments in tourism.
-
- **Settlement Patterns**

All the affected areas are predominantly rural in nature. The road infrastructure in the study area is first discussed followed by a discussion of the spatial development frameworks of the affected municipal areas.

** Road Infrastructure*

The SDM is largely characterised by gravel roads, particularly within the scattered villages. According to the SDM IDP, most of these roads are poorly maintained. Apart from these internal gravel roads, the SDM has a fair road network that links most of the areas within the SDM with the major road networks within South Africa. However, again a major concern is that the quality of these roads is sub-standard, which in turn hampers development activities as it is difficult to provide suitable access roads. The SDM has therefore adopted an Integrated Transport Plan (ITP) that outlines the current road infrastructure situation within the district in terms of public transport, infrastructure,

facilities and services. More detail is required on the ITP to determine if it will have any bearing on the current project, and will be studied during the next phase of the project.

Apart from the maintenance and upgrade of roads, traffic signals and public transport facilities are also in need of an upgrade that is currently virtually non-existent in most parts of the SDM. The SDM is therefore in the process of developing a Road Master Plan with the aim to audit the road network infrastructure and to make certain suggestions with regard to road maintenance strategies. The SDM has further allocated R2 million in their annual budget for the upgrade and maintenance of district roads.

The GTLM is well connected by means of provincial arterial routes, which includes the R37, the R36 and the R555. Again these roads are in a state of disrepair due to a lack of road maintenance and rehabilitation. According to the GTLM IDP, the R37 between Polokwane and Burgersfort has been declared as a National Road. In addition to the arterial routes, the internal or local roads consist of approximately 400km of gravel road, which is mostly used by public transport such as busses and taxis. Again the condition of these roads is sub-standard and requires urgent upgrading and improved stormwater management. The same road infrastructure network can be found in both the MLM as well as the EMLM. However, according to the EMLM IDP, this municipality has commenced with the re-surfacing and re-gravelling of internal gravel roads.

* *Spatial Development Frameworks*

According to the IDP, the southern part of the GTLM is more developed diversified and advanced when compared to the northern part, which has an inferior social and engineering infrastructure. There are 18 proposed new mines within the GTLM, of which 11 are platinum mines, 6 are chrome mines and 1 a magnetite mine. These mines are all at various stages of planning and construction, which in turn leads to the prospect of residential expansion and growth for the existing residential townships in the area, of which Steelpoort and Burgersfort have been identified as the key areas for such development. Although the land is available for such developments, the engineering infrastructure will be placed under pressure.

Detailed land use data for the MLM was not available at the time of this report. The MLM ascribes this lack in information to the fact that no formal physical planning, land use management or control mechanisms were in place at local level. A general assessment of the land uses in the area indicated the following trends:

- Residential;
- Communal farming;
- Commercial cattle farming;
- Game farming (on a limited scale);

- Mining;
- Local commercial enterprises;
- Education; and
- Sport and recreation.

The EMLM also does not have a spatial plan that indicates and regulates land use. This has led to a situation that, although the EMLM is aware of issues such as water pollution, soil erosion, deforestation and the prevalence of alien species, they have no co-ordinated strategy for the promotion and monitoring of land uses. However, the EMLM IDP states that the municipality is currently in a process of developing a spatial plan that would address the current development challenges (although no mention is made of what these challenges are). The main objective of this spatial development plan would be to incorporate a spatial settlement strategy that would promote mixed land use whilst at the same time enhancing municipal service delivery in the area.

- **Agricultural Activities**

Despite the fact that agriculture appears to be the dominant land use within the SDM, most of the cultivated land is used by subsistence farmers. Only 30% of the cultivated land accounts for commercial farming. Two factors come into play: the scarcity of water and the fact that approximately 75% of the land in the SDM is under land claims. The SDM invested approximately R25 million to revamp irrigation schemes within the district, specifically aimed at securing the livelihoods of poor rural and marginalised communities.

Agriculture is an important economic resource within the GTLM. The following types of products are produced: fruit, vegetables, grain, cotton, citrus, maize, tobacco and meat. Again irrigations seem to be a problem within the GTLM and water is mostly sourced from natural resources such as the Olifants, Steelpoort and Spekboom rivers. However, despite the fact that agricultural activities are seen as an important economic resource, the IDP states that the total value derived from agricultural products is only marginal.

The same holds true for the agricultural sector within the MLM, where this sector is seen as a main formal contributor to the local economy, but only on a limited scale. The agricultural sector has shown little improvement in terms of its contribution to the local economy between 1986 and 2001.

Commercial agriculture is a main source of employment within the EMLM and as such, the diversification of the agricultural sector has been identified as a priority area by the EMLM.

- **Tourism**

According to the SDM IDP, tourism as an economic sector has not been fully exploited and lacks some co-ordination. As such, the SDM has developed a Tourism Strategy with the aim to unlocking the potential economic opportunities that tourism has to offer. Part of this strategy is the De Hoop Dam and the raising of the Flag Boshielo dam walls, which the SDM believes would boost tourism opportunities in the area. Although the SDM Tourism Strategy still has to be scrutinised in more detail, it would make sense if such tourism initiatives were developed along the western banks of the proposed De Hoop Dam with easy access from the re-aligned R555. If this is the case, the western alternative would have a visual impact on such activities. Due to the topography of the area, the eastern alternative would not be visible and would therefore have no visual impact on tourism activities along the western banks of the De Hoop Dam.

Little information is available on the tourism sector within the GTLM. The GTLM believes that this is due to an underdeveloped tourism base where most tourist attractions are located outside the borders of the GTLM. However, the GTLM in its IDP states that there is a definite potential to develop the tourism base and that the local population has the potential to participate in the development of the tourism market. It is believed that tourism would not develop on its own, but that it should be developed through training and management. The GTLM in its IDP has identified the following places for possible tourism development:

- Mahubahube
- Mankele
- Ga Makgotho
- Echo Caves
- The Strydom Tunnel
- Taung and Penge
- Phiring
- Djate
- Madikabje
- Madikadike
- Mafarafara (a cultural village is to be established)

No tourism information could be located at this stage for the MLM. The same holds true for the EMLM, apart from the fact that the EMLM has identified the development of the tourism market as an executive committee priority and, as such, have allocated approximately R10 million to infrastructural development at tourist attractions such as the Mapoch Cave and the Mantrombi Reserve.

3. POTENTIAL CHANGE PROCESSES AND IMPACTS

This section intends to address the following objectives:

- Identify aspects of the social environment that might be affected by the project; and
- Formulate recommendations regarding more detailed studies to be conducted during the Impact Assessment Phase.

For the purposes of this scoping study the impact variables were categorised in terms of change processes, as previously mentioned. A *change process* can be defined as change that takes place within the receiving environment as a result of a direct or indirect intervention. A *potential impact* follows as a result of the change process. However, a change process can only result in an impact once it is experienced as such by an individual/community on a physical and/or cognitive level.

