# Kusile 60 year ash disposal facility

## Social Impact Assessment

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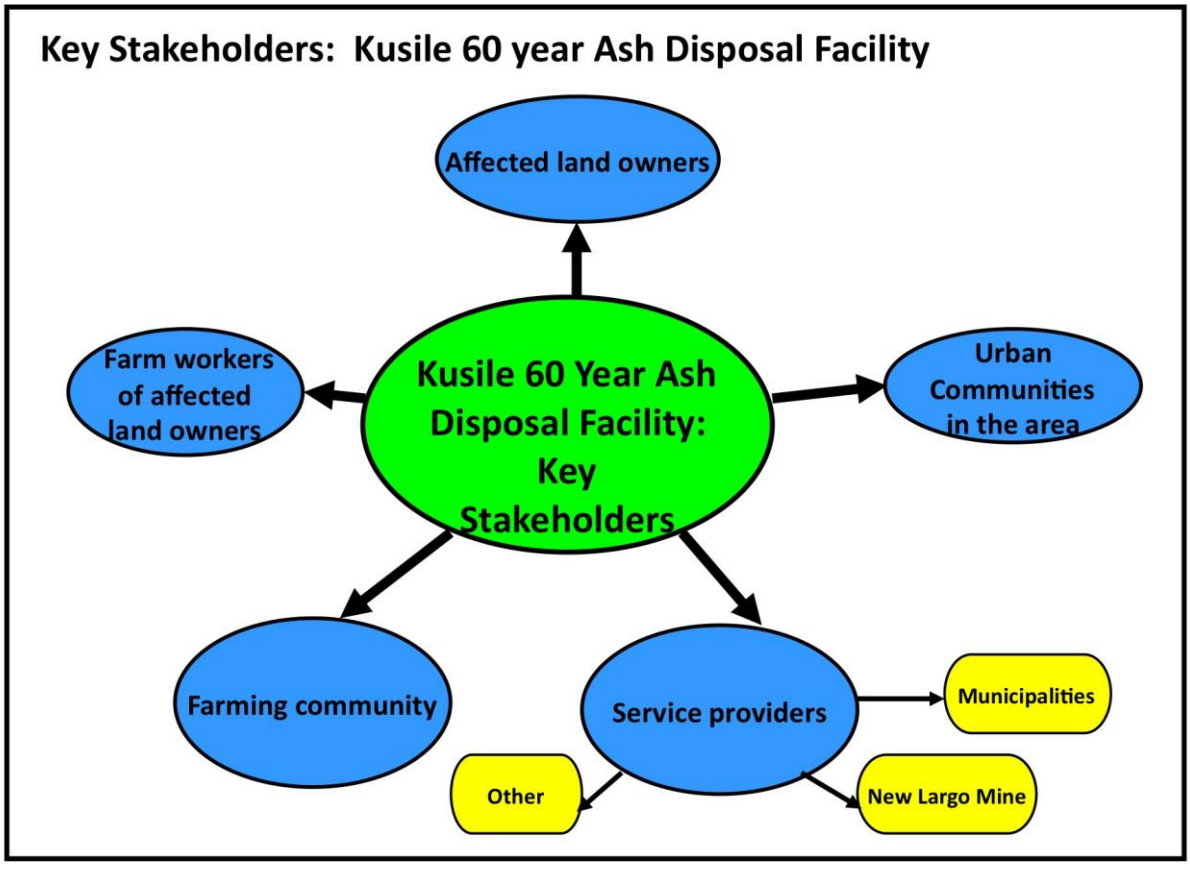
**EXECUTIVE SUMMARY**

The Kusile power station currently has authorisation for an ash disposal facility that was authorised as part of the authorisation for the power station itself. Considering the power station operations for the next 60 years, a larger ash disposal facility is required. Potential sites within a 15 km radius of the Kusile power station were investigated. Initially Site A was identified as the most suitable alternative. In August 2013 the Department of Water Affairs requested that Site B should also be assessed as a potential site, and this report was updated accordingly.

The site alternatives are located in the Victor Khanye Local Municipality that is located in the Mpumalanga Province and the City of Tshwane Metropolitan Municipality that is located in the Gauteng Province.

The following potentially affected stakeholders were identified:




A stakeholder analysis was conducted and the potential impacts on each stakeholder group were investigated. The table below contains a summary of the potential impacts and the stakeholder groups that may be affected by these impacts:

| Social change processes | Possible social impact | Affected stakeholder group | Project phase |
|---|---|---|---|
| In-migration of people | Adequacy of physical infrastructure – impacts on the existing infrastructure of the community such as water supply, sewage, land, etc)<br>Adequacy of social infrastructure – changes in demand for and supply of basic social services and facilities such as education, police, libraries, welfare services, etc.<br>Threats to personal safety and fear of crime (includes HIV/AIDS, STDs and deviant social behaviour) | Urban communities<br>Farming community<br>Service providers | Pre-construction<br>Construction<br>Operation |
| Presence of temporary workers | Threats to personal safety and fear of crime<br>Adequacy of physical infrastructure | Urban communities<br>Farming community | Construction<br>Operation |
| Resettlement of businesses | Loss of employment options and livelihoods<br>Disruption of local economic systems<br>Decrease in standard of living | Affected land owners<br>Farm workers | Pre-construction<br>Construction |
| Conversion of economic activities<br>Conversion of land use | Change in quality of living environment in terms of exposure to dust, noise, commuting time (traffic), | Farming community<br>Surrounding communities | Pre-construction<br>Construction<br>Operation<br>Closure |

| | | | |
|---|---|---|---|
| | presence of strangers<br>Change in aesthetic quality of environment<br>Changes in sense of place<br>Uncertainty<br>Loss of autonomy<br>Disruption of local economic systems<br>Reduced standard of living<br>Increase in employment opportunities<br>Threats to personal safety and hazard exposure<br>Decrease in property values<br>Impact on food security | | Post-closure |
| Impoverishment | Increased levels of unemployment in the community | Surrounding communities | Closure<br>Post-closure |

Mitigation measures and monitoring plans were suggested for each potential impact. Many of the social impacts are unavoidable and will take place, therefore the management of social impacts are much more important than the identification. A number of social impacts will need to be managed for the entire life of the project. Some social impacts occur as a result of bad communication processes, and positive relationships can go a long way in dealing with the issues. The way in which issues are approached, is a crucial aspect in the success with which it can be dealt with. The following general recommendations are made:

- Enter in discussion with affected land owners to come up with a solution in line with international standards to compensate them for the loss of property and to assist them in recreating their livelihoods, as well as the livelihoods of dependent farm workers;
- Ensure recommendations of relevant bio-physical studies like air quality and noise are implemented;
- Make sure workers wear identification cards and vehicles can easily be identified. Create/join a community policing forum.

- Meet with local municipality to discuss the potential impact of the proposed project on their service delivery.
- Create employment policy and communicate it to stakeholders. Employ local people where possible.
- Compile a community relations strategy and appoint a community liaison officer;
- Put a complaints procedure/grievance mechanism in place;
- Compile a communication strategy to regularly communicate specifically with land owners affected by alternatives and keep them up to date with developments;
- Implement a drug and alcohol management policy for employees.
- Implement health and safety programme, including training, on site.
- Prepare employees for closure phase well in advance. Employee assistance programme can assist with mental and physical preparation of employees.
- Assist staff with finding alternative employment during closure phase.
- Give referrals to regular suppliers, especially SMME's, in closure phase.
- Follow IFC retrenchment guidelines when retrenchments have to take place.

When considering the social impacts of the ash disposal facility, the importance of the Kusile power station on a national scale must be considered. The supply of electricity is a critical issue in South Africa and the proposed project will add to the stability of the service. The new ash disposal facility will support the life of the power station, which is extremely important on a national level. The land on Alternative A already belongs to Eskom and no people will have to be resettled. In contrast, Site B belongs to individual land owners and will result in significant loss of livelihoods and job opportunities. There will also be a down-stream impact on food security. The biggest impact on the surrounding communities will be a change in the quality of their living environment, with an anticipated increase in nuisance created by dust, noise, traffic (increase in commuting time) and the presence of strangers. There are concerns about the health of the community members as well as that of livestock and crops. Pressure on physical and social infrastructure is also a concern, but it is anticipated that the project's contribution to this pressure would be quite small. Most of the impacts can to some extent be managed, although the communities have expressed a lack of faith in

mitigation measures as either not being applied, or not being particularly effective, basing their views on current experiences.

The need for the proposed project is undeniable in the current economic conditions. Alternative A has the smallest impact of all the alternatives that were considered from a social perspective. It is therefore recommended that the proposed project is approved with Alternative A.

## Declaration of Independence

Ptersa Environmental Management Consultants declare that:

- All work undertaken relating to the proposed project were done as an independent consultants;
- They have 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;
- They have undertaken all the work and associated studies in an objective manner, even if the findings of these studies were not favourable to the project proponent;
- They have no vested interest, financial or otherwise, in the proposed project or the outcome thereof, apart from remuneration for the work undertaken under the auspices of the abovementioned regulations;
- They have 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 relevant required regulations;
- They have 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.

## Record of Experience

This report was compiled by San-Marié Aucamp and Ilse Aucamp.

**San-Marié Aucamp** is a registered Research Psychologist with extensive experience in both the practical and theoretical aspects of social research. She has more than 10 years experience in social research and she occasionally presents guest lectures on social impact assessment. Her experience includes social impact assessments, social and labour plans, training, group facilitation as well as social research. She is a past council member of the Southern African Marketing Research Association (SAMRA).

**Ilse Aucamp** has more than 12 years of experience in Social Impact Assessment. She holds a Masters degree in Environmental Management as well as a degree in Social Work and is frequently a guest lecturer in pre- as well as post-graduate programmes at various tertiary institutions. Her expertise includes social impact assessments, social management plans, social and labour plans, social auditing, training as well as public participation. She is the past international chairperson of the Social Impact Assessment section of the International Association of Impact Assessment (IAIA) as well as a past member of the National Executive Council of IAIA South Africa.

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# GLOSSARY OF TERMS

**Sense of place:** Defining oneself in terms of a given piece of land. It is the manner in which humans relate or feel about the environments in which they live.

**Social impact:** Something that is experienced or felt by humans. It can be positive or negative. Social impacts can be experienced in a physical or perceptual sense.

**Social change process:** A discreet, observable and describable process that changes the characteristics of a society, taking place regardless of the societal context (that is, independent of specific groups, religions etc.) These processes may, in certain circumstances and depending on the context, lead to the experience of social impacts.

**Social Impact Assessment:** The processes of analysing, monitoring and managing the intended and unintended social consequences, both positive and negative, of planned interventions (policies, programs, plans, projects) and any social change processes invoked by these interventions. Its primary purpose is to bring about a more sustainable and equitable biophysical and human environment.

**Social license to operate:** The acceptance and belief by society, and specifically local communities, in the value creation of activities.

**Social risk**: Risk resulting from a social or socio-economic source. Social risk comprises both the objective threat of harm and the subjective perception of risk for harm.

**LIST OF ABBREVIATIONS**

| | |
|---|---|
| CPA | Communal Property Association |
| CR | Community Relations |
| CS | Community Survey |
| DM | District Municipality |
| EIA | Environmental Impact Assessment |
| EMPr | Environmental Management Programme |
| ESOMAR | European Society for Opinion and Marketing Research (World association for market, social and opinion researchers) |
| GDP | Gross Domestic Product |
| HDSA | Historically Disadvantaged South African |
| IDP | Integrated Development Plan |
| IFC | International Finance Corporation |
| LM | Local Municipality |
| NEMA | National Environmental Management Act |
| SAMRA | Southern African Marketing Research Association |
| SIA | Social Impact Assessment |
| UNEP | United Nations Environmental Programme |

# 1 Introduction

The purpose of this report is to provide baseline information regarding the social environment affected by the proposed development, to identify possible social impacts that may come about as a result of the proposed development and to suggest ways in which these impacts can be mitigated. This will assist decision-makers on the project in making informed decisions by providing information on the potential or actual consequences of their proposed activities. The process entailed the following:

- A baseline socio-economic description of the affected environment;
- Identification of potential social change processes that may occur as a result of the project;
- Identification of potential social impacts; and
- Identification of preliminary social management measures.

Disregarding social impacts can alter the cost-benefit equation of development and in some cases even undermine the overall viability of a project. A proper social impact assessment can have many benefits for a proposed development (UNEP, 2002) such as:

- Reduced impacts on communities of individuals,
- Enhanced benefits to those affected,
- Avoiding delays and obstruction – helps to gain development approval (social license),
- Lowered costs,
- Better community and stakeholder relations,
- Improved proposals.

Zitholele Consulting (Pty) Ltd was appointed to manage the environmental authorisation process for the proposed 60-year ash disposal facility for the Kusile power station and they appointed Ptersa Environmental Management Consultants to perform a social impact assessment to include in their study. This report represents the social impact assessment for the proposed project.

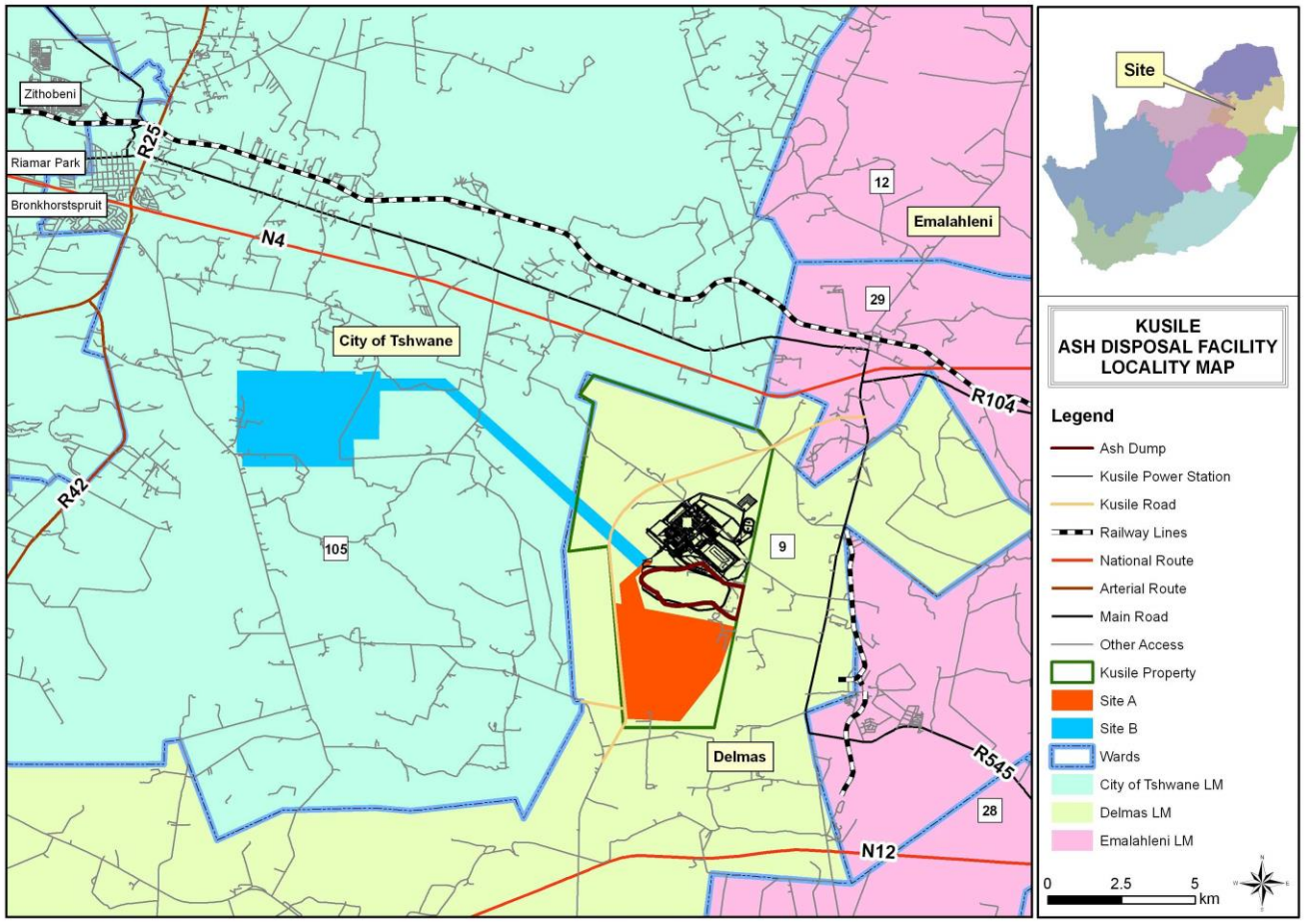
# 2 Background and project overview

The Kusile power station currently has authorisation for an ash disposal facility that was authorised as part of the authorisation for the power station itself. Considering the power station operations for the next 60 years, a larger ash disposal facility is required. Potential sites within a 15 km radius of the Kusile power station were investigated. It is anticipated that the proposed new ash disposal facility will have an estimated footprint of between 1 200 and 1 500 hectares, including associated infrastructure components that may consist of:

- A conveyor belt for the transportation of waste to the ash disposal site;
- Services include electricity and water in the form of power lines, pipelines and associated infrastructure; and
- Access and maintenance roads to the ash disposal facility.