The following subsections discuss the various change processes and the potential impacts that could be experienced by the receiving environment as a result of the proposed project. The categories of processes are as follows:

- Demographic processes (the number and composition of people);
- Economic processes (the way in which people make a living and the economic activities in society);
- Empowerment, institutional and legal processes (the ability of people to get involved in and influence decision making processes, the role, efficiency and operation of governments and other organisations);
- Socio-cultural processes (the way in which humans behave, interact and relate to each other and their environment and the belief and value systems which guide these interactions);
- Land use processes (land use patterns); and
- Bio-physical processes (the natural environment).

3.1 Demographic Change Processes

The construction and maintenance of the proposed substation, the turn-in line and the transmission power lines could lead to a change in the number and composition of a population within any given community, which in turn could lead to economic, land use, and socio-cultural change processes. The potential impact of the influx of construction workers is most applicable to the areas surrounding the construction camps where workers spend evenings and weekends.

3.1.1 Potential Impacts

Depending on the flexibility of the receiving environment, the impact of an increase in population in an area that is already overpopulated and living in poverty, should not be viewed as purely negative. If the community has the capacity to accommodate additional people, the presence of construction workers could lead to a temporary boost in the local economy if construction workers make use of local services. However, these communities seem unable to meet their own needs and might be unable to sustain additional demands on the local services, which might lead to conflict if services are depleted (e.g. the local grocery store running out of supplies due to the extra demand) or not provided adequately (e.g. sanitation). Conflict could also occur as a result of alcohol abuse, resentment that locals did not get jobs, and cultural differences. Relationships between construction workers and inhabitants could also lead to demographic change, for example when unplanned pregnancies occur as result of these relationships.

Locals who secure employment with the contractors might also receive training, thereby enabling them to secure more permanent employment, which in turn might cause them to move out of the area and becoming part of the migrant labour force. People outside of the community could also flock to the area in the hope of securing training opportunities and permanent employment. The presence of these job seekers could mostly be expected during the construction phase of the project and would have similar impacts to that of the presence of the actual construction workers.

The potential impact that the presence of construction workers and job seekers might have on the composition and functioning of the local community, might be further intensified by the presence of construction workers and job seekers on other projects in the area, i.e. the construction of the De Hoop Dam, the construction of the PSS and possibly the construction of the underground water pipeline. More information is required on the timeframes of these respective projects in order to determine how the various construction timeframes would overlap, causing the potential for cumulative construction impacts in terms of demographic change processes.

The potential impacts of maintenance workers on the demographic change process cannot be assessed at this stage, as more information on the construction and operational aspects are required (see below).

3.1.2 Information gaps

To fully assess the potential impacts as a result of demographic change processes, more information is needed on the following aspects:

- The construction processes and associated timeframes for the various projects in the area;
- The composition of the various projects' construction workforces in terms of size, skills levels, and origin;
- The composition of the maintenance workforce and their activities;
- The social processes related to the construction of a substation;
- The number of local employment opportunities;
- The expectations of the local communities in terms of employment opportunities; and
- The local municipalities' and other service providers' capacity to handle an increased demand for products and services at either the construction site(s) itself or at the construction camp.

3.1.3 Recommended studies for the Impact Assessment Phase

In order to address these information gaps, the following studies are recommended for the Impact Assessment Phase:

- Conduct interviews with Eskom technical representatives;
- Conduct interviews with municipal officials and other stakeholders in the area;
- The use a case study to better predict and assess potential impacts; and
- Comparing the potential impacts of a construction village versus housing the workers in the community by doing a desktop study.

3.2 Economic Change Processes

Economic change processes relate to the way in which people make a living and the economic activities within a society. Job opportunities are created as a result of the construction and maintenance of the transmission power lines and the substation. However, it is very likely that there are no skilled local contractors available in the study area able to construct a substation or the Transmission power lines, given the fact that very specific skills and knowledge are required to construct these. Eskom appoints specialised contractors and even international companies due to the fact that local contractors do not have the capacity or skills to handle the workload. Therefore, only a limited number of local individuals within the study area could be employed during construction. Local labourers are usually engaged in work that does not require a substantial amount of skill, such as bush clearance, digging of foundations, erection of gates and acting as security guards.

Indirect job opportunities are mainly created by community members who offer domestic help around the construction camp. One of the services most utilised by construction workers is the washing of clothes. Other services might include cooking, water provision to the camp, transportation services, and assistance with activities around the camp like

the moving of heavy materials or equipment. The size, nature and location of the camp will to a large extent determine the level of services needed, but in general these informal job opportunities are limited. Local contractors might be contracted for the provision of sanitation services in the form of portable chemical toilets, food and other products and/or services. Depending on the final alignment, sanitation services might be required during the maintenance phase when extensive maintenance needs to be done, especially in the case of the eastern alternative.

Another opportunity for financial gain is the rental of land for the accommodation of the construction workers and the storage of equipment. This will have a positive impact as communities experience a financial benefit. The accommodation of construction workers in the communities should be considered, as this increases the economic benefits of the project to the affected communities, and also reduces the potential negative impact on the municipal services network as the construction workers can make use of the existing infrastructure as opposed to making additional connections to an already suffering network. However, it would be necessary to determine the communities' preference in this regard during the next phase of the study.

Servitude compensation and land acquisition for the proposed transmission power line and substation will lead to a change in the living standard of the land owner as a result of compensation fees paid to the land owner (positive), as well as a potential loss of land (potentially negative). Farmers, especially subsistence farmers, must have access to the same size of land as before to ensure that the project does not have a negative, long term effect on their income base. Compensation could either be monetary, and/or in the form of a new dwelling, should relocation be necessary.

On a regional level, the increase in electricity could boost the economy.

3.2.1 Potential Impacts

The potential impacts derived from the economic change process could lead to an improvement in the health of people, their education, and their living conditions due to the fact that money is now available to buy food, pay fees, etc. The impact might be significant in light of the level of poverty experienced in these communities. It is not only the individual that gains from these changes, but also the said individual's family.

Although economic change processes can lead to positive impacts, most of these impacts are only temporary in nature as these will only last during the construction period. Also, positive economic impacts could lead to negative socio-cultural impacts, such as an increase in the prevalence of sexually transmitted infections (STI) as a result of transactional sexual relationships.

3.2.2 Information gaps

To fully assess the potential impacts as a result of economic change processes, more information is needed on the following aspects:

- The construction process and associated timeframes;
- The composition of the construction workforce in terms of size, skills levels, and origin;
- The social processes related to the construction of a substation;
- The local employment opportunities that will be created, both direct and indirect formal and informal job opportunities;
- The expectations of the local communities in terms of employment opportunities; and
- Comparing the potential impacts of a construction village versus housing the workers in the community by doing a desktop study.

3.2.3 Recommended studies for the Impact Assessment Phase

In order to address these information gaps, the following studies are recommended for the Impact Assessment Phase:

- Conduct interviews with Eskom technical representatives;
- The use a case study to better predict and assess potential impacts; and
- Determine whether there is a recruitment agency and/or labour union active in the area, and if so, consult with such a body to determine whether it would be possible to utilise them to recruit local job seekers. It has since come to light that the Department of Water Affairs and Forestry (DWAF) have established a labour desk through the local municipality to recruit a labour force for the construction of the De Hoop Dam as well as for the re-alignment of the R555. Due to the high unemployment rate in the affected areas, it would be safe to assume that there would be a discrepancy between the supply and demand sides in terms of employment opportunities, i.e. more job applications than opportunities available. It might be possible to use this labour desk to continue recruiting a labour force for the current proposed project, or to obtain a list of job seekers from the labour desk. Either way, this labour desk will be consulted during the next phase of the project to determine the process followed to establish such a service and the recruitment process followed.

3.3 Empowerment, Institutional and Legal Change Processes

The negotiation process is a change process on legal and empowerment level. The same applies to the stakeholders that will be involved in the public participation process. The EIA process is an opportunity for these stakeholders to give input into the process and

project. However, stakeholders would have to offer up their time to become actively involved in the process and they should clearly understand their rights in terms of the process to enable them to use these rights.

Reflecting on the process that was conducted for the proposed Pumped Storage Scheme (PSS), which involved the same affected communities to an extent, in terms of the issues that were raised and the number of comments received from these communities on the project documentation, it has become evident that the affected communities are in a sense disempowered to fully participate in the process. The issue here is not that these communities are *misinformed* or lack information as such (i.e. a transparent process has been followed), but rather that these communities are *ignorant* about their rights and responsibilities as participants in the process. Due to the fact that most of these community members live in severe poverty, have low educational levels coupled with a high unemployment rate, their expectation of the project mostly relates to the expectation of being employed. However, because of these low educational levels, it is highly unlikely that large segments of the population would be employed on the project, which could lead to potential impacts such as resentment towards and the resultant conflict with outsiders who do get employed on the project. As such they function on a very basic needs level and fail to comprehend the "bigger picture" or in other words, the associated impacts (both negative and positive) that the proposed project would bring to their area. Their lack of understanding has bearing on future generations that will inhabit the area. From a social perspective this lack of understanding or comprehension of the bigger picture, is of **concern** and has to be addressed throughout the process.

Another institutional change process is that additional municipal services will be required at the construction site(s) and the construction camp during the construction phase (also refer to the land use section). A point of concern that should be noted is the fact that the GTLM does not currently have either an ambulance or a fire fighting service that is operational.

3.3.1 Potential Impacts

The status of the potential impacts is to a large extent dependant on the EIA process, the negotiation process, and Eskom's reputation within the communities. A transparent negotiation process that would lead to a positive outcome (i.e. both parties are satisfied with the agreement) would have a positive impact. A breakdown in negotiations would lead to a negative impact in terms of a lengthy legal process that can either lead to an alternative route for the transmission power line or the expropriation of land for the servitude and/or substation. Stakeholder opposition to the project could lead to changes on individual and community level.

The project could be severely delayed if there is a breakdown in the negotiation process and/or the EIA process that would lead to the legal route being followed. The potential impacts of such a breakdown could include, but is not limited to: high levels of frustration as a result of the litigation process and the resultant delay in construction, as well as the potential for perceived and/or actual economic loss for both parties.

The inadequate provision of services could lead to health impacts.

3.3.2 Information gaps

To fully assess the potential impacts as a result of empowerment, legal and institutional change processes, more information is needed on the following aspects:

- The potential for opposition to the project, and if so, the reasons behind this opposition;
- Communities' expectations from the project;
- The receiving communities' understanding of the project;
- The way in which landowners and tribal authorities expect the negotiation process to proceed; and
- The services delivery capacity of the various local municipalities.

3.3.3 Recommended studies for the Impact Assessment Phase

In order to address these information gaps, the following studies are recommended for the Impact Assessment Phase:

- In collaboration with the public participation practitioner, in-depth consultation with directly affected landowners should be undertaken to elicit issues and concerns;
- The change processes that could be expected as a result of the construction and operation process of the substation, the turn-in lines and the transmission power line should be shared in such a way with the directly affected parties that it would not only elicit issues and concerns, but also empower them to actively participate in the process and be informed about the EIA and negotiation processes; and
- Interviews with tribal authorities and municipal officials will be conducted to address potential issues on the negotiation process and services delivery issues, respectively.

3.4 Socio-Cultural Change Processes

Socio-cultural change processes that are associated with the construction and operation of transmission power lines and a substation include changes such as health and safety aspects and sense of place. The concept of 'health' is not only limited to physical health (i.e. the absence of ailments or illness), but also includes mental and social health. The expected changes that can occur in relation to health and safety aspects can be as a

result of the presence of the transmission power line and turn-in lines during operation, as well as the presence of construction workers and/or job seekers during construction.

3.4.1 Change processes and potential impacts during construction

Construction workers form part of a significant section of the South African population known as migratory workers. The social cultural issues associated with this section of the population have been thoroughly researched. Due to their unique situation, construction workers engage in behaviour that makes them vulnerable, such as risky sexual behaviour (e.g. unprotected sex) and destructive behaviour (e.g. alcohol abuse, damaging the environment), which could be explained by their migratory status. When they are separated from their homes, they are also distanced from traditional norms, prevailing cultural traditions and support systems that normally regulate behaviour within a stable community. In addition, it might also be that construction workers who are faced with dangerous working conditions and the risk of physical injury might be more preoccupied by immediate (direct) risks and therefore tend to disregard salient (more indirect) risks, such as HIV infection. Again, it is likely that HIV transmission occurs, as the local population might be uneducated about the risk and transmission of HIV and would therefore more easily engage in risky behaviour as a result of ignorance.

Construction workers' situations seem to make them vulnerable to high-risk sexual behaviour. There are ample research results to indicate that there is a direct link between temporary migration and HIV infection. Research also seems to indicate that construction workers might be more at risk of contracting HIV *from* members of local communities, as opposed to transmitting the infection *to* community members.

Not only do health issues impact on communities, but the physical safety of communities can also be endangered as a result of the influx of job seekers and construction workers (e.g. potential increase in crime). This has a mental health impact, such as fear.

The construction activities, construction vehicles and movement patterns of these vehicles and equipment could also impact on the health and safety of communities. However, this only becomes a real concern if such activities occur in close proximity to roads and settlements.

3.4.2 Change Process and Potential Impacts during operation

Physical and mental health in the context of substations and power lines are related to Electro Magnetic Fields (EMF's), electrocution, fire and collapse of structures. The reason why mental health is mentioned in relation to physical health is because the physical effect or the knowledge of the potential physical effect that transmission power lines have on people could, in turn, have an effect on the mental state of members of

the community. For example, although utilities in South Africa that are involved in the generation and distribution of electrical energy are bound by the Occupational Health and Safety (OHS) Act (Act 85 of 1993) to provide such services in a safe manner, and the International Commission for Non-Ionising Radiation Protection (ICNIRP) guidelines are used for assessing human exposure to EMFs, some people still fear that these guidelines are not sufficient. The public perception of risks sometimes differs significantly from objective risk assessments conducted by technical experts. Whereas technical risk assessments takes cognisance of the probability and magnitude of events, subjective risk assessment by the general public depends on a number of additional factors, including the degree of choice in the matter, benefits gained from the intervention, as well as whether the risks are immediate and detectable (e.g. the effect of EMFs might prove to be serious in future). These perceptions, should they be present, should be addressed as part of an impact assessment. It could also be that there is no perception of risk, and these should then be addressed.