The ash produced over the 60-year lifespan of the power station is estimated at approximately 460 million $m^3$ and the proposed ash disposal facility will be approximately 40 to 100 m high at its lowest point at the end of its lifespan. Following a site selection process managed by Zitholele Consultants and involving all specialists, Alternative A was identified as the most suitable option for the proposed facility and the impact assessment was done taking this into consideration. In August 2013 the Department of Water Affairs requested that Alternative B must be included in the impact assessment, and the report was adapted accordingly. Figure 1 below indicates the location of the alternatives.

## Figure 1: Locality of proposed project



# 3 Study approach

## 3.1 Information base

The information used in this study was based on the following:

1. A literature review (see list provided in the References);
2. Professional judgement based on experience gained with similar projects;
3. Focus group meetings and individual meetings with affected parties.

## 3.2 Assumptions and limitations

The following assumptions and limitations were relevant:

1. Not every individual in the community could be interviewed therefore only key people in the community were approached for discussion. Additional information was obtained using existing data, records of public meetings and via telephonic and personal interviews.
2. The social environment constantly changes and adapts to change, and external factors outside the scope of the project can offset social changes, for example changes in local political leadership. It is therefore difficult to predict all impacts to a high level of accuracy, although care has been taken to identify and address the most likely impacts in the most appropriate way for the current local context within the limitations.
3. Social impacts can be felt on an actual or perceptual level, and therefore it is not always straightforward to measure the impacts in a quantitative manner.
4. Social impacts commence when the project enters the public domain. Some of these impacts are thus already taking place, irrespective of whether the project continues or not. These impacts are difficult to mitigate and some would require immediate action to minimise the risk.
5. There are different groups with different interests in the community, and what one group may experience as a positive social impact, another group may experience as a negative impact. This duality will be pointed out in the impact assessment phase of the report.
6. Social impacts are not site-specific, but take place in the communities surrounding the

proposed development.

### 3.3 Methodology

Scientific social research methods were used for this assessment. In order to clarify the process to the reader, this section will start with a brief explanation of the processes that have been used in this study.

#### 3.3.1 Defining of concepts

The theoretical model used for this impact assessment was developed by Slootweg, Vanclay and Van Schooten and presented in the International Handbook of Social Impact Assessment (Vanclay & Becker, 2003). This model identifies pathways by which social impacts may result from proposed projects. The model differentiates between social change processes and social impacts, where the social change process is the pathway leading to the social impact. Detail of how the model works is not relevant to this study, but it is important to understand the key concepts, which will be explained in the following paragraphs.

**Social change processes** are set in motion by project activities or policies. A social change process is a discreet, observable and describable process that changes the characteristics of a society, taking place regardless of the societal context (that is, independent of specific groups, religions etc.). These processes may, in certain circumstances and depending on the context, lead to the experience of social impacts (Vanclay, 2003). If managed properly, however, these changes may not create impacts. Whether impacts are caused will depend on the characteristics and history of the host community, and the extent of mitigation measures that are put in place (Vanclay, 2003). Social change processes can be measured objectively, independent of the local context. Examples of social change processes are an increase in the population, relocation, or the presence of temporary workers. Social change processes relevant to the project will be discussed before the possible social impacts will be investigated.

For the purpose of this report, the following social change process categories were investigated:

- demographic processes;
- economic processes;
- geographic processes;
- institutional and legal processes;
- emancipatory and empowerment processes;
- socio-cultural processes; and

- other relevant processes.

The International Association for Impact Assessment (2003) states that Social Impact Assessment includes the processes of analysing, monitoring and managing the intended and unintended social consequences, both positive and negative, of planned interventions (policies, programs, plans, projects) and any social change processes invoked by these interventions. Its primary purpose is to bring about a more sustainable and equitable biophysical and human environment. The Inter-organizational Committee on Principles and Guidelines for Social Impact Assessment (2003) defines Social Impact Assessment in terms of "efforts to assess, appraise or estimate, in advance, the social consequences likely to follow from proposed actions".

A **social impact** is something that is experienced or felt by humans. It can be positive or negative. Social impacts can be experienced in a physical or perceptual sense. Therefore, two types of social impacts can be distinguished:

- **Objective** social impacts – i.e. impacts that can be quantified and verified by independent observers in the local context, such as changes in employment patterns, in standard of living or in health and safety.
- **Subjective** social impacts – i.e. impacts that occur "in the heads" or emotions of people, such as negative public attitudes, psychological stress or reduced quality of life.

It is important to include subjective social impacts, as these can have far-reaching consequences in the form of opposition to, and social mobilisation against the project (Du Preez & Perold, 2005).

For the purpose of this SIA, the following Social Impact Assessment categories were investigated:

- health and social well-being;
- quality of the living environment;
- economic impacts and material well-being;
- cultural impacts;
- family and community impacts;
- institutional, legal, political and equity impacts; and
- gender impacts.

Relevant criteria for selecting significant social impacts included the following:

- probability of the event occurring;
- number of people that will be affected;
- duration of the impact;
- value of the benefits or costs to the impacted group;
- extent to which identified social impacts are reversible or can be mitigated;
- likelihood that an identified impact will lead to secondary or cumulative impacts;
- relevance for present and future policy decisions;
- uncertainty over possible effects; and
- presence or absence of controversy over the issue.

For the purpose of this study, the model was adapted to suit the South African context, and where processes and impacts were not relevant to the study, it was omitted. Each category has a number of sub-categories, which also have been investigated. The Equator Principles, International Finance Corporation Performance Standards and World Bank Environmental, Health and Safety guidelines were consulted in the writing of this report and the mitigation suggested adheres to these requirements.

### 3.3.2 Literature study

A detailed literature search was undertaken to obtain secondary data for the baseline description of the socio-economic environment. The information in this report was acquired via statistical data obtained from Statistics South Africa, SIA literature (see References) as well as information from reputable sources on the World Wide Web.

### 3.3.3 Research approach

Traditionally there are two approaches to SIA, a technical approach and a participatory approach. A technical approach entails that a scientist remains a neutral observer of social phenomena. The role of the scientist is to identify indicators, obtain objective measures relevant to the situation and provide an expert assessment on how the system will change (Becker, Harris, Nielsen & McLaughlin, 2004). A participatory approach uses the knowledge and experiences of individuals most affected by the proposed changes as the basis for projecting impacts. In this case the role of the scientist is facilitator of knowledge sharing, interpretation and reporting of impacts (Becker et al, 2004).

The findings presented in this report are based on primary as well as secondary (desk) research. A qualitative approach was followed for the primary research, while qualitative as well as quantitative data were used for the secondary research.

The layperson sometimes criticises qualitative research as “subjective” or “not really that scientific”. For this reason it is vital to understand the distinction between qualitative and quantitative research as well as their respective areas of application.

Qualitative research as a research strategy is usually characterised by the inference of general laws from particular instances, forms theory from various conceptual elements, and explains meaning (David & Sutton, 2004). It usually emphasise words rather than quantification in the collection and analysis of data. Data collection takes place by using methods such as unstructured or semi-structured interviews, focus groups, observations, etc. Data is not recorded in any standardised coding format, but are usually reported according to themes. Qualitative data express information about feelings, values and attitudes. This approach is used where insight and understanding of a situation is required (Malhotra, 1996). Participants are selected based on their exposure to the experience or situation under review. The aim of qualitative research is to understand, not to quantify and as such is extremely suitable for assessing social impacts. A potential impact has to be understood before it can be assessed appropriately.

Quantitative research as a research strategy usually makes inferences of particular instances by reference to general laws and principles and tends to emphasize what is external to or independent of the mind (objective) and incorporates a natural science model of the research process (David & Sutton, 2004). This usually makes it easier for a person with a natural or physical sciences background to relate to. This approach usually emphasises quantification in the collection and analysis of data. Data collection take place by using methods such as structured questionnaires and data is recorded in a numeric or some other standardised coding format. Data is expressed in numerical format and statistical techniques are usually used to assist with data interpretation. This approach is used when information needs to be generalised to a specific population and participants are usually selected using probability sampling techniques (although non-probability methods can be used depending on the characteristics of the target population).

Although in theory the qualitative phase of this project could be followed by a quantitative phase, for a number of reasons it was not done. A quantitative phase would be more resource intensive in terms of labour, time and cost and the incremental precision obtained in terms of generalisability would not warrant the additional investment. Due to the strong emotional component relating to

the perceived impacts, respondents may intentionally magnify the intensity of the impacts or indicate all impacts are equally severe in an attempt to bias the results in their favour, which will reduce the utility of quantitative results as part of the primary research process.

### 3.3.4 Ethical issues

The fact that human beings are the objects of study in the social sciences brings unique ethical problems to the fore. Every individual have a right to privacy which is the individual's right to decide when, where, to whom, and to what extent his or her attitudes, beliefs and behaviour will be revealed (Strydom, 2002). Every person interviewed for the purposes of this report has been assured that although the information disclosed will be used, their names will not be disclosed without their permission. Therefore, to protect those consulted and to maintain confidentiality, the people interviewed for this report will not be named in the report. Records of the interviews have been kept. This is in line with international as well as national research practices such as the ESOMAR and SAMRA codes of conduct.

# 4 Baseline description of the social environment

According to the National Environmental Management Act (NEMA, 1998) environment refers to the surroundings in which humans exist. When viewing the environment from a social perspective the question can be asked what exactly the social environment is. Different definitions for social environment exist, but a clear and comprehensive definition that is widely accepted remains elusive. Barnett & Casper (2001) offers the following definition of human social environment:

> *"Human social environments encompass the immediate physical surroundings, social relationships, and cultural milieus within which defined groups of people function and interact. Components of the social environment include built infrastructure; industrial and occupational structure; labour markets; social and economic processes; wealth; social, human, and health services; power relations; government; race relations; social inequality; cultural practices; the arts; religious institutions and practices; and beliefs about place and community. The social environment subsumes many aspects of the physical environment, given that contemporary landscapes, water resources, and other natural resources have been at least partially configured by human social processes. Embedded within contemporary social environments are historical social and power relations that have become institutionalized over time. Social environments can be experienced at multiple scales, often simultaneously, including households, kin networks, neighbourhoods, towns and cities, and regions. Social environments are dynamic and change over time as the result of both internal and external forces. There are relationships of dependency among the social environments of different local areas, because these areas are connected through larger regional, national, and international social and economic processes and power relations."*

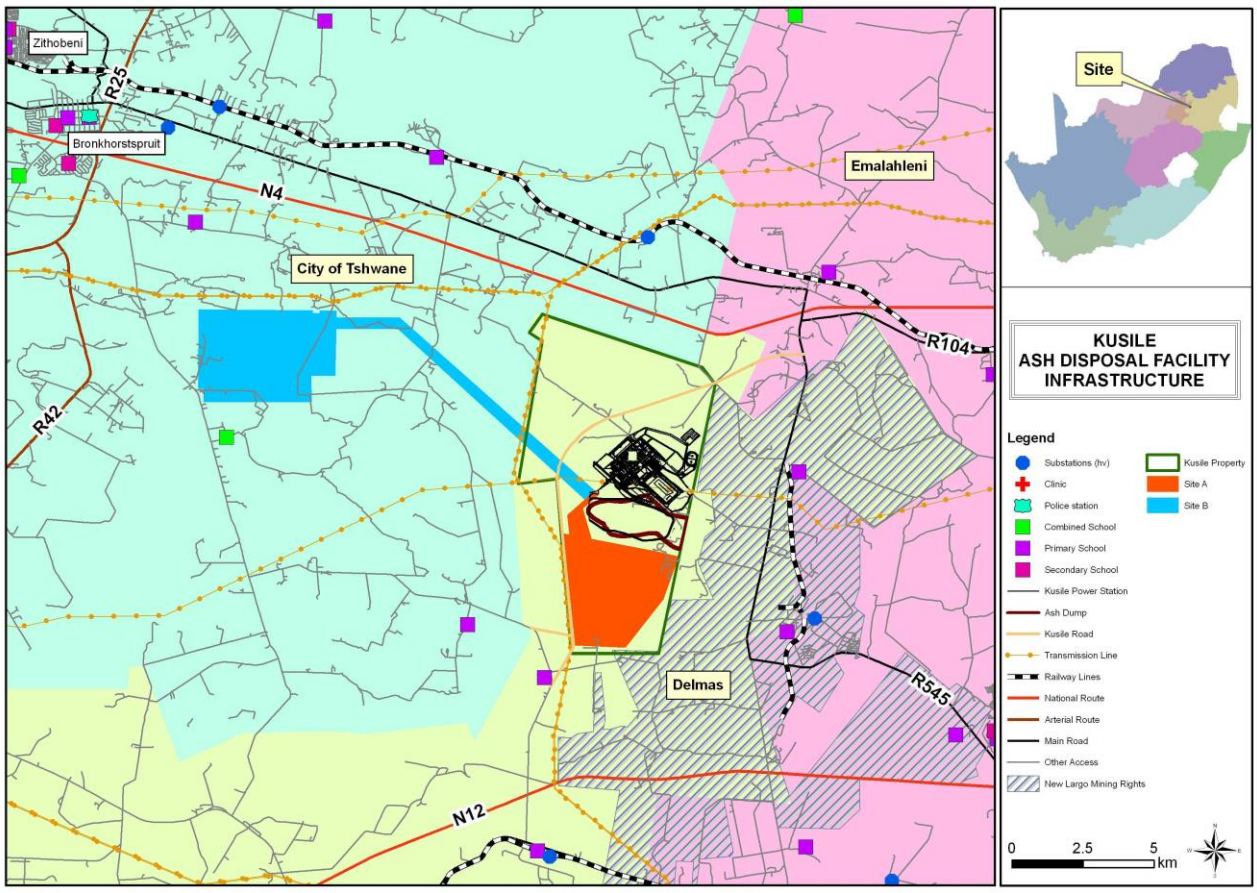
Environment-behaviour relationships are interrelationships (Bell, Fisher, Baum & Greene, 1996). The environment influences and constrains behaviour, but behaviour also leads to changes in the environment. The impacts of a project on people can only be truly understood if their environmental context is understood. The baseline description of the social environment will include a description of the area within a provincial, district and local

context that will focus on the identity and history of the area as well as a description of the population of the area based on a number of demographic, social and economic variables.