Other risks associated with a substation and transmission power lines are that a transmission power line could cause fatal/traumatic accidents (e.g. electrocution). Such accidents could be caused by either the collapse of a tower and/or lines due to mechanical failure, disasters or fire. Fire can be caused by electrical malfunction or human error. Fatal accidents could also be caused by electrocution, which could be caused by induced charges, which can build up on fence wires mounted on wood posts near power lines. According to the Eskom website, this phenomenon is generally restricted to higher voltage lines (200 kV or greater).

Also, in light of the baseline community profiles, where it was illustrated that most of these communities live in poverty coupled with high unemployment rates, the probability that cable theft will occur is a possibility. Cable theft is an extremely high risk criminal activity, which further increases the probability and occurrences of accidental electrocution. Although cable theft is not possible, from a technical point of view, on a 400kV line, the possibility that someone would *attempt* cable theft out of ignorance cannot be excluded. An uninformed person only sees a transmission power line and does not necessarily take cognisance of the size of the transmission power line.

Substations are built according to international standards for health, safety, and pollution. Substations are designed in such a way that it can handle incidences that might cause an environmental or operational impact. Fire walls are erected between transformers if the space is confined, and any oil leaks are captured and separated by the specially designed drainage system. Substations are normally fenced off to prohibit unauthorised access. However, these safety mechanisms do not exclude the possibility of the development of the same perceptions on health and safety issues from the public's point of view, i.e. the subjective perception of EMFs and possibility of fire risks and electrocution.

3.4.3 Change process and potential impacts related to sense of place

Sense of place goes hand in hand with place attachment, which is the sense of connectedness a person/community feels towards certain places. Place attachment may be evident at different geographic levels, i.e. site specific (e.g. a house, burial site, or tree where religious gatherings take place), area specific (e.g. a residential area), and/or physiographic specific (e.g. an attachment to the look and feel of an area). The concept of sense of place attempts to integrate the character of a setting with the personal emotions, memories and cultural activities associated with such a setting.

Much of what is valuable in a culture is embedded in place, which cannot be measured in monetary terms. It is because of a sense of place and belonging that some people loath to be moved from their dwelling place, despite the fact that they will be compensated for the inconvenience and impact on their lives.

The potential impact on socio-cultural behaviour and the related perception of environmental changes could either have a positive or a negative impact on sense of place (i.e. peace of mind or frustration/anger). It could be viewed as a positive impact if people *perceive* the project as a means of job creation, free/less expensive electricity, and infrastructural and/or economic development, which is not intrusive on their lives and do not cause them immediate danger.

Potential negative impacts include the visual impact and the resultant intrusion on sense of place. Within the study area there are two distinctly different groups on opposite sides of the spectrum. One the end of the spectrum there are communities (mostly along the proposed western alternative) that live in severe poverty. It is likely that for these communities, given their baseline social profile, it is unlikely that the proposed project would have a visual impact as most of them function on a primary needs level where they are more interested in employment opportunities and the perceived direct positive benefits of the project that would enhance their lives as opposed to the negative impacts. One the other end of the spectrum is a rather wealthy group of farmers who have a more balanced view on the project, i.e. considering the negative impacts vis-à-vis the positive impacts. These farmers function on a higher level within the needs hierarchy and would therefore be more concerned about potential negative impacts such as the visual impact of the proposed transmission power line as opposed to tangible benefits such as temporary job creation. For the first group the proposed project might result in temporary economic relief in the form of income, whereas for the second group, it might result in a more permanent decline in income as a result of loss of business due to a loss of land and/or the visibility of the transmission power line. In the past it has been argued by game farmers and hunting safaris that international tourists refuse to visit/support a game farm/hunting safari where infrastructure such as transmission power lines and fences are visible. If this is indeed the case, the presence and/or visibility of a

transmission power line might result in a decrease in visitor numbers, which in turn could lead to a decline in income. However, these claims would have to be investigated in more detail during the Impact Assessment Phase to determine whether these claims are in fact realistic. As far as could be determined within the scope of this study, the majority of farms in the area are cattle and crop farming, with only a few game farms and/or hunting safaris in active operation.

- **Tourism**

There are a number of guest lodges in operation in the area, as well as a few game farms/hunting lodges. Most game farmers believe that the visibility of a Transmission power line would not only decrease the value of their property, but would also have a negative impact on the economic viability of their businesses. A survey completed by MasterQ Research on a previous project of a similar nature, concluded:

- There might be a decrease in international and local visitors with very specific expectations, should Transmission power lines cross game farms. It seemed as if the hunting experience included a natural setting and an appreciation for a pristine natural environment for most hunters. Although research amongst visitors should be conducted to confirm this hypothesis, it is expected that some international tourists come to a game farm in Africa to experience the wilderness. A visible Transmission power line would detract from the experience, and other farms without lines might be preferred.
- Not all potential tourists will be lost. Game farms with power lines crossing their property were still in business. In fact, some of these owners reported a 100% occupation in the hunting season. Visitors included international hunters. However, results of depth interviews with game farmers indicated the presence of a power line detracted from the sense of place of a game farm, which had financial implications. Game farmers said that they lost some of their income potential due to the visual impact of the power line on their property, and that it was not easy to mitigate the presence of the line. Game farmers interviewed indicated that it was difficult to quantify the loss in income as a result of the line going through their property. However, they had comments from tourists regarding the negative visual impact of the line.
- The decision whether to hunt on a farm with a power line depends on the hunters' expectations. Hunters might want a wilderness experience, but also a good trophy and value for money. A game farm with a power line might be given preference should it better fulfil the expectations of the visitor. This does not mean that the strategic placement of the power lines will not be important. The bigger the farm, the

easier it would be to manage the farm and hunting safari around the Transmission power line. It will also be more difficult to strategically place lines in flat areas.

- The placement of the line will be crucial to reduce potential socio-economic and socio-cultural impacts. The final recommendations in the Social Impact Assessment will have to be informed by the visual impact assessment. This is especially true on the western alternative where the alignment crosses a portion of the farm Tigerhoek 140JS belonging to a Mr J Roux who operates a hunting safari. A cumulative impact can be expected on this farm as the proposed R555 re-alignment also crosses the farm, together with the dam wall of the De Hoop Dam as well as the possibility of the underground water pipeline crossing this property. A suggested route deviation on the western alternative has been made in this regard (refer to Section 5: Conclusions and Recommendations).
- Should hunters not book as a result of the line, the money already spent on marketing might prove to have been a waste of money. The game farm owner might have to change his target market once a power line is on his farm. This might involve a new marketing strategy. It will take years to build up a strong customer base in a new segment of the hunter population.
- Not only game farms with power lines will experience the possible loss of visitors, but also the neighbouring game farms. Game farmers might have to divert game routes and roads on their farms to steer hunters clear of the lines. This will have an economic impact.
- The placement of the Transmission power lines will have to consider game capturing practices.
- Ideally, a study needs to be done to determine the loss of livelihood as a result of a line. Such a study should involve a baseline measurement of the situation prior to the construction of the power line, followed by an assessment post the construction of the power line. The assessment should be done over a period of years, and changes in other variables such as marketing etc. should be considered in the assessment. Ideally, a control group should also be part of the study to assess whether measured changes could be as a result of what was happening in the area, e.g. a decrease in tourism figures was happening in the whole area, and not only on those properties with a power line. The control group should consist of farms with and without a Transmission power line.