## 4.1 Description of the area

Site A is located in Ward 9 of the Victor Khanye Local Municipality that is situated in the Nkangala District Municipality in the Mpumalanga Province and Site B is in Ward 105 of the City of Tshwane Metropolitan Municipality in the Gauteng Province. Ward 29 of the Emalahleni Local Municipality that is situated in the Nkangala District Municipality is in close proximity of the site and is a potential labour sending area. To get a comprehensive picture of the social environment, all of these areas will be included in the description of the social environment. Figure 2 shows the location of the proposed project.

**Figure 2: Locality map of the proposed project**




### 4.1.1 Mpumalanga Province

The Mpumalanga Province is located in the north eastern part of South Africa and covers an area of approximately 82 333 km$^2$ (www.mputopbusiness.co.za). It borders the Limpopo

Province, Gauteng, the Free State, KwaZulu Natal and internationally Swaziland and Mozambique. The word Mpumalanga means “place where the sun rises”.

The province consists of three district municipalities, namely Gert Sibande, Nkangala and Ehlanzeni. Nelspruit is the provincial capital and other major towns include Barberton, Delmas, Ermelo, Hazyview, Komatipoort, Malelane, Mashishing (Lydenburg), Middelburg, Piet Retief, Sabie, Secunda, Standerton, Volksrust, White River and Emalahleni (Witbank) (www.mpumalanga.com).

Mpumalanga is South Africa’s major forestry production area and is also the world’s largest producer of electrolytic manganese metal. Six major industrial clusters have been identified in Mpumalanga (Mpumalanga PGDS) in which numerous investment opportunities exists, namely stainless steel; agri-processing; wood products; chemical industry and chemical products; agri-products and tourism.

Extensive mining is done in the province. Minerals found include: gold, platinum group metals, silica, chromite, vanadiferous magnetite, argentiferous zinc, antimony, cobalt, copper, iron, manganese, tin, coal, andalusite, chrysotile asbestos, kieselguhr, limestone, magnesite, talc and shale.

Mpumalanga also accounts for 83% of South Africa's coal production. Ninety percent of South Africa's coal consumption is used for electricity generation and the synthetic fuel industry. Coal power stations are situated close to the coal deposits.

The province mainly exports primary products from its mining and agricultural activities with little value addition. Mpumalanga will be able to increase its share of export contribution towards the provincial GDP by adding value to its export products through beneficiation (Mpumalanga Economic Profile).

### 4.1.2 Nkangala District Municipality

The Nkangala District Municipality (NDM) is one of the three district municipalities in Mpumalanga. Local municipalities forming part of the Nkangala DM are Victor Khanye, Dr JS Moroka, Emalahleni, Emakhazeni, Steve Tshwete, and Thembisile, and the Mdala District Management Area.

The district is approximately 17 000 $km^2$ and consists of about 165 towns and villages, with Emalahleni and Middelburg being the primary towns. According to the municipality’s

website, the Nkangala DM is at the economic hub of Mpumalanga and is rich in minerals and natural resources. The district's economy is dominated by electricity, manufacturing and mining. Community services, trade, finance, transport, agriculture and construction (www.nkangaladm.org.za) are also important sectors. Nkangala's Integrated Development Plan (IDP) states that the district has extensive mineral deposits, including chrome and coal. There are six coal-fired power stations in the Nkangala District (Nkangala IPD 2012/2013), with a seventh currently under construction.

Another important economic activity in Nkangala is agriculture. The southern regions of the municipality are suitable for crop farming, specifically for fresh produce such as maize and vegetables, while cattle and game farming occur in the northern regions.

In terms of the population profile of the Nkangala DM, the majority of its inhabitants are extremely poor and do not have access to mainstream economic activities. The main poverty concentration is amongst the communities residing in Dr JS Moroka and Thembisile Local Municipalities. The most important employment centre for these communities is the City of Tshwane, reducing their reliance on NDM. Daily commuting by means of public transport is a necessity (Nkangala IDP 20012/2013).

### 4.1.3 Victor Khanye Local Municipality

The Victor Khanye Local Municipality is situated on the western Highveld of the Mpumalanga Province and covers a geographic area of approximately 1 567 $km^2$. Towns and settlements in the municipality include Abor, Argent, Botleng, Delmas, Eloff and Lionelton. The municipality is mainly rural in nature and is highly dependent on the neighbouring Ekhurhuleni Metro for job opportunities (Victor Khanye LM IDP, 2010/2011). The local economy is relatively diversified with the largest sector both in terms of output as well as proportional contribution being the trade sector, followed by the agriculture sector and the mining sector. The municipality views agro-processing of local agricultural goods as a key component of any LED strategy in the municipality.

The area is characterised by an increase in the number of mining and related activities in the Leandra area, mainly coal and silica mining (Nkangala IDP 2012/2013). Other important sectors in the area include agriculture, finance and manufacturing. The area is located close to the metropolitan areas of Tshwane and Ekhurhuleni in Gauteng.

### 4.1.4 Emalahleni Local Municipality

The Emalahleni Local Municipality (ELM) is one of the six local municipalities forming part of the Nkangala District Municipality and borders the Gauteng Province. The Emalahleni LM is situated strategically within provincial context and in relation to the national transport network. It is situated closely to the City of Johannesburg Metropolitan, City of Tshwane Metropolitan Municipality and the Ekurhuleni Metropolitan Municipality. It is connected to these areas by the N4 and N12 freeways as well as a railway network. The Maputo Corridor runs through the municipality. The southern parts of the municipality forms part of the region referred to as the Energy Mecca (Emalahleni IDP, 2012/13) due to its rich coal reserves and a number of power stations in the area such as Kendal, Matla, Duvha, Ga-Nala and the new Kusile power station.

The main urban centre is the town of Emalahleni with the other towns / activity nodes being Ogies, Phola, Ga-Nala, Thubelihle, Rietspruit, Van Dyksdrift and Wilge. The development patterns in the area are fragmented, not only because of previous policies of segregation by race, but also due to the fact that large areas are undermined or have mining rights which resulted in further physical separation of areas, and the presence of natural features like flood plains and marshlands (Emalahleni IDP, 2012/13).

### 4.1.5 Gauteng Province

The Gauteng Province borders the provinces of Mpumalanga, Limpopo, North West and the Free State. Gauteng is a relatively young province, but the history of the area dates back to some 4 million years ago. It is here where the first hominids dwelt the earth (www.gauteng.net). It is also home to the 220 000 year-old Tswaing Meteorite Impact Crater that is the best-preserved small meteorite impact crater in the world.

Sesotho for "place of gold", Gauteng was built on the wealth of gold (40% of the world's reserves). The economy has since diversified, with more sophisticated sectors such as finance and manufacturing being of major importance. With only 1.4% of South Africa's land area, Gauteng contributes 33% to the national economy and a noteworthy 10% to the Gross Domestic Product (GDP) of the entire African continent (www.southafrica.info).

The population of the province are from all walks of life and the major cities have a reputation for being cosmopolitan. The province has an urbanisation level of about 97% and as such all major activity happens in and around urban centres. Gauteng is South Africa’s

main manufacturing base with almost half of all factories situated in the province (www.gauteng.net). Although the province is the commercial heartland of the country, the agricultural sector still plays a role. A large area of the province falls within the Maize Triangle and groundnuts, sorghum, cotton and sunflowers are produced in the province. Gauteng holds the largest number of educational centres in the country. Other large industries are mining, technology and tourism.

#### 4.1.6 City of Tshwane metropolitan Municipality

The City of Tshwane Metropolitan Municipality (CTMM), located in the Gauteng province, was established on 5 December 2000. In 2011 the Metsweding District Municipality, consisting of the Kungwini and Nokeng tsa Taemane Local Municipalities, was incorporated in the City of Tshwane Local Municipality. City of Tshwane is the single largest metropolitan municipality in the country (www.tshwane.gov.za) and the third largest city of the world in terms of landmass after New York and Yokohama.

The CTMM is the administrative capital of South Africa and is located in the north-western corner of the Gauteng Province. Tshwane's neighbouring provinces are the North West Province, Mpumalanga, and Limpopo. The municipality covers an area of 6 298 km² and consists of seven regions, 105 wards and about 2,5 million residents. It includes Pretoria, Centurion, Laudium, Eersterust, Akasia and Soshanguve, as well as the surrounding areas of Atteridgeville, Crocodile River, Ga-Rankuwa, Mabopane, Winterveld, Hammanskraal, Temba and Mamelodi.

The city is a national centre of research and learning, with four universities and the headquarters of both the Council for Scientific and Industrial Research and the Human Sciences Research Council. Tshwane is also unique in that it hosts by far one of the largest diplomatic communities in the world (www.tshwane.gov.za).

### 4.2 Description of the population

The baseline description of the population will take place on three levels, namely provincial, district and local. Impacts can only truly be comprehended by understanding the differences and similarities between the different levels. The baseline description will focus on the Victor Khanye Local Municipality and the Emalahleni Local Municipality in the Nkangala District Municipality in the Mpumalanga Province and the City of Tshwane Metropolitan Municipality in the Gauteng Province (referred to in the text as the study area), as these are

the areas that will be most affected by the proposed ash disposal facility. Where possible, the data will be reviewed on a ward level – Ward 9 of the Victor Khanye LM, Ward 29 of the Emalahleni LM and Ward 105 of the City of Tshwane Metropolitan. The data used for the socio-economic description was sourced from Census 2011. Census 2011 was a de facto census (a census in which people are enumerated according to where they stay on census night) where the reference night was 9-10 October 2011. The results should be viewed as indicative of the population characteristics in the area and should not be interpreted as absolute.

The following points regarding Census 2011 must be kept in mind (www.statssa.co.za):

- Comparisons of the results of labour market indicators in the post-apartheid population censuses over time have been a cause for concern. Improvements to key questions over the years mean that the labour market outcomes based on the post-apartheid censuses have to be analysed with caution. The differences in the results over the years may be partly attributable to improvements in the questionnaire since 1996 rather than to actual developments in the labour market. The numbers published for the 1996, 2001, and 2011 censuses are therefore not comparable over time and are higher from those published by Statistics South Africa in the surveys designed specifically for capturing official labour market results.

- For purposes of comparison over the period 1996–2011, certain categories of answers to questions in the censuses of 1996, 2001 and 2011, have either been merged or separated.

- The tenure status question for 1996 has been dropped since the question asked was totally unrelated to that asked thereafter. Comparisons for 2001 and 2011 do however remain.

- All household variables are controlled for housing units only and hence exclude all collective living arrangements as well as transient populations.

- When making comparisons of any indicator it must be taken into account that the time period between the first two censuses is of five years and that between the second and third census is of ten years. Although Census captures information at one given point in time, the period available for an indicator to change is different.

### 4.2.1 Population and household sizes

According to the Census 2011, the population of South Africa is approximately 51,8 million and has shown an increase of about 15.5% since 2001. The household density for the country is estimated on approximately 3.58 people per household, indicating an average household size of 3-4 people (leaning towards 4) for most households, which is down from the 2001 average household size of 4 people per household. Smaller household sizes are in general associated with higher levels of urbanisation.

The estimated growth for the Mpumalanga Province (Table 1) was greater than the national average, while that for the Gauteng Province was slightly more than double the national average. The Emalahleni LM showed the greatest increase in population since 2001.

The average household size for the Mpumalanga Province is above the national average, while the average household size for the Gauteng Province is below the national average. The household sizes for all the areas under investigation have decreased since 2001 while the number of households has increased. This can indicate that people tend to have smaller families.

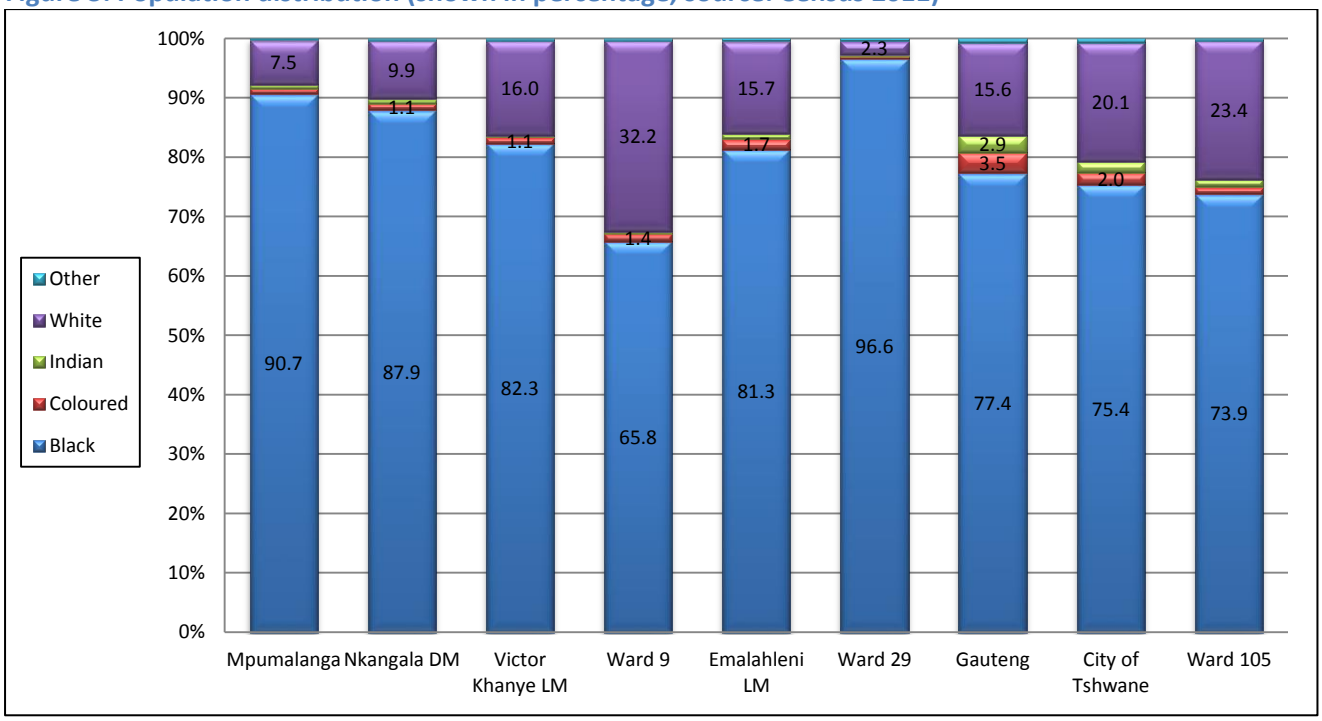
**Table 1: Census 2011 - Population, growth and household estimates**

| | **Approximate population size** | **Estimated population growth since 2001** | **Average household size** | **Estimate growth in households since 2001** |
|---|---|---|---|---|
| **Mpumalanga Province** | **4 039 939** | **20.04%** | **3.76** | **36.93%** |
| Nkangala District Municipality | 1 308 129 | 28.45% | 3.67 | 45.42% |
| Victor Khanye Local Municipality | 75 452 | 33.93% | 3.67 | 53.02% |
| Emalahleni Local Municipality | 395 466 | 43.07% | 3.30 | 60.01% |
| **Gauteng Province** | **12 272 263** | **33.70%** | **3.14** | **40.04%** |
| City of Tshwane Metropolitan Municipality | 2 921 488 | 36.23% | 3.21 | 50.41% |

### 4.2.2 Population composition

In all the areas under investigation, the majority of the population belongs to the Black population group, but the proportions differ (Figure 3). Ward 9 of the Victor Khanye LM has the lowest proportion of people belonging to the Black population group of all the areas under investigation. Ward 9 has a much greater proportion of people belonging to the White population group than the Victor Khanye LM as a whole, which make this area culturally different from the rest of the municipality as well as the district and province. Ward 29 of the Emalahleni LM has the highest proportion of Black people of all the areas under investigation, also much higher than on local or district level. The profile for Ward 105 of the City of Tshwane Metropolitan is very similar to the profile of the City of Tshwane.

**Figure 3: Population distribution (shown in percentage, source: Census 2011)**

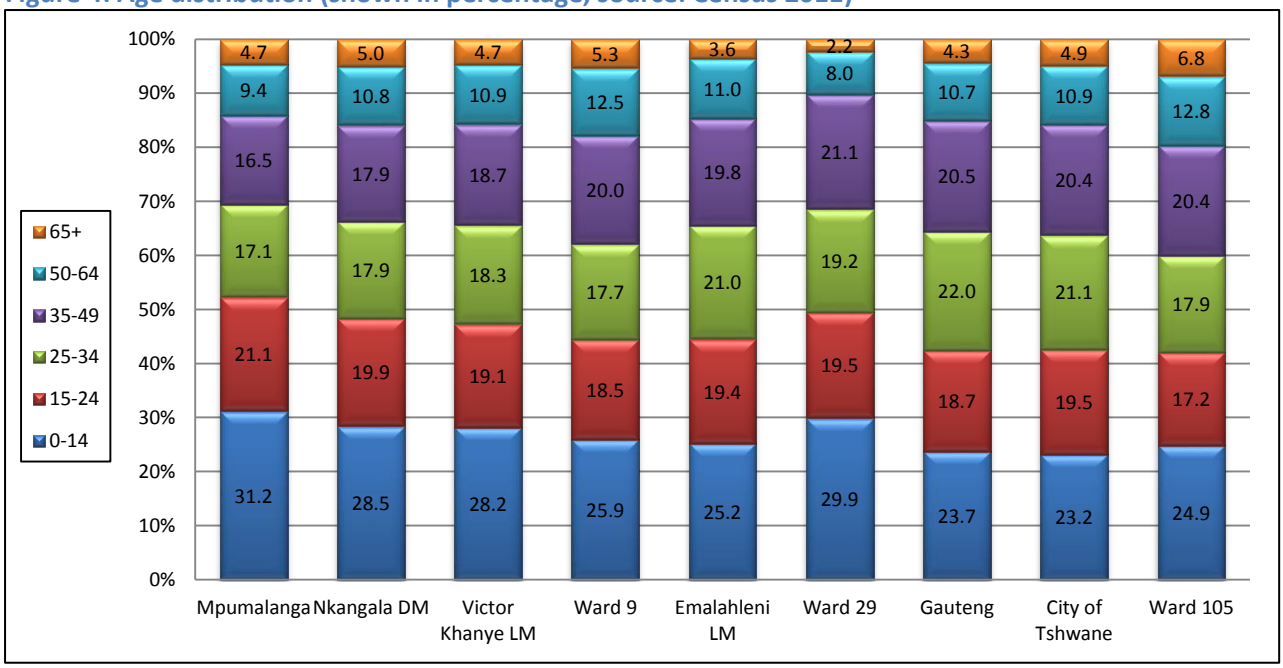



### 4.2.3 Age

The age distribution of the areas under investigation shows that Ward 29 of the Emalahleni LM has a much greater proportion of children aged 14 years or younger and a much smaller proportion of people older than 65 years of age than Ward 9 of the Victor Khanye LM or Ward 105 of the City of Tshwane Metropolitan (Figure 4). This holds the potential for greater future demands on infrastructure as well as a need for employment from people in Ward 29. Ward 29 has a total dependency ratio (proportion of dependants per 100 working-age population) of 47,40 compared to 45,43 for Ward 9 and 46,26 for Ward 105. The youth

dependency ratio for Ward 29 (44,14) is much greater than for Ward 9 (37,72) and Ward 105 (36,35), indicating that there is greater pressure on the working-age population in Ward 29 and they can be expected to pursue potential employment opportunities with vigilance.

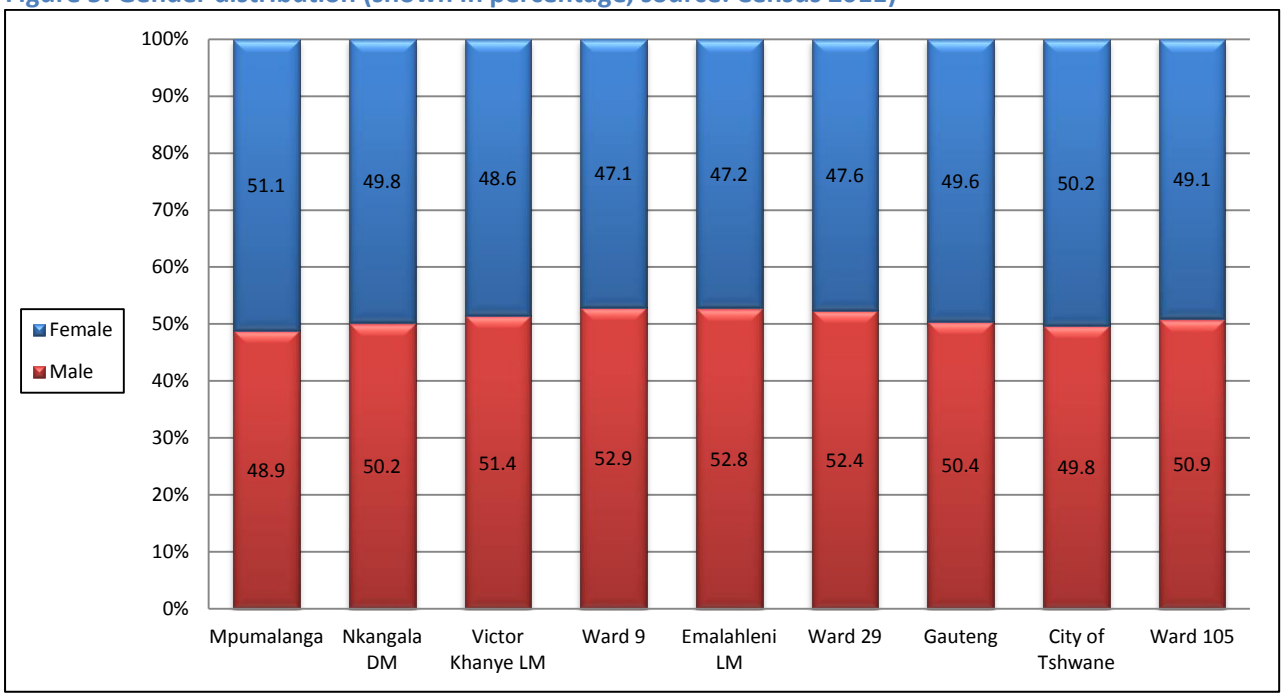
**Figure 4: Age distribution (shown in percentage, source: Census 2011)**




### 4.2.4 Gender

The gender distribution for the areas under investigation is fairly equal, but the Victor Khanye LM and the Emalahleni LM, as well as Wards 9 and 29, shows a bias towards males (Figure 5). This can in all likelihood be ascribed to the presence of mines in the area and the resulting migration of male workers to the area.

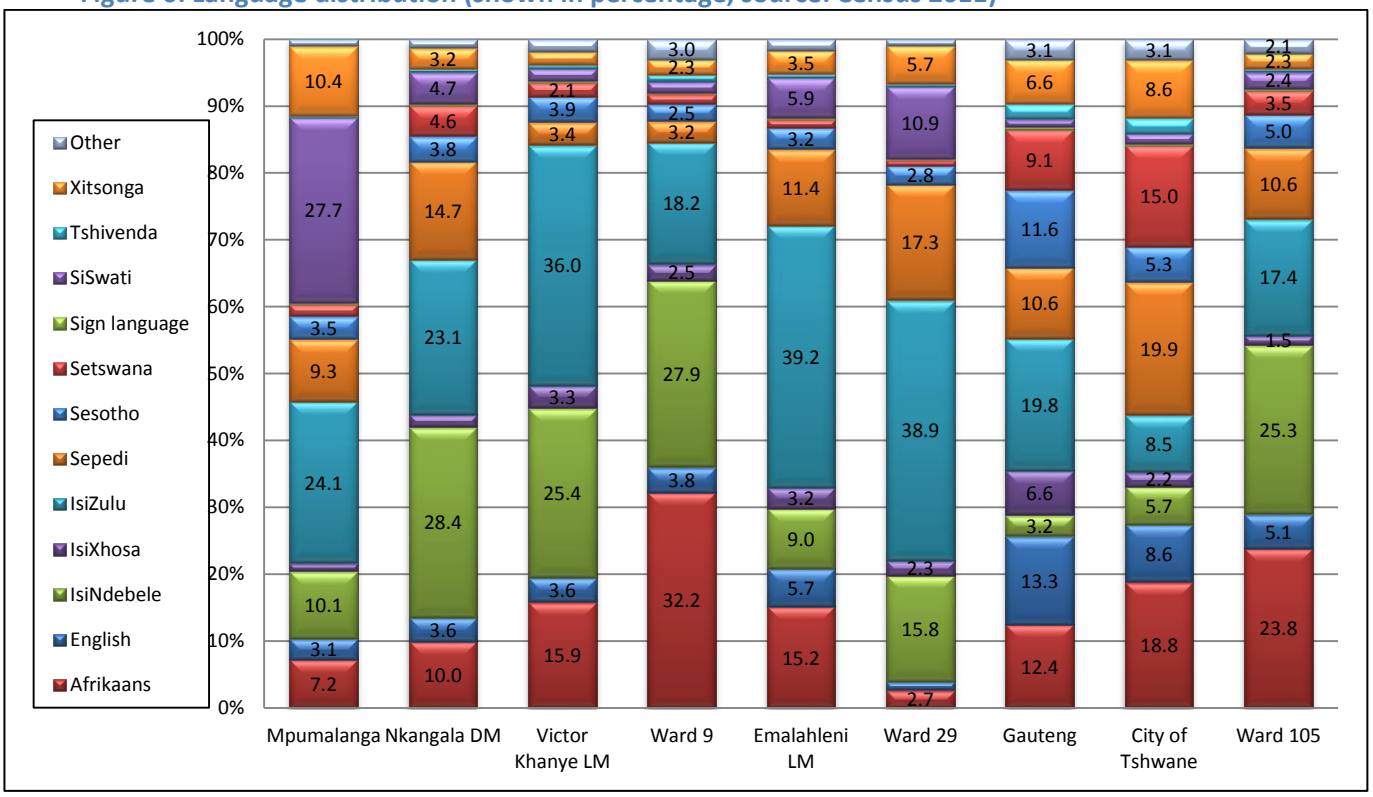
**Figure 5: Gender distribution (shown in percentage, source: Census 2011)**




### 4.2.5 Language

The language distribution for the areas under investigation looks very different from one another (Figure 6). In Ward 9 of the Victor Khanye LM almost a third of the population has Afrikaans as home language, followed by IsiNdebele and IsiZulu. IsiZulu is the most dominant home language in Ward 29 of the Emalahleni LM, followed by Sepedi and IsiNdebele. In Ward 105 of the City of Tshwane Metropolitan IsiNdebele, followed closely by Afrikaans are the most dominant home languages, followed by Sepedi. Home language should be taken in consideration when choosing languages to communicate in with the local communities.

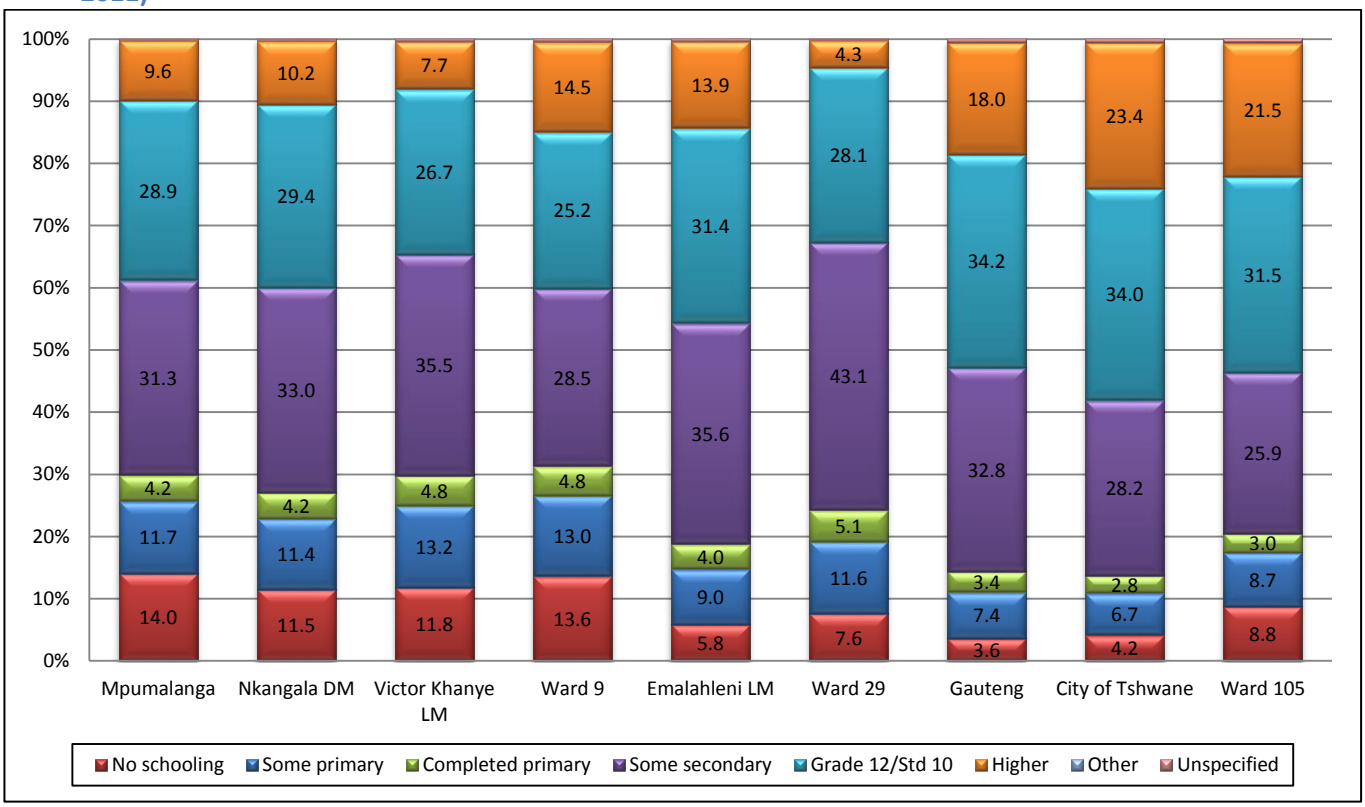
Figure 6: Language distribution (shown in percentage, source: Census 2011)




### 4.2.6 Education

Figure 7 shows the education profiles for the areas under investigation for those aged 20 years or older. Ward 9 in the Victor Khanye LM has the lowest proportion of people who completed Grade 12, as well as the greatest proportion of people with no schooling on a local level. Compared to the other areas under investigation, a fairly large proportion of people have an education higher than Grade 12. In Ward 29 of the Emalahleni LM has the lowest proportion of people with no schooling, as well as the lowest proportion of people with an education higher than Grade 12, but it has the greatest proportion of people who has completed only some secondary schooling. Ward 105 of the City of Tshwane Metropolitan has the greatest proportion of people who have completed Grade 12 or higher.