3.4.4 Information gaps

In order to assess the potential impacts as a result of socio-cultural change processes, more information is needed about the construction process, construction workers and their movement patterns, maintenance workers and their activities, the potential visual impact of the proposed substation and communication mast. In addition, more information is needed on the value systems of stakeholders, together with the following additional information:

- Local employment creation and expectations;
- Local employment possibilities;
- Expected population influx;
- Origin of construction workers;
- An assessment of the types of farming operations and how the project might change these operations;
- An assessment to determine tourists' perception on the presence and/or visibility of a transmission power line and how this would affect their behaviour;
- The modus operandi for cable theft, steel rafters from pylons and anchor theft, the circumstances that would lead to theft attempts, and how this might be prevented;
- A health profile of the local community (if available), including HIV prevalence;
- The significance of safety and health aspects applicable to the construction workers; and
- Use a case study to better predict and assess potential impacts on both the presence of construction workers as well as the long term impact on tourism activities.

3.4.5 Recommended studies for the Impact Assessment Phase

- Use the results of a comparative post hoc evaluation conducted by MasterQ Research (2007) on the influx and associated social problems that have occurred with the construction of Transmission power lines;
- Use the results of a comparative post hoc evaluation for the housing of construction workers to determine the best housing alternative and location;
- In depth interviews with affected farmers and/or the use of a survey to determine and assess the socio-economic impact on their farms;
- Conduct survey amongst local and international tourists to determine their perception on the presence/visibility of a power transmission line and how this would affect their visiting behaviour;
- Assess the visual assessment report; and
- Consultation with municipal officials and other authority figures (such as the South African Police Service) to determine the current extent of social problems in the area and initiatives to combat them.

3.5 Geographical change processes

Geographical change processes refer to land use change as a result of the actual or perceived changes in land use, whether it be on a temporary or permanent basis. The construction and maintenance of a substation, turn-in lines and transmission power line will lead to a change in the land use within the local area. The assessment of a land use change process from a social perspective takes into account how the substation and transmission power lines might affect the behaviour/lives of land owners and/or land users.

3.5.1 Potential Impacts

Potential land use impacts from a social perspective are considered within the context of change processes in the use of cultivated land, grazing land, mining, infrastructure, and current or future developments. In light of Eskom's guidelines, people are not allowed to reside in the servitude; and the servitude has to be cleared for the most part, with the exception of animals and crops, if crop heights are limited to a maximum height of 4 meters. No structures are allowed within the 55m servitude for a 400kV transmission power line.

- **Cultivated land**

Experience has shown that, although it is more complicated and even though some land is lost, it is still possible to cultivate land around transmission power line towers. Fire risks increase where crops are high in oil or sugar content, which in turn could impact on the health and safety of people, and also has a potential economic impact.

In terms of crop irrigation, evidence was found of a number of irrigation schemes within the study area in the form of centre pivots. It is preferable that a 400kV line does not cross centre pivots, not only because of the proximity of the water to the Transmission power line, but also because the placement of towers might interfere with sub surface irrigation pipes, and the space needed for the centre pivot.

According to the soil information report that scoped the agricultural potential in the area, the eastern alternative consists mostly of rocky terrain in the south, with some soil with high agricultural potential in places. The western alternative consists mostly of soil that has a low to medium agricultural potential. The same agricultural potential can be found in the areas surrounding the northern sub-alternative, the turn-in line and the R555 alignment.

- **Grazing land**

Transmission power line towers and lines on grazing land pose fewer problems, as cattle can move around towers, which mean that less grazing land is lost in the process. However, in the past it has happened that construction/maintenance workers associated with transmission power lines have been careless and left gates open, did not follow access roads and cut through fences. The effect could be that less land is available for cultivation and grazing, cross breeding of cattle occurs, cattle is lost, and erosion is accelerated – which all have an economic impact, and could further impact on the safety of animals.

- **Mining**

Transmission lines should avoid mining activities due to the possibility of slumping and underground fires. Also, towers pose a risk to mining activities in the form of towers falling over, with health and safety as well as economic impacts as a result. In turn, the mining activities might also pose a risk to the safety of the transmission power line; if for example, blasting takes place at the mining operation.

Where the western alternative splits from the eastern alternative (towards the northeast of the study area), this alternative runs approximately right through the middle of the proposed Spitzkop Platinum Mine area, which is located to the southwest of Steelpoort on the farms Spitzkop 333KT, De Goede Verwachting 332KT and Kennedy's Vale 331KT. According to this project's Background Information Document (BID), the mine will largely consist of underground operations and construction will commence as soon as authorisation has been obtained from the relevant authorities. The project is currently in Scoping Phase and the EIA will commence in August 2007 and it is expected to be completed by March 2008. It is the intention of Spitzkop Platinum (Pty) Ltd to commission this mining operation during 2009.

The mining proponent has indicated that they do not require the transmission power line to avoid their property completely, but that certain fixed infrastructure will be present on the property that the transmission power line would interfere with. This requirement gave rise to a proposed re-alignment of the western alternative, known as the R555 sub-alternative. This sub-alternative will to a large extent skirt this proposed mining operation, as this sub-alternative runs on the southern border of the proposed mining site along the R555 alignment.

- **Railway lines and pipelines**

Transmission lines in close proximity of electric railway lines should be avoided to ensure that there is no cross-interference with the railway. A transmission line can cross over a railway line, but should not run parallel next to a railway line for an extended distance.

DWAF is planning an underground water pipeline between the De Hoop Dam and the PSS, with the intention of supplying the PSS with water from the De Hoop Dam. Although it is preferable that gas and water pipeline servitudes be avoided, in this instance the land owners in the area insists that the transmission power line and pipeline be placed as close together as possible to minimise the cumulative impact on their farms. However, it is unclear at this point what the associated risk would be if the pipeline and the transmission power line were to be placed within a single servitude. It is therefore suggested that DWAF consult with Eskom on this issue when they are planning the alignment of the pipeline between the De Hoop dam and the PSS. The potential impacts in such circumstances relate to economical and health and safety impacts.

- **Housing**

Experience has shown that where servitudes run in close proximity to communities, housing usually develops illegally into the servitude, either because of normal growth, urbanisation or job expectations because of the project. Such housing structures are mostly informal houses, but can also be formal housing structures. This has health and safety implications for people, and needs to be considered as the relocation of households might be necessary, in the case of the western alternative. Evidence has been found of housing structures encroaching upon the western alternative servitude, which leads to the very real possibility that some households might have already settled within the servitude once construction starts.

3.5.2 Information gaps

To fully assess the potential impacts as a result of land use change processes, more information is needed on the following aspects:

- The agricultural potential of the sites;
- Planned developments for the area;
- Planned mining activities; and
- Current and future road and pipeline developments.