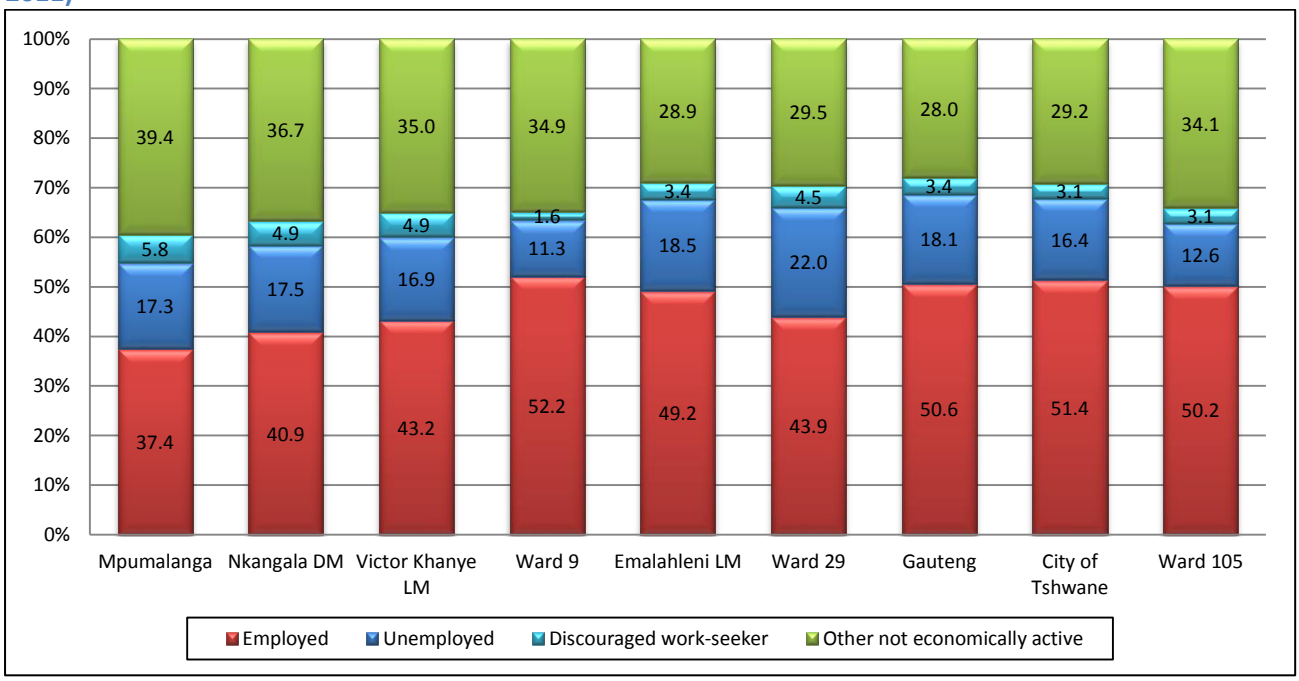
**Figure 7: Education profiles (those aged 20 years or older, shown in percentage, source: Census 2011)**




### 4.2.7 Employment

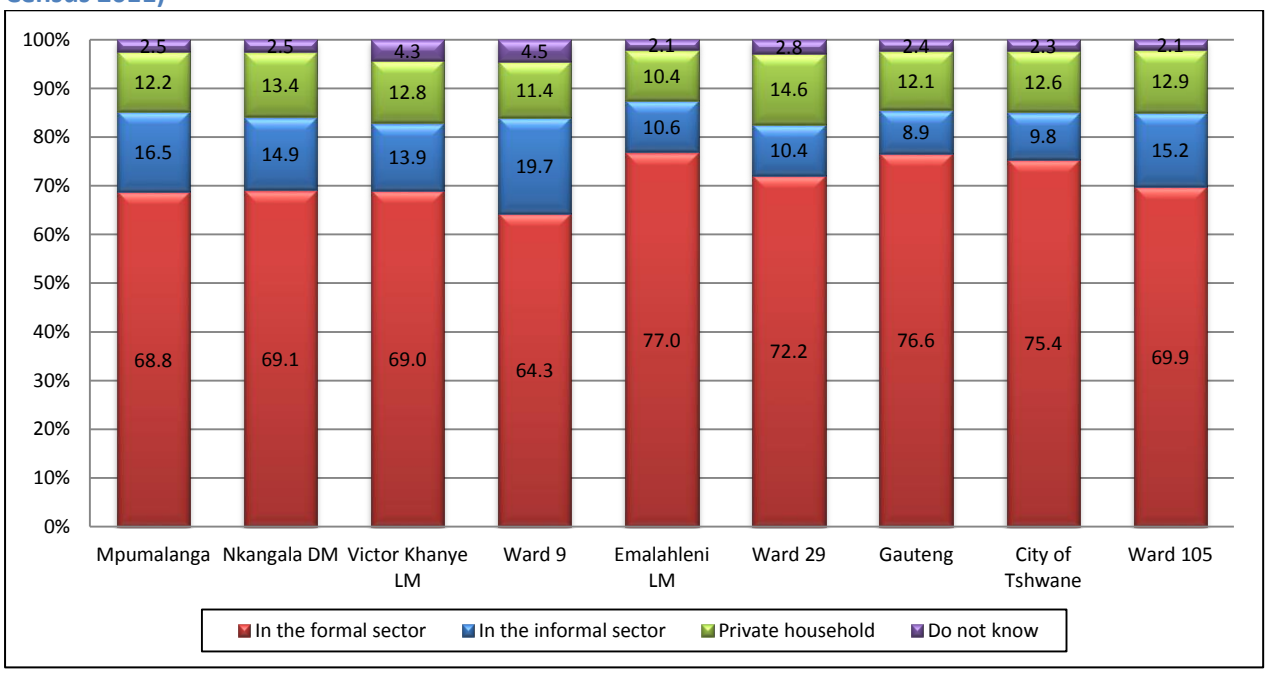
Ward 9 of the Victor Khanye Local Municipality has the highest proportion of people of economically active age (aged between 15 years and 65 years) that are employed (Figure 8) of the areas under investigation. Ward 29 of the Emalahleni LM has the lowest proportion of employed people on a ward level.

**Figure 8: Labour status (those aged between 15 - 65 years, shown in percentage, source: Census 2011)**




The majority of the employed people in the areas under investigation work in the formal sector (Figure 9). Ward 29 in the Emalahleni LM has the highest proportion of people working at private households, while Ward 9 in the Victor Khanye LM has the highest proportion of people working in the informal sector.

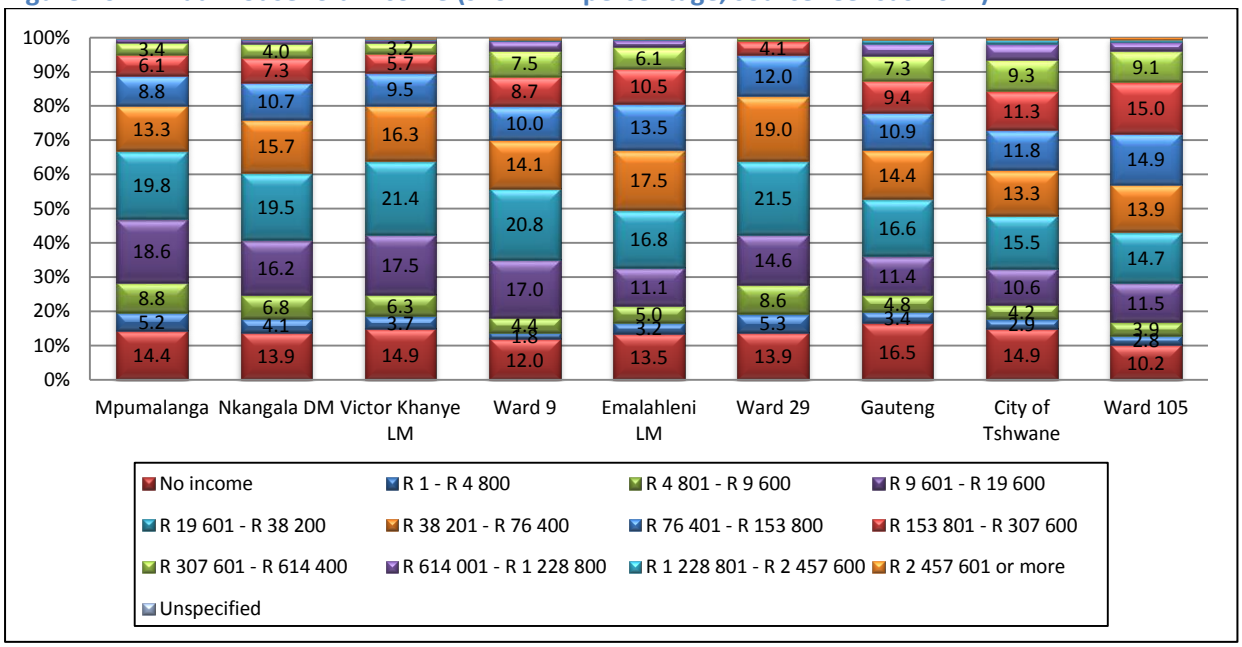
**Figure 9: Employment sector (those aged between 15 - 65 years, shown in percentage, source: Census 2011)**



### 4.2.8 Household Income

More than 60% of the households in Ward 29 of the Emalahleni LM have a household income of less than R38 201 per annum (Figure 10), compared to more than 50% of households in Ward 9 of the Victor Khanye LM and just over 40% of households in Ward 105 of the City of Tshwane Metropolitan. This suggests that households in Ward 29 are on average poorer than households in the other areas on a ward level.

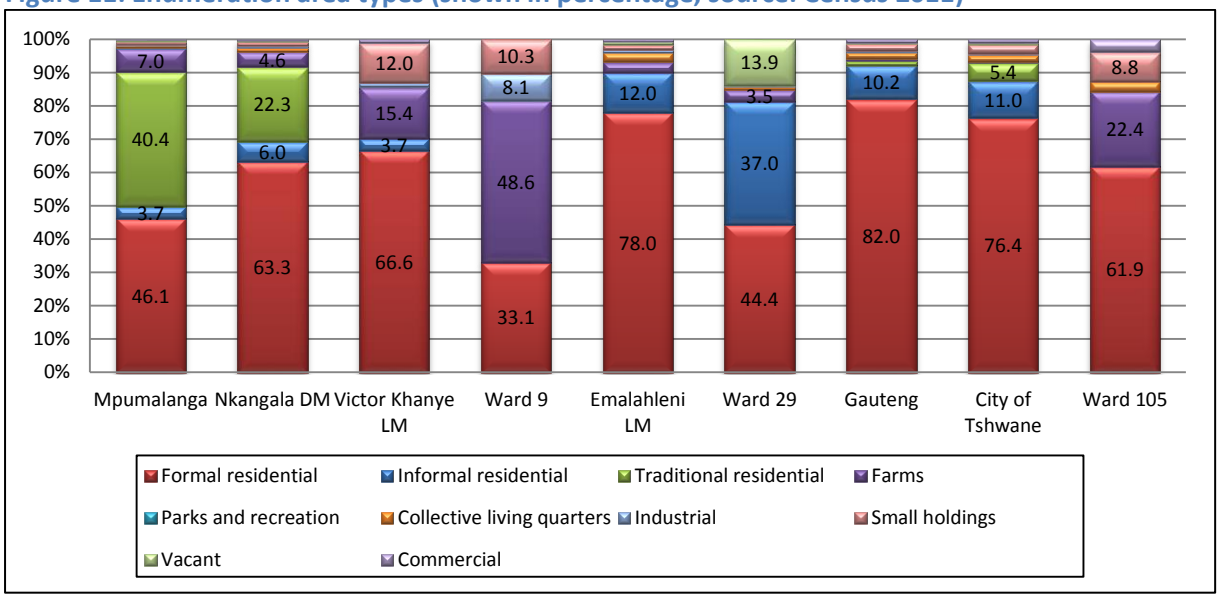
**Figure 10: Annual household income (shown in percentage, source: Census 2011)**




### 4.2.9 Housing

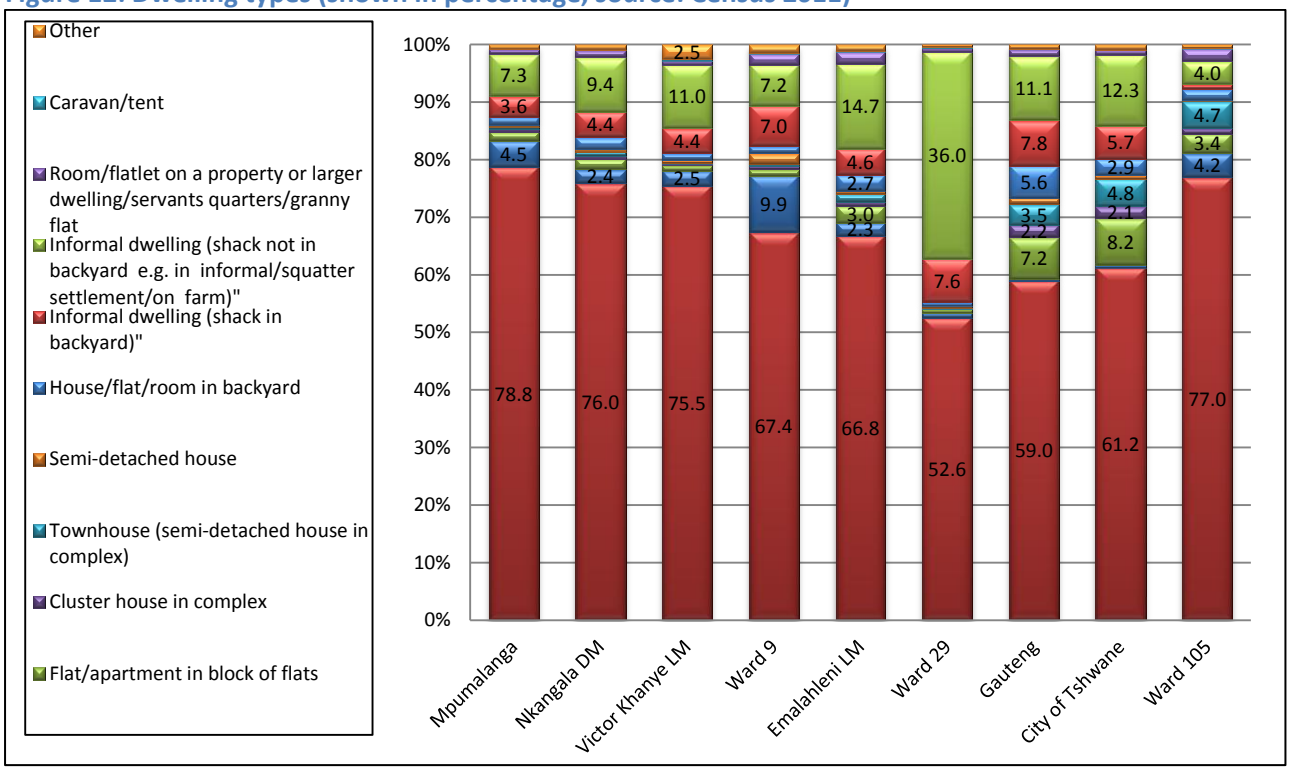
Almost half of the households in Ward 9 of the Victor Khanye LM live on farms and about a third in formal residential areas (Figure 11). There are also fairly large proportions of living on smallholdings or in industrial areas. More than a third of households in Ward 29 of the Emalahleni LM live in informal residential areas and about 14% on land classified as vacant, with less than half of the households living in formal residential areas. In Ward 105 of the City of Tshwane Metropolitan Municipality, most of the households live in formal residential areas, followed by farms and smallholdings.