3.5.3 Recommended studies for the Impact Assessment Phase

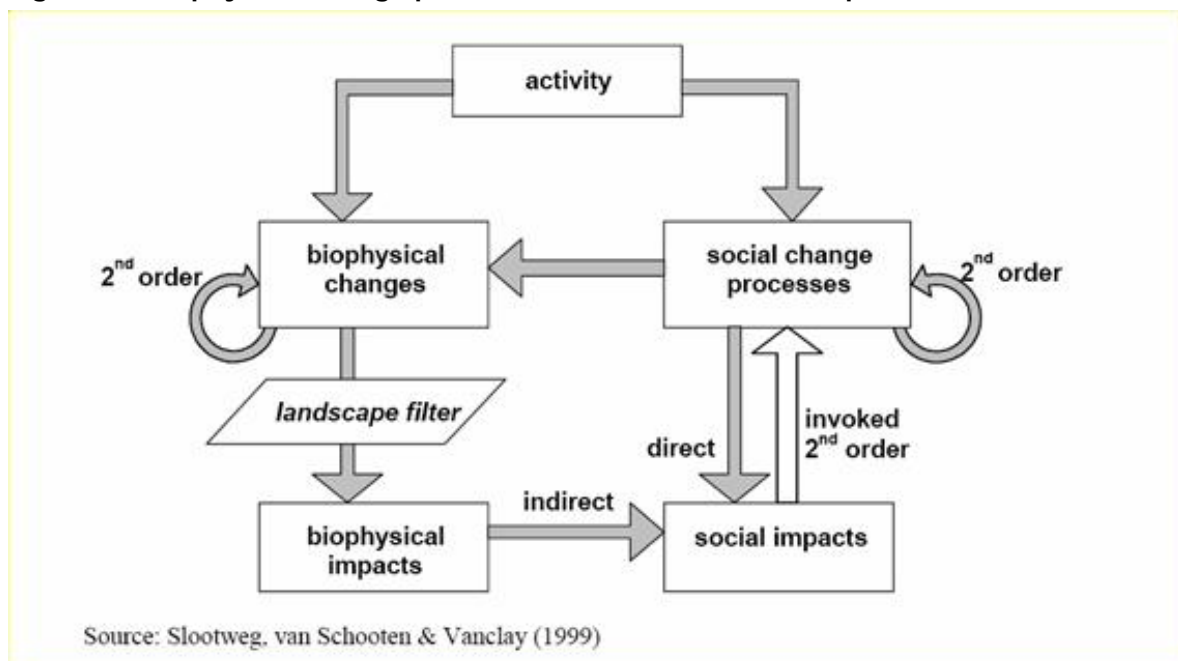
In order to address these information gaps, the following studies are recommended for the Impact Assessment Phase:

- Assess detailed specialist reports for this project and the other related projects;
- Access the recent Spatial Development Frameworks of the municipalities and/or interview the relevant town planners of the affected local municipalities; and
- Interview project managers, Eskom technical representatives and relevant mining companies.

3.6 Biophysical Change Processes

The biophysical environment can lead to indirect social impacts, as illustrated in Figure 3. For example, relocation of people can have an impact on income levels, which can lead to processes of rural to urban migration, which can result in further impacts on income levels and changes in food production. Social change processes can also lead to biophysical change processes. Economic developments to increase tourism numbers can change land use and water quality, which can have indirect human impacts because of the reduction in agricultural production, and subsequent lower income levels (Slootweg et al. 2001).

Figure 3: Bio-physical change processes and indirect social impacts



3.6.1 Potential Impacts: Construction

The construction workers might be housed in a construction village. Their presence in the village and on site will impact on the environment, which in turn will impact on the surrounding communities. The following change processes and impacts could develop due to the biophysical changes and changes in the physical environment as a result of construction and maintenance.

- **Sanitation**

A lack of proper sanitation services could lead to health impacts, not only at the construction village itself, but also spreading to the surrounding local community and possibly livestock grazing in the area.

- **Littering**

Littering could also have further impacts on health and safety. Not only is littering a breeding ground for bacteria, but it could also pose a fire hazard if it contains flammable elements such as paper and plastic.

- **Pollution**

Vehicles used for construction and maintenance activities could also create fuel and dust pollution, and further impact on the ambient environmental conditions.

The substation will potentially impact on the environment, which could result in indirect social impacts. Although great care is taken at a substation to manage oils, etc. the potential for the pollution of groundwater, due to human error, could affect water quality, which in turn could affect vegetation and the health of surrounding communities who are largely dependant on these natural water sources.

The above biophysical change process have potential economic, physical and mental health impacts.

3.6.2 Information gaps

For a detailed impact assessment, more information is required on excavation activities, civil works, proposed access roads, application of herbicides for weed control, drainage, as well as plans for road upgrades.

3.6.3 Recommended studies for the Impact Assessment Phase

In order to address these information gaps, the following studies are recommended for the Impact Assessment Phase:

- Interview Eskom technical representatives;
- Assess detailed specialist reports;
- Obtain information on infrastructural development plans (if any) from municipal officials; and
- Compare the potential impacts of a construction village versus housing the workers in the community through a desktop study.

4. ROUTE ALIGNMENT COMPARISON

This section intends to address the objective:

- Conduct a preliminary comparison between the alternative study corridors in order to determine which of them is likely to have the least significant negative impacts on the change processes.

This section provides a broad evaluation of the social change processes that might come to the fore should the project be implemented. Potential impacts are not assessed in detail, as the overall objective of the Scoping Phase is to provide, from a broad framework, a more focussed framework for the detailed Impact Assessment Phase.

The alternative route alignments are as follows:

- Proposed eastern alternative
- Proposed western alternative
- Proposed northern sub-alternative

Only one substation site and one turn-in line alignment have been identified, and currently no fatal flaws from a social perspective have been identified for the substation site. Even though it cannot be classified as a fatal flaw, the close proximity of the turn-in line to the south of Hlogotlou is a point of concern at this point in time. Although the use of a double circuit line might minimise the impact due to the use of only a 55m servitude, the presence of the servitude will still have an impact in terms of potential future settlement expansion/development.

In order to make a recommendation on the most appropriate alignment for the proposed transmission power line between the Steelpoort and Merensky substations in respect of its anticipated social impacts, a distinction was made between the following impacts:

- **Category 1:** Impacts that are not expected to differ between the proposed alternative alignments, e.g. the number of employment opportunities that might be created by the proposed project are expected to remain the same, irrespective of the chosen alternative; and
- **Category 2:** Impacts that are expected to cause significant changes between the proposed alternative alignments, e.g. the need to resettle certain households increases proportionately if the transmission power line traverses densely populated areas as opposed to passing through sparsely populated areas.

The relative advantages and disadvantages of the alternative route alignments were assessed by focusing on the second category of anticipated impacts (i.e. those impacts

that are a direct result of the chosen alternative); in order to determine which alternative route alignment is likely to have the least significant negative impacts on the social environment.

4.1 Proposed eastern alternative

This alternative is located well away from any settlements, but it appears as if new and fairly long access roads will have to be constructed, which might impact on subsistence farmers (if present in the area) and future developments. The soil within the southern section of this alternative has been rated as having a high agricultural potential and therefore the alignment of access roads would have to be planned carefully.

4.2 Proposed western alternative

The main concern with this alternative is that it is in fairly close proximity to settlements such as parts of Kokwanong and Mmaphoko. Kokwanong specifically has a very high population density which could intensify potential health and safety impacts. Further concerns are whether there is sufficient space available for the servitude, whether people might move into the servitude in future (exposing themselves to health and safety risks), and the fairly close proximity of this alignment to the proposed De Hoop Dam, of which the SDM have identified the western banks of the dam as an ideal location for a tourist attraction, give the easy access from the re-aligned R555. If this is the case, the western alternative would have a visual impact on such activities.

Where the western alternative splits from the eastern alternative (towards the northeast of the study area), this alternative runs approximately right through the middle of the proposed Spitzkop Platinum Mine area, which is located to the southwest of Steelpoort on the farms Spitzkop 333KT, De Goede Verwachting 332KT and Kennedy's Vale 331KT. According to this project's Background Information Document (BID), the mine will largely consist of underground operations and construction will commence as soon as authorisation has been obtained from the relevant authorities. The project is currently in Scoping Phase and the EIA will commence in August 2007 and it is expected to be completed by March 2008. It is the intention of Spitzkop Platinum (Pty) Ltd to commission this mining operation during 2009.

However, construction impacts in terms of access roads will be less when compared to the eastern alternative, since existing access routes could be used, and because of easy access from the R555.

4.3 Proposed northern sub-alternative

As with the proposed western alternative, this alternative is located within close proximity to built-up areas. It also appears as if new and fairly long access roads will have to be constructed, which might impact on subsistence farmers (if present in the area) and future developments.

However, during a meeting with the Greater Tubatse Municipality (GTM) held on 27 June 2007, it also came to light that the land surrounding this sub-alternative has been proclaimed for residential and light industrial development for which a separate EIA study is currently underway. The "Olifantspoortje Development" site is bordered by the Steelpoort River to the north and east, the R555 to the south and a secondary road to the west. The Merensky substation also falls within the site and therefore there are already a number of transmission as well as distribution power lines cutting across the site. Part of the northern sub-alternative cuts across this proposed development to the north of the site.

4.4 Proposed R555 sub-alternative

The mining proponent has indicated that they do not require the transmission power line to avoid their property completely, but that certain fixed infrastructure will be present on the property that the transmission power line would interfere with. This requirement gave rise to a proposed re-alignment of the western alternative, known as the R555 sub-alternative. This sub-alternative will to a large extent skirt this proposed mining operation, as this sub-alternative runs on the southern border of the proposed mining site along the R555 alignment.

The proposed R555 sub-alternative splits from the eastern alternative to follow the alignment of the R555 where it travels on the border of and to the south of the proposed Spitzkop Platinum Mine area. This sub-alternative joins up with the western alternative, just north of Kenny's Vale on the Farm Belvedere 362KT.

This sub-alternative mainly passes through tribal land, and no settlements and/or housing structures could be observed in close proximity to the servitude.

4.5 Proposed southern sub-alternative

The southern sub-alternative connects the eastern alternative with the western alternative, parallel to the gravel road between Steelpoort Park and Kalkfontein. From where the southern sub-alternative connected with the western alternative, it follows the alignment of the western alternative. It would appear that the southern sub-alternative

passes in close proximity to a settlement called Steelpoort Park, which is a point of concern.

5. CONCLUSIONS AND RECOMMENDATIONS

This report fulfilled the objectives of the Scoping Phase, which was to complete a broad assessment of the project from a social perspective to enable a more focused study in the Impact Assessment Phase.

In conducting the preliminary comparison among the alternative route alignments, by broadly assessing the potential impacts, the **eastern alternative** emerged as the preferred alternative from a social perspective. The second preferred alignment is the **western alternative** following **the R555 sub-alternative** alignment. However, as this alternative passes in close proximity to settlements, established tourism areas (game lodges) or areas with tourism potential (the De Hoop Dam), and across an identified heritage site, careful consideration would have to be given during construction and operation to the mitigation measures that will be proposed during the next phase of the project.

In the event that both alternatives are assessed during the Impact Assessment Phase, a slight deviation is suggested on the western alternative where it crosses the portion of Tigershoek 140JS belonging to Mr J Roux. It is suggested that the western alternative be re-aligned to follow the R555 more closely in order to minimise the cumulative impact on this property, which is operated as a hunting safari. Instead of cutting across the property, the proposed transmission line would then follow the R555 alignment and then along the border of this farm, as shown in figure 4 below.

Figure 4: Suggested deviation on western alternative



It is believed that such a deviation would also reduce the potential for social mobilisation, as this property owner has already made his intentions clear to oppose a transmission power line cutting across his property in addition to the proposed R555 re-alignment, the dam wall of the De Hoop dam, as well as the proposed underground water pipeline.

This recommendation was based on the specialist's:

- Understanding of the proposed project, including the alternative route alignments and the nature and timeframe of the proposed activities;
- Assessment of the affected communities, settlements and institutions in terms of:
 - * Demographic processes (the number and composition of people);
 - * Economic processes (the way in which people make a living and the economic activities in society);
 - * Empowerment, institutional and legal processes (the ability of people to get involved in and influence decision making processes, the role, efficiency and operation of governments and other organisations); and
 - * Socio-cultural processes (the way in which humans behave, interact and relate to each other and their environment and the belief and value systems which guide these interactions).

- * Geographical processes (land use patterns);
- * Bio-physical processes (the natural environment); and
- Assessment of potential change processes that might occur as a result of the project.

6. TERMS OF REFERENCE FOR THE EIA PHASE

Demographic Change Processes			
Expected Change Process	Issues / Concerns	Further studies	Methodology
Influx of people: job seekers, construction workers and maintenance workers	Number of employment opportunities	<ul style="list-style-type: none"> The construction processes and associated timeframes for the various projects in the area; The composition of the various projects' construction workforces in terms of size, skills levels, and origin; The composition of the maintenance workforce and their activities; The social processes related to the construction of a substation; The number of local employment opportunities; The expectations of the local communities in terms of employment opportunities; and The local municipalities' and other service providers' capacity to handle an increased demand for products and services at either the construction site(s) itself or at the construction camp. 	<ul style="list-style-type: none"> Conduct interviews with Eskom technical representatives; Conduct interviews with municipal officials and other stakeholders in the area; The use a case study to better predict and assess potential impacts; and Comparing the potential impacts of a construction village versus housing the workers in the community by doing a desktop study.
	Potential conflict between newcomers and locals, because of unemployment of locals		
	Lack of services, infrastructure and supplies to accommodate job seekers and construction workers		
	Potential health impacts as a result of lack of infrastructure, services, money, employment, migratory profile, population density		
	Levels of education might not be sufficient to secure jobs		