**Figure 11: Enumeration area types (shown in percentage, source: Census 2011)**



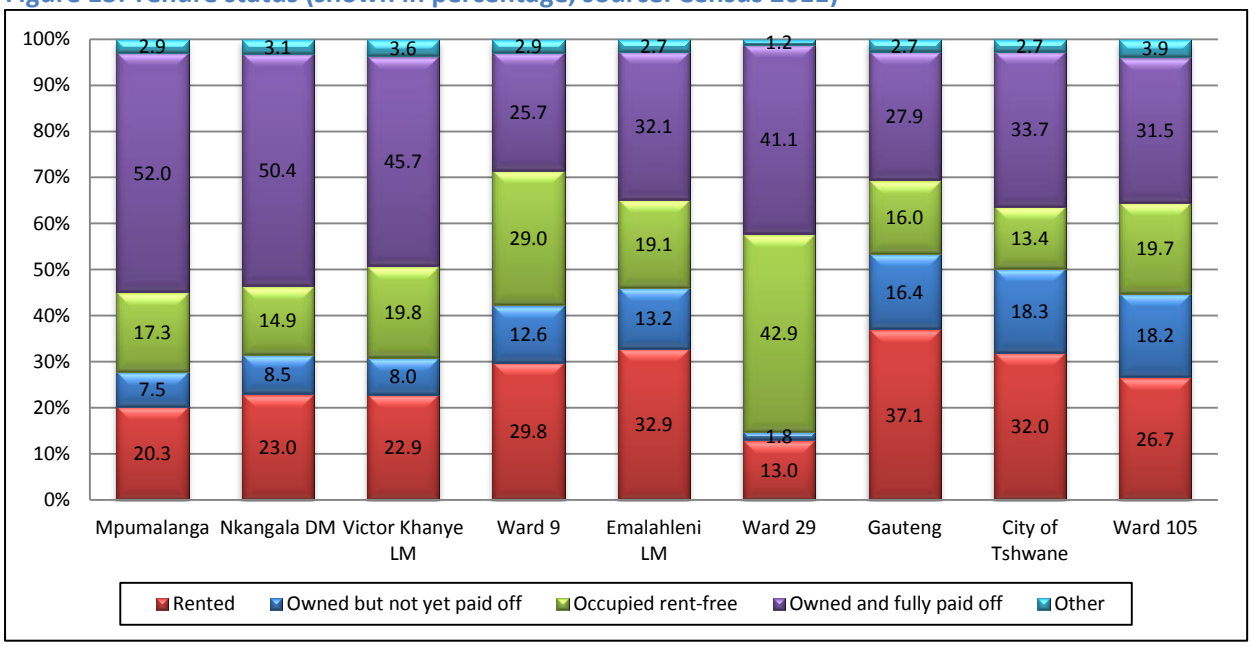

Most of the dwellings in the area are houses or brick/concrete block structures that are on a separate yard, stand or farm (Figure 12). A large proportion of households in Ward 29 of the Emalahleni LM live in informal dwellings. A small proportion of the informal dwellings are in the backyard of another house. In Ward 9 of the Victor Khanye LM, the second most common dwelling type is dwellings made of traditional materials, although there is no traditional land in the Victor Khanye Municipal area. This can possibly refer to farm worker residences that they have built for themselves on the farms where they stay.

**Figure 12: Dwelling types (shown in percentage, source: Census 2011)**




In Ward 29 of the Emalahleni LM more than 40% of households occupy their dwellings rent-free (Figure 13). Most of these households are likely to be found in the informal settlements. More than 40% of households in Ward 9 have indicated that they own their dwellings and have paid them off in full. Ward 9 of the Victor Khanye LM has the largest proportion of households that rent their dwellings.

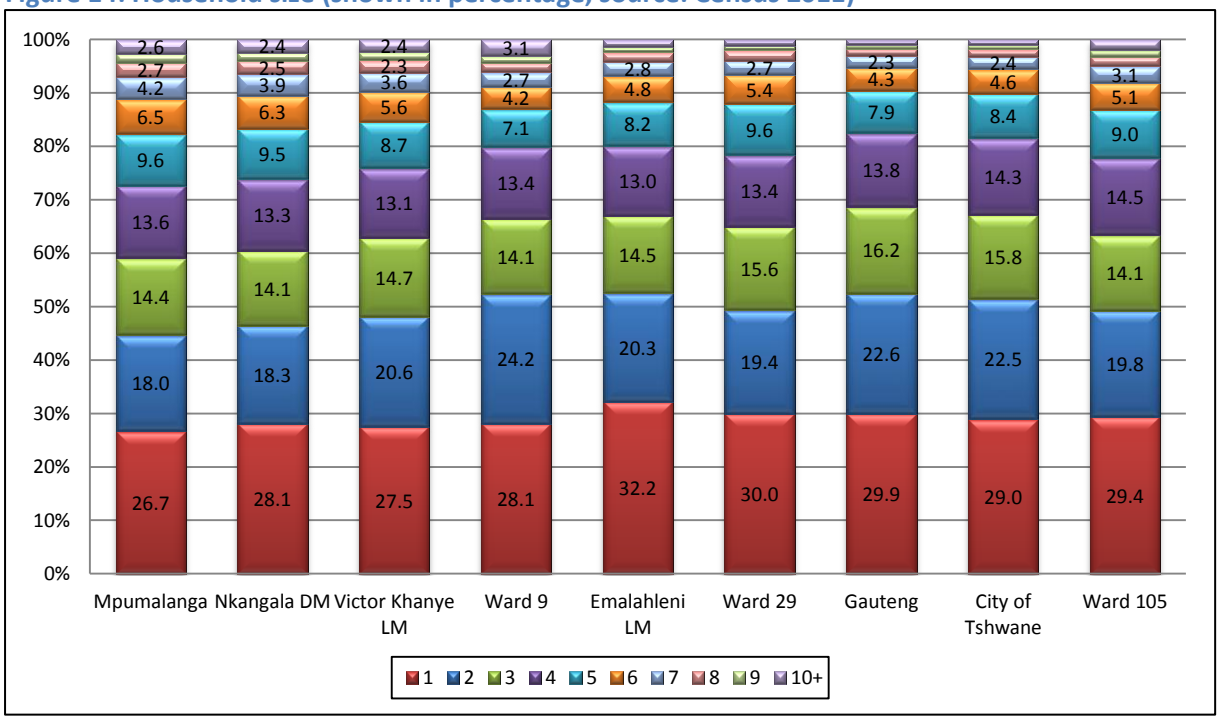
Figure 13: Tenure status (shown in percentage, source: Census 2011)




### 4.2.10 Household Size

On a ward level, about half of the households consists of one or two members (Figure 14). Almost 80% of households on a ward level consist of four or less members. Although only about a fifth of households consist of more than four people, a large proportion of the population (up to 50% or more) are living in these households.

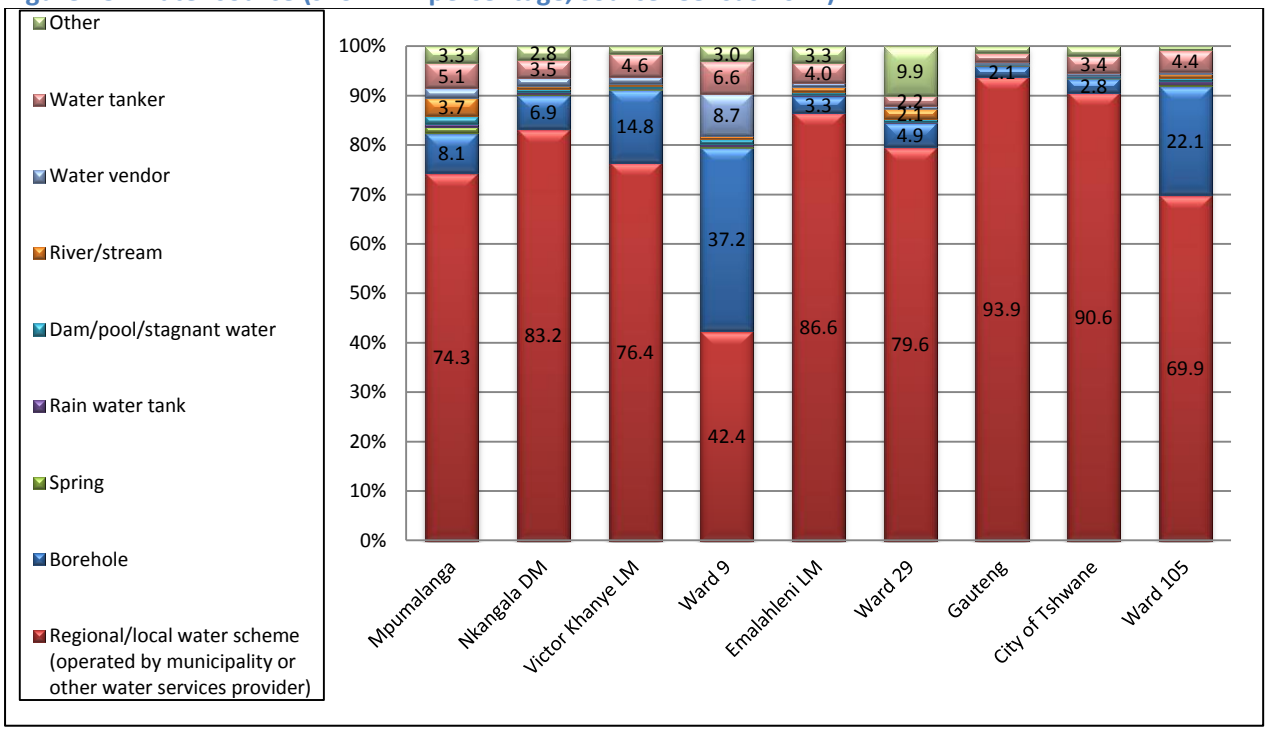
Figure 14: Household size (shown in percentage, source: Census 2011)



### 4.2.11 Access to water

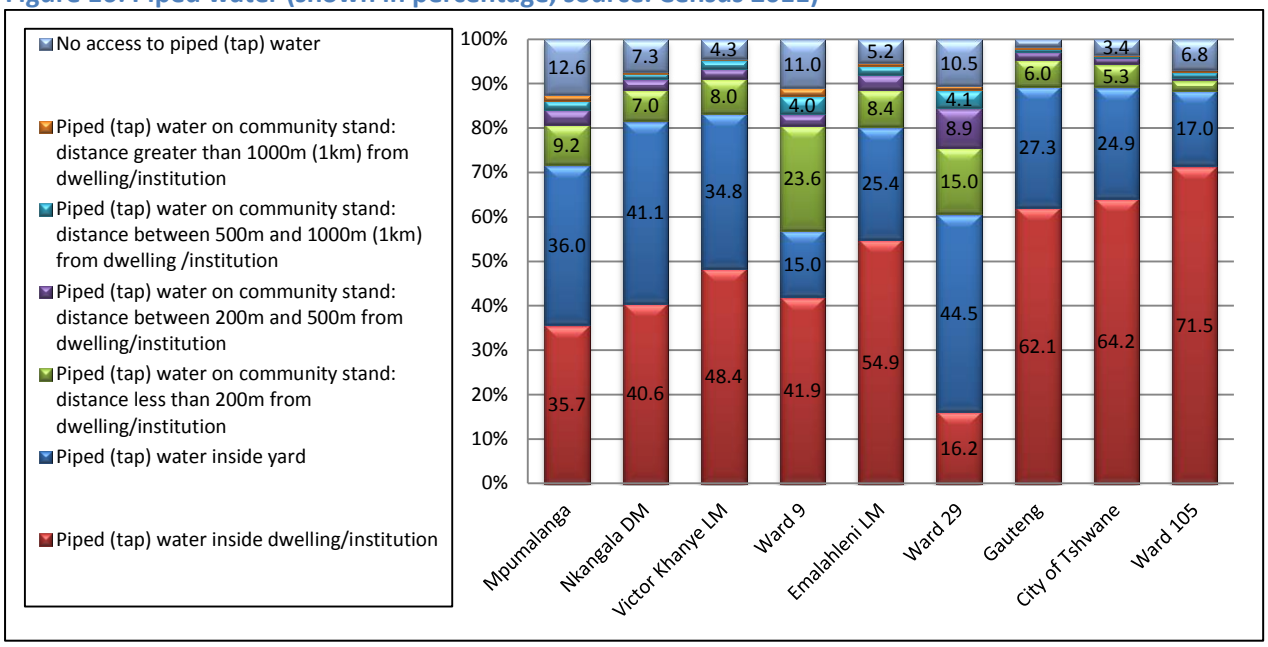
In Ward 9 of the Victor Khanye LM just over 40% of households get water from a regional or local water scheme, while about 37% of households get their water from boreholes (Figure 15). In Ward 29 of the Emalahleni LM almost 80% of households get their water from a regional or local water scheme. Almost 70% of households in Ward 105 of the City of Tshwane Metropolitan Municipality get their water from a regional or local water scheme and about 22% from boreholes.

**Figure 15: Water source (shown in percentage, source: Census 2011)**




Access to piped water, electricity and sanitation relate to the domain of Living Environment Deprivation as identified by Noble et al (2006). More than 70% of households in Ward 105 of the City of Tshwane Metropolitan Municipality have access to piped water inside the dwelling, compared to just over 16% in Ward 29 of the Emalahleni LM and almost 42% in Ward 9 of the Victor Khanye LM. Access to piped water is a challenge especially in Ward 29.

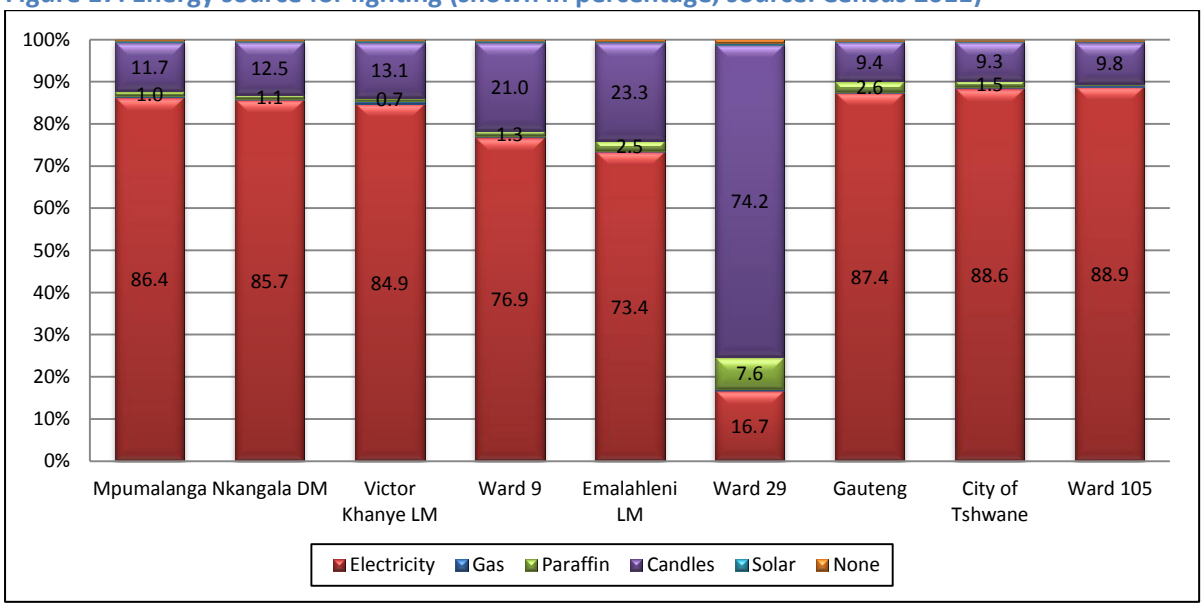
Figure 16: Piped water (shown in percentage, source: Census 2011)




### 4.2.12 Energy

Electricity is seen as the preferred source for lighting (Noble et al, 2006), and the lack thereof should thus be considered a deprivation. Even though electricity as energy source may be available, the choice of energy for cooking may depend on other factors such as cost. Ward 29 of the Emalahleni LM has a very low incidence of electricity as energy source of lighting. More than three quarters of the households in Ward 29 use candles as source if lighting. Ward 105 in the City of Tshwane Metropolitan Municipality has the highest incidence of households with electricity as source of energy for lighting.