Economic Change Processes			
Expected Change Process	Issues / Concerns	Further studies	Methodology
Job opportunities / economic impact	Job opportunities are temporary	<ul style="list-style-type: none"> The construction process and associated timeframes; The composition of the construction workforce in terms of size, skills levels, and origin; The social processes related to the construction of a substation; The local employment opportunities that will be created, both direct and indirect formal and informal job opportunities; The expectations of the local communities in terms of employment opportunities; and Comparing the potential impacts of a construction village versus housing the workers in the community by doing a desktop study. 	<ul style="list-style-type: none"> Conduct interviews with Eskom technical representatives; The use a case study to better predict and assess potential impacts; and Determine whether there is a recruitment agency and/or labour union active in the area, e.g. the DWAF labour desk, and if so, consult with such a body to determine whether it would be possible to utilise them to recruit local job seekers.
	Health risks as a result of indirect / informal job opportunities		
	Influx of workers / job seekers boost economy, but potential negative impacts need to be mitigated		
	Housing in a construction camp / in communities		

Empowerment/Legal/Institutional Change Processes			
Expected Change Process	Issues / Concerns	Further studies	Methodology
Servitude will be registered Provision of services during construction	Negotiation process	<ul style="list-style-type: none"> The potential for opposition to the project, and if so, the reasons behind this opposition; Communities' expectations from the project; 	<ul style="list-style-type: none"> In collaboration with the public participation practitioner, in-depth consultation with directly affected landowners should be undertaken to elicit issues and

Empowerment/Legal/Institutional Change Processes

	<p>Capacity to provide services</p>	<ul style="list-style-type: none"> • The receiving communities' understanding of the project; • The way in which landowners and tribal authorities expect the negotiation process to proceed; and • The services delivery capacity of the various local municipalities. 	<p>concerns;</p> <ul style="list-style-type: none"> • The change processes that could be expected as a result of the construction and operation process of the substation, the turn-in lines and the transmission power line should be shared in such a way with the directly affected parties that it would not only elicit issues and concerns, but also empower them to actively participate in the process and be informed about the EIA and negotiation processes; and • Interviews with tribal authorities and municipal officials will be conducted to address potential issues on the negotiation process and services delivery issues, respectively.
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Socio-cultural Change Processes			
Expected Change Process	Issues / Concerns	Further studies	Methodology
Health / well-being (mental, physical, social) Sense of place Daily movement patterns Safety	Impacts of construction / migratory workers and construction activities on locals' health, well-being and movements Cable theft	<ul style="list-style-type: none"> • Local employment creation and expectations; • Local employment possibilities; • Expected population influx; • Origin of construction workers; • An assessment of the types of farming operations and how the project might change these operations; • An assessment to determine tourists' perception on the presence and/or visibility of a transmission power line and how this would affect their behaviour; • The modus operandi for cable theft, steel rafters from pylons and anchor theft, the circumstances that would lead to theft attempts, and how this might be prevented; • A health profile of the local community (if available), including HIV prevalence; • The significance of safety and health aspects applicable to the construction workers; and • Use a case study to better predict and assess potential impacts on both the presence of construction 	<ul style="list-style-type: none"> • social problems that have occurred with the construction of Transmission power lines; • Use the results of a comparative post hoc evaluation for the housing of construction workers to determine the best housing alternative and location; • In depth interviews with affected farmers and/or the use of a survey to determine and assess the socio-economic impact on their farms; • Conduct survey amongst local and international tourists to determine their perception on the presence/visibility of a power transmission line and how this would affect their visiting behaviour; • Assess the visual assessment report; and • Consultation with municipal officials and other authority figures (such as the South African Police Service) to determine the current extent of social problems in the area and

Socio-cultural Change Processes			
Expected Change Process	Issues / Concerns	Further studies	Methodology
		workers as well as the long term impact on tourism activities.	initiatives to combat them.

Geographical Change Processes			
Expected Change Process	Issues / Concerns	Further studies	Methodology
Servitude of 55m per 400kV transmission power line and turn-in line and physical space taken up by substation	No dwellings allowed in the servitude - current and future developments, informal dwellings, dwelling density	<ul style="list-style-type: none"> The agricultural potential of the sites; Planned developments for the area; Planned mining activities; and Current and future road and pipeline developments. 	<ul style="list-style-type: none"> Assess detailed specialist reports for this project and the other related projects; Access the recent Spatial Development Frameworks of the municipalities and/or interview the relevant town planners of the affected local municipalities; and Interview project managers, Eskom technical representatives and relevant mining companies.
	Current and potential mining activities and potential safety risks		
	Loss of agricultural land		
	Impact of construction and maintenance teams		

Bio-physical Change Processes			
Expected Change Process	Issues / Concerns	Further studies	Methodology
Changes to the environment and cumulative impacts that can be expected as a result of the construction and operation of the Steelpoort Pumped Storage Scheme	Indirect social impacts (health and economic)	For a detailed impact assessment, more information is required on excavation activities, civil works, proposed access roads, application of herbicides for weed control, drainage, as well as plans for road	<ul style="list-style-type: none"> Interview Eskom technical representatives; Assess detailed specialist reports; Obtain information on infrastructural development plans (if any) to from municipal

Bio-physical Change Processes

		upgrades.	officials; <ul style="list-style-type: none">• Use a case study to better predict and assess potential impacts on both the presence of construction workers as well as the long term impact on tourism activities; and• Compare the potential impacts of a construction village versus housing the workers in the community through a desktop study.
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7. SOURCES CONSULTED

7.1 Municipal Documents

- Sekhukhune District Municipality IDP Review, 2005/06
- Greater Tubatse Local Municipality IDP Review, 2004/05
- IDP for the Makhuduthamaga Local Municipality, update of the 2005/06 IDP
- Greater Groblersdal Reviewed IDP, 2005/06

7.2 Other documents

- MasterQ Research (2007). Social Impact Assessment for the Proposed Steelpoort Pumped Storage Scheme.
- MasterQ Research (2007). Socio-economic Survey, Potential Socio-economic Impacts in constructing 4x400kV Transmission power lines from Mmamabula power station to Delta substation (SESMD MQR).
- Municipal Demarcation Board. Assessment of capacity for the 2004 period: Sekhukhune District Municipality (CBDC3).
- Slootweg R, Vanclay F, van Schooten M. Function evaluation as a framework for the integration of social and environmental impact assessment. Impact Assess Project Appraisal 2001; 19(1):19–28.
- Vanclay, F. 2002. Environmental Impact Assessment Review 22:183–211
- Zadik, M.H. (1985). Social perspectives in horticulture. Proceedings of the Longwood graduate program seminars 17:36-41. Longwood Gardens, PA.

7.3 Websites

- <http://www.demarcation.org.za> accessed June 2007.
- <http://www.eliasmotsoaledi.gov.za> accessed June 2007.
- <http://www.eskom.co.za> accessed July 2007.
- <http://www.makhuduthamaga.gov.za> accessed June 2007.
- <http://www.sekhukhune.gov.za> accessed June 2007.
- <http://www.tubatse.co.za> accessed June 2007.
- <http://www.law.wits.ac.za/lcc/about.html>, accessed July 2007.

7.4 Maps

- Steelpoort Integration Map of alternative route alignments
- Steelpoort Integration Project: Topo-cadastral base map
- Steelpoort map of substation site