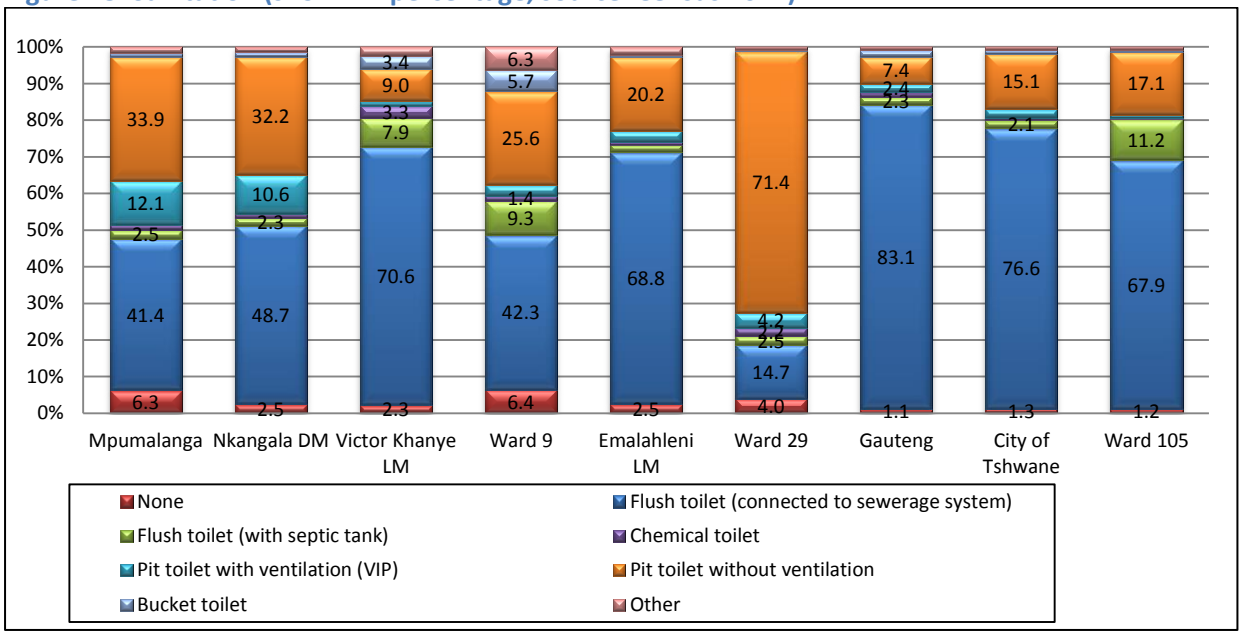
Figure 17: Energy source for lighting (shown in percentage, source: Census 2011)



### 4.2.13 Sanitation

According to Noble et al (2006) anyone living in a household with either a chemical toilet, pit toilets without ventilation, bucket latrine, or no toilet facility can be defined as deprived. Almost three quarters of households in Ward 29 of the Emalahleni LM have pit toilets without ventilation and can be considered the most deprived in this respect of all the areas under investigation. Just over two thirds of households in Ward 9 of the Victor Khanye LM and Ward 105 of the City of Tshwane Metropolitan Municipality have flush toilets that are connected to a sewerage system.

**Figure 18: Sanitation (shown in percentage, source: Census 2011)**




### 4.2.14 Refuse removal

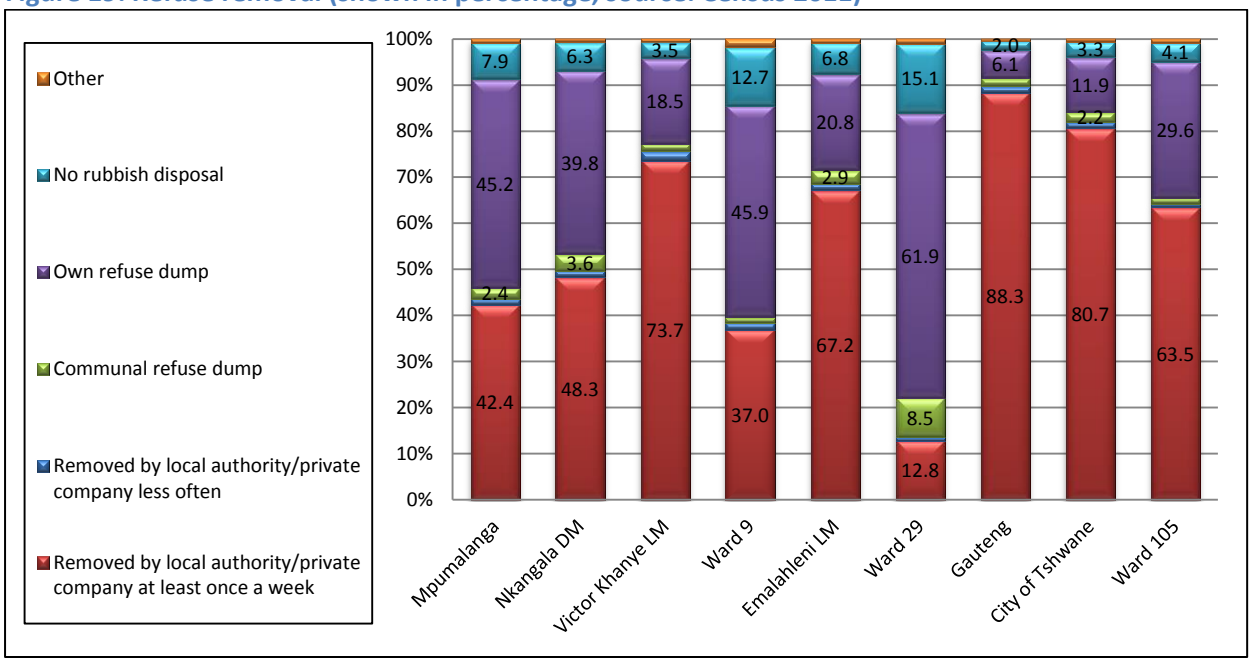
More than 60% of households in Ward 29 of the Emalahleni LM have indicated that they have their own refuse dumps compared to less than 50% of households in the Victor Khanye LM. Households with their own refuse dumps rely mostly on backyard dumping, burial and burning. These practices adversely impact on human health and the environment, specifically:

- air pollution from smoke;
- pollution of ground and surface water resources and home grown fruit and vegetables;

- people inhaling smoke from fires at risk of contracting disease (cancer, respiratory related illness); and
- fires can destroy property.

Ward 29 also has the highest incidence of people that have indicated that they have no rubbish disposal.

**Figure 19: Refuse removal (shown in percentage, source: Census 2011)**



# 5 Stakeholder Identification and Analysis

Every individual potentially affected by this project is a stakeholder in the project. The definition of a stakeholder is:

> *Any individual, group, or institution who has a vested interest in the social, economic or bio-physical resources of the project area and/or who potentially will be affected by project activities and have something to gain or lose if conditions change or stay the same (Adapted from WWF, 2005).*

Stakeholder analysis identifies all primary and secondary stakeholders who have a vested interest in the issues with which the project is concerned. The goal of stakeholder analysis is to develop a strategic view of the human and institutional landscape, and of the relationships between the different stakeholders and the issues they care about most.

The stakeholder analysis will help the project to identify:

- The interests of all stakeholders who may affect or be affected by the project;
- Potential conflicts or risks that could jeopardise the initiative;
- Opportunities and relationships that can be built on during implementation;
- Groups that should be encouraged to participate in different stages of the project;
- Appropriate strategies and approaches for stakeholder engagement; and
- Ways to reduce negative impacts on vulnerable and disadvantaged groups (WWF, 2005).

The full participation of stakeholders in both project design and implementation is a key to – but not a guarantee of – success. Stakeholder participation:

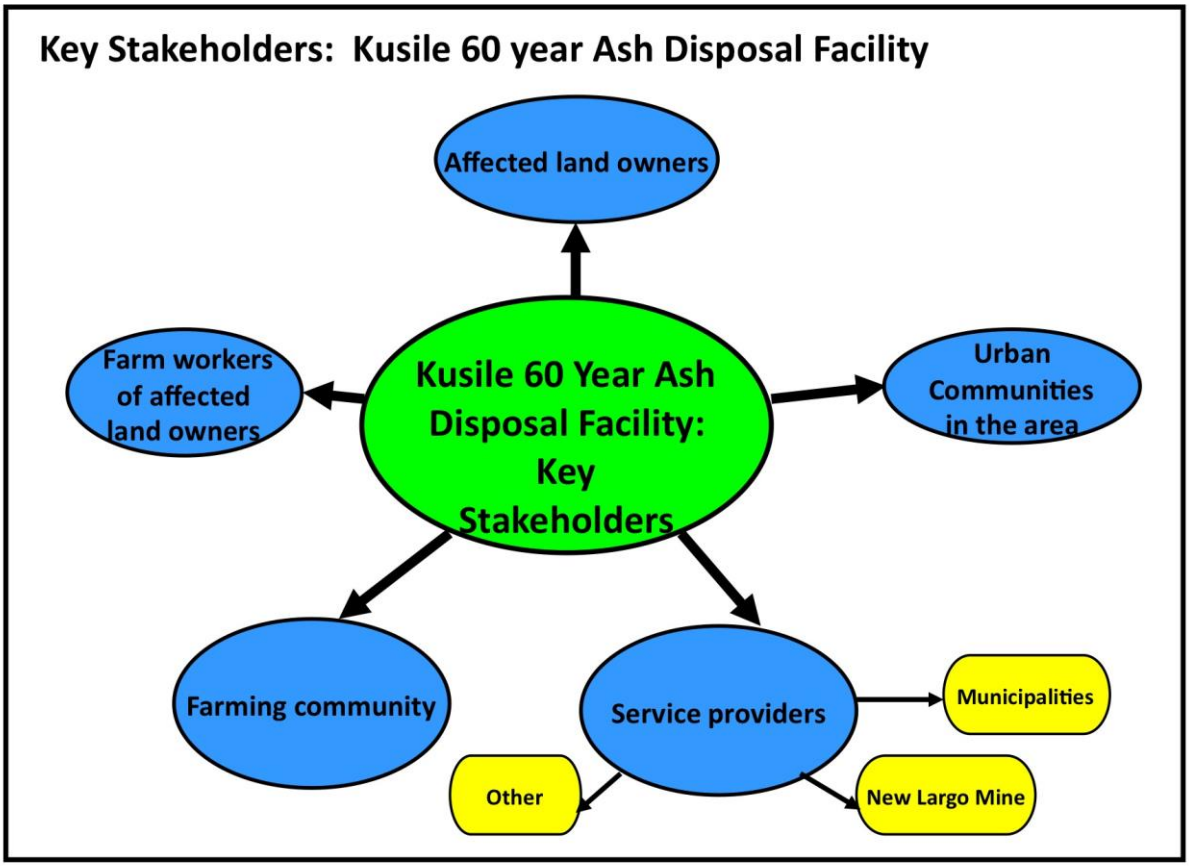
- Gives people some say over how the project may affect their lives;
- Is essential for sustainability;
- Generates a sense of ownership if initiated early in the development process;
- Provides opportunities for learning for both the project team and stakeholders themselves; and
- Builds capacity and enhances responsibility (WWF, 2005).

## 5.1 Stakeholder analysis

For the purpose of the stakeholder analysis, stakeholders have been clustered in groups. The figure below indicates the key stakeholders in the project. A more detailed description of each

group and their activities that may be impacted on by the proposed ash disposal facility follows in the paragraphs below.

**Figure 20: Stakeholder groups**




### 5.1.1 Affected land owners

All of the land on Alternative A already belongs to Eskom. The land on Alternative B is privately owned. The majority of the land is used for commercial farming, but there are also some smallholdings affected by the site. Some of the small holdings farm with specialised crops such as pecan and walnuts. The crops include potatoes, maize, berries and peas. Livestock such as chicken and cattle are also produced in the area. McCains and Woolworths are some of the clients of the farmers. The area contribute significantly to food production if one considers that the two biggest farms that will be affected produce about 12500 tonnes of maize, 4000 tonnes of potatoes, 2900 tonnes of chicken and 250 tonnes of peas amongst themselves alone. The berry farmer produce berries for Woolworths and Pick'nPay and also exports berries to Europe and the UK. It is the only organic berry farm in the country and has won the "Farming for sustainability" prize from Woolworths for four years in a row. The socio-economic footprint of this business is much bigger than the farm if it is considered that all the berry farmers in the

northern part of the country brings their produce to the farm to be marketed, processed and distributed. To relocate the farm and the infrastructure will cost around R150 million – and that does not include production. It takes 4 years for a blackberry and raspberry to start producing, and 8 years for a blueberry. The current location of the farm provides the perfect micro-climate to grow berries. There is a fountain with clean water on the farm that provides water for the farming activities. This is one of the most important elements that has proven the success of the berry farm and will be extremely difficult to find another farm or site that will offer this feature.

The site slopes down and the farmers claim that it is the catchment area for at least two dams. Without this water their farming activities will not be viable. There are extensive irrigation systems in place that provide water across their properties. The site also include some of the most productive land in the area, and the farmers claim that it would not be viable to farm there if a piece of the land is taken away, as all the farms are productive units and crops are rotated to ensure sustainable use (potatoes can only be planted in the same place once every five years, for example). There are not a lot of properties available in the area, so if farmers where force to relocate they would need to move out of the area.

### 5.1.2 Farm workers of affected land owners

The farmers who own the land have farmer workers working for them, and any changes in the business entity may affect the farm workers. Farm workers are seen as a vulnerable group with a low resilience to deal with changes in their working environment without external assistance. There are currently no farm workers residing on Site A. The berry farmer employs 250 people for seven months of the year – he busses them in from Bronkhorstspruit. There are 31 permanent employees on the farm. All of the other farms do have farm workers – there are 27 families living just outside the boundaries of Site B, but most of the people work on farms that is included in the Site. There is also a primary school with 120 pupils in the same community. The jobs of about hundred farm workers [1]will be affected should Site B be chosen.

### 5.1.3 Farming community

Both the alternatives and the Kusile power station are surrounded by farms. Most of these farms produce commercially and form production units where loosing a portion of a farm could have serious repercussions for the production unit. The greater area has seen a lot of development in

[1] A census has not been done, this number has been estimated based on conversations with affected farmers, some where not available during the consultation period, so it might be more.

the last couple of years in the form of mines and the Kusile power station itself. The most recent mine to obtain environmental authorisation, is New Largo, a massive coal mine. Many of the farmers in the area has been subject to environmental authorisation processes in recent years involving parts of their land as alternatives for the power station, ash disposal facilities, power lines, conveyor belts, mining or other activities. It then happens that their land is not selected as the chosen alternative for a specific project, but may surface again as an alternative for another proposed project in the future. This leads to a lot of uncertainty among farmers as well as to a loss of autonomy. They would like to do future planning, but feel they are unable to do so, as they are not sure what is going to happen to their land. The affected land owners and their farm workers also form part of the farming community. In addition, the industrial activities in the area creates environmental impacts such as dust and water issues, and this have an effect on the quality of the farming produce. There is a commercial chicken farm directly adjacent to the proposed Site B, and the project activities will have a significant impact on this commercial activity.

#### 5.1.4 Urban communities in the area

There are a number of urban communities in the greater area surrounding the project. The ones that could potentially be impacted on by the proposed development are Phola, Wilge and Kendal Forest Holdings. The Bravo Cooperative is strictly speaking not an urban community, but they do form a small community and will be discussed here as the impacts on them will be very similar to the other urban communities.

**Phola** is a small town adjacent to the N12 highway, close to Ogies. There are high levels of poverty and few opportunities for employment in Phola, and informal settlements have developed on the verges of town. The new mines in the area and the building of the Kusile power station had a significant social impact on the residents of Phola, mostly caused by an influx of jobseekers from outside the area.

**Wilge** used to house employees of Eskom that worked at the Wilge power station. It has been declared as a township and some of the houses have been sold to private owners. The remaining houses belong to Eskom. During fieldwork residents have reported that there are plans for building four storey flats in the village to house artisans who work at Kusile. It has since been confirmed that contractors are far advanced with the construction of these flats. Residents report that it is a safe and tranquil area to live in.

**Kendal Forest Holdings** is a community living on smallholdings on the southern end of the coal reserve. Most of the people work for Eskom or mines in the area – residents estimate that approximately 10% of residents are retired. People chose to live there because of the lifestyle and to supplement their income with small-scale farming. The area already experienced a significant influx of people, as well as other social impacts, due to the construction of Kusile power station. Many of the residents optimized on the development in the area by putting up accommodation facilities in their backyards. There is electricity but no formal sewage system.

The **Bravo Cooperative** consists of about twelve families that were workers from different farms in the area and were relocated as a result of the Kusile power station. They now stay on a farm close to the Kusile power station and have started with some agricultural activities such as cattle farming and they have started planting vegetables. They have a number of aspirations for the future linked to the Kusile power station, for example opening a crèche as well as other business opportunities.

#### 5.1.5 Service providers

The **surrounding municipalities** will have to absorb a number of the social impacts, especially impacts relating to an influx of people, since they will be responsible for delivering services to the people residing within their municipal areas.

Although there are also other coal mines in the area that will potentially supply the Kusile power station with coal, the **New Largo** mine is specifically mentioned even though it is not yet operational. Alternative A is located between the Kusile power station and the New Largo mine, which from a farming perspective may not be ideal for practising agriculture, but may be more ideal for using the land for something like an ash disposal facility.

The following table summarises the main issues and potential social impacts by stakeholder group:

**Table 2: Summary of potential social impacts per stakeholder group**

| Stakeholder group | Potential social impacts |
|---|---|
| Affected land owners and their farm workers | Loss of employment options and livelihoods<br>Disruption of local economic systems<br>Decrease in standard of living |
| Farming community | Adequacy of physical and social infrastructure<br>Threats to personal safety and fear of crime<br>Change in quality of living environment – dust, noise, traffic, presence of strangers<br>Change in aesthetic quality of environment<br>Change in sense of place<br>Uncertainty<br>Loss of autonomy<br>Disruption of economic systems<br>Reduced standard of living<br>Hazard exposure (health impacts)<br>Decrease in property values |
| Urban communities | Adequacy of physical and social infrastructure<br>Threats to personal safety and fear of crime<br>Change in quality of living environment – dust, noise, traffic, presence of strangers<br>Increase in employment opportunities<br>Hazard exposure (health impacts)<br>Increased levels of unemployment on closure |
| Service providers | Adequacy of physical and social infrastructure |

# 6 Social Impact Assessment

> *"Almost all projects almost always cause almost all impacts. Therefore more important than predicting impacts is having on-going monitoring and adaptive management."* Frank Vanclay

Considering the statement above, some social impacts will not be discussed in detail and the focus of the report will be on the most severe impacts. Since the social environment is dynamic and adapts to change, it is highly likely that impacts predicted in this report might have changed when construction starts. A social impact management plan will be included in this report. The implementation of the relevant sections of this plan should start immediately. It must also be considered that the social impacts of the project started when the project was announced. The management of social impacts is more important than the predicting and listing of impacts. Some social impacts are specific to certain stakeholder groups.

An attempt was made to keep the impact assessment simple and to focus on aspects that can aid the decision-making process. For the purpose of this assessment social change processes that can potentially cause social impacts have been identified. A social change process is a discreet, observable and describable process that changes the characteristics of a society, taking place regardless of the societal context (that is, independent of specific groups, religions, etc.). Social change processes can be measured objectively. The way in which social change processes are perceived, given meaning or valued, depends on the societal context in which various societal groups act. Some groups in society are able to adapt quickly and exploit the opportunities of a new situation. Others (e.g. vulnerable groups) are less able to adapt and will bear most of the negative consequences of change. These social change processes may, in certain circumstances and depending on the context, lead to the experience of social impacts. Social impacts are therefore completely context-dependent (Vanclay, 2003). A number of social change processes have been identified. These will be discussed according to the following project phases:

- Construction (and pre-construction);
- Operational;
- Closure;
- Post-closure.

The following table represents the social change processes that have been identified and the possible social impacts that may result because of these processes. It also identifies the stakeholder group that is most likely to be affected by the process.

**Table 3: Social change processes leading to impacts**

| Social change processes | Possible social impact | Affected stakeholder group | Project phase |
|---|---|---|---|
| In-migration of people | Adequacy of physical infrastructure – impacts on the existing infrastructure of the community such as water supply, sewage, land, etc)<br>Adequacy of social infrastructure – changes in demand for and supply of basic social services and facilities such as education, police, libraries, welfare services, etc.<br>Threats to personal safety and fear of crime (includes HIV/AIDS, STDs and deviant social behaviour) | Urban communities<br>Farming community<br>Service providers | Pre-construction<br>Construction<br>Operation |
| Presence of temporary workers | Threats to personal safety and fear of crime<br>Adequacy of physical infrastructure | Urban communities<br>Farming community | Construction<br>Operation |
| Resettlement of businesses | Loss of employment options and livelihoods<br>Disruption of local economic systems<br>Decrease in standard of living | Affected land owners<br>Farm workers | Pre-construction<br>Construction |

| | | | |
|---|---|---|---|
| Conversion of economic activities<br>Conversion of land use | Change in quality of living environment in terms of exposure to dust, noise, commuting time (traffic), presence of strangers<br>Change in aesthetic quality of environment<br>Changes in sense of place<br>Uncertainty<br>Loss of autonomy<br>Disruption of local economic systems<br>Reduced standard of living<br>Increase in employment opportunities<br>Threats to personal safety and hazard exposure<br>Decrease in property values | Farming community<br>Surrounding communities | Pre-construction<br>Construction<br>Operation<br>Closure<br>Post-closure |
| Impoverishment | Increased levels of unemployment in the community | Surrounding communities | Closure<br>Post-closure |

The impacts will be discussed according to the:

- Status quo (assesses the existing impact on the receiving environment – the existing impact may be from a similar activity, e.g. an existing ash dump, or other activities e.g. mining or agriculture);
- Project impact (assesses the potential impact on the proposed development on an environmental element);
- Cumulative impact (the description of the project impact combined with the initial status quo impacts that occur);
- Mitigation measures; and
- Residual impact (the cumulative impact after the implementation of mitigation measures).

It must be stated that the classification of social impacts according to project impacts, cumulative impacts and residual impacts are extremely complex and to a great extent artificial. Unlike in most of the environmental sciences, it is almost impossible to allocate a specific "contribution" to a social impact to a project activity.

The impact tables that will be used have been designed taking the following criteria into consideration:

- Magnitude/significance – the significance rating embraces the notion of extent and magnitude, but does not always clearly define these since their importance in the rating scale is very relative.
- Spatial scale- refers to the extent of the impact.
- Duration/ temporal scale – The duration and persistence of an impact in the environment.
- Degree of probability – the probability or likelihood of an impact occurring.

Each of these factors has been assessed for each potential impact using the following ranking scales:

| Magnitude | Spatial | Temporal | Magnitude: |
|---|---|---|---|
| 7 - Severe<br>6 – Very high<br>5 – High<br>4 – Moderate-high<br>3 – Moderate-low<br>2 – Low<br>1 – Very low<br>0 – No impact | 7 - National<br>6 - Provincial<br>5 – District<br>4 - Local<br>3 - Adjacent<br>2 – Development footprint<br>1 – Isolated sites | 5 – Permanent<br>4 – Long term<br>3 – Medium term<br>2 – Short-term<br>1 – Incidental | 5 – It's going to happen / has occurred<br>4 – Very likely<br>3 – Could happen<br>2 – Unlikely<br>1 – Practically impossible |

The impact risk of each potential impact was assessed using the following formula:

Impact Risk = (Magnitude + Spatial + Temporal)/2.714 x Probability/5

The impact risk is classified according to seven classes as described below:

| Rating | Impact class | Description |
|---|---|---|
| 6.1 – 7.0 | **7** | **SEVERE** |
| 5.1 – 6.0 | **6** | **VERY HIGH** |
| 4.1 – 5.0 | **5** | **HIGH** |
| 3.1 – 4.0 | **4** | **MODERATE-HIGH** |
| 2.1 – 3.0 | **3** | **MODERATE-LOW** |
| 1.1 – 2.0 | **2** | **LOW** |
| 0.1 – 1.0 | **1** | **VERY LOW** |

As with all studies it is not possible to be 100% certain of all facts, and for this reason a standard "degree of certainty" scale is used with the following ratings:

- Definite;
- Probable;
- Possible;
- Unsure;
- Can't know.

It must be stated that the impact tables and ratings have been adapted from the environmental sciences and that it is not always possible to compartmentalise the social impacts. For the sake of consistency this has been attempted, but it is not innate to social sciences. Allowance for the changing and adaptive nature of social impacts should be made when interpreting the impact tables. Another consideration is that the management and mitigation of some social impacts require input from a number of agencies, as these can only be addressed within the greater societal context. Proper mitigation and management would also take a number of years – this period would go far beyond the construction phase of the project. The focus of this report will therefore be on project-specific mitigation. The social impact will be discussed, but in some instances it is not possible for the proponent to implement the mitigation without support from other role players. The recommendations at the end of the report will focus on the best way to manage social impacts in the context of this project.

## 6.1 Construction and pre-construction Phase

Social change processes are set in motion even as soon as a project enters the public domain and as such social impacts can be found even before a project is approved and construction starts.

### 6.1.1 Status Quo

The area is already experiencing an in-migration of people as a result of new developments such as the Kusile power station, the New Largo mine and other developments in the area. Farm workers are supplying accommodation to workers for an additional income, while people in Kendal Forest Holdings are also providing accommodation to contractors, putting additional pressure on infrastructure. Impacts that are currently experienced as a result of the in-migration of people is pressure on physical infrastructure (especially in Phola), an increase in crime and a change in the quality of the living environment, such as an increase in dust, noise and traffic. The commercial farmers have indicated that dust has an impact on the quality of their crops as well as their livestock. They already had to start adding lime to the ground to counter existing impacts from dust. The Bravo Cooperative as well as some farmers has reported that the noise from the construction of the Kusile power station is such a nuisance at night that it keeps them awake. The commercial farmers also have concerns about the quality of their water. Currently their water is of a fairly good quality, but they have concerns about the future.

In some of the urban areas, HIV/AIDS, STD's and deviant social behaviour like prostitution, alcohol and drug abuse is already a problem.

The sense of place of the area is changing as a result of all the industrial developments in the area, which has also resulted in a change in the aesthetic quality of the area. The urban communities as well as the farming community are concerned about the impact of dust on their health in terms of diseases like asthma and sinusitis.

Many members of the farming community have been subjected to environmental authorisation processes for projects like the Kusile power station, transmission lines, conveyor belts, mining activities etc. where one or more of the alternatives involved pieces of their land. The alternative containing their piece of land may have found to be not suitable for one project, but then crops up again for another project in the area, be it the same piece of land, or a different piece of land that belongs to them. The farms in the area form part of commercial units, and breaking them up could result in certain impacts. As a result of this many of the farmers are experiencing

uncertainty about the future as they are unsure of how to proceed forward. They are also experiencing a loss of authority in theory it is their choice to stay, but in practice moving away is not that simple, as land in the area is scarce and they may not find another piece of similar quality at a similar price. They are also in a position where it would be very difficult for them to sell their land, as other farmers are also not keen to farm in an area with an increase in mining and power stations.

### 6.1.2 Project impact

For the affected land owners and their farm workers, the project will lead to a disruption in the local economic system once the project is approved. Site B will affect a number of land owners and should this site be chosen, the impact will be severe. Some owners will loose their entire property, whilst in other cases economic units will be broken and farms will no longer be viable. Eskom will have to buy out economic units and people would need to leave the area and be resettled. Many farm workers will loose their income. Economic activities on neighbouring farms will also be affected.

Word of the project may lead to an in-migration of opportunistic jobseekers to the area, leading to pressure on physical and social infrastructure, an increased presence of strangers in the area, as well as an increase in crime.

An increase in HIV/AIDS, STD's and deviant social behaviour like alcohol abuse and unwanted pregnancies are traditionally associated with an influx of people, and it is likely that this will be the case during the construction phase of the project as well.

Construction of the project will lead to an increase in dust in the area, noise and an increase in traffic. An increase in dust will have an impact on livestock, crops as well as the health and well-being of humans. The aesthetic quality and sense of place of the area will change as a result of the visual presence of the ash disposal facility. Community members are of the opinion that many impacts cannot be mitigated effectively and that mitigation measures are not consistently applied, using current projects in the area as frame of reference.

An increase in uncertainty and a loss of autonomy is already experienced in the farming community as a result of the project, especially among those who had land that was considered for the other alternatives.

The construction phase will lead to an increase in the number of available temporary job opportunities in the area. People from the Bravo Cooperative expect to benefit from the job opportunities, as do people from Phola. Residents from Phola felt that they were excluded from jobs during the construction of the Kusile power station although they were the nearest community because they were in a different municipal area.

### 6.1.3 Cumulative impact

It is almost impossible to ascribe a portion of a social impact to a specific project, but it is estimated that the bulk of the existing negative impacts in the area occur as a result of current mining activities in the area, as well as the construction of the Kusile power station and the New Largo mine. The baseline impacts are considered to already being substantial and the additional project impact without mitigation measures will be **definitely** be of a MODERATELY-LOW negative significance affecting the area on a *district* level (more than 5km from the project site). Some of the impacts have *already occurred* and most of the impacts may extend beyond the life of the operation. The impact risk class is **high**. It must be noted that social impacts are not linear in nature and thus cannot cancel out one another. When expressing an opinion about groups of impacts like this, one must be guided by the impacts with the most severe effect and use them as a guideline.

### 6.1.4 Mitigation measures

The following mitigation measures are suggested:

- Enter in a discussion with the affected land owners to come up with a solution in line with international standards to compensate them for the loss of property and to assist them to recreate their livelihoods, as well as the livelihoods of the dependent farm workers. If possible, swop land for other land of similar quality in the area that may already belong to Eskom, but is not used.

- Ensure that the recommendations of the relevant bio-physical studies (noise, air quality, etc) are followed to minimise impacts. Farmers suggested planting trees to absorb some of the noise and visual impact. Create a grievance mechanism to ensure nuisances can be reported and dealt with quickly.

- Make sure workers wear identification cards and vehicles can easily be identified. Create/join a community policing forum for the area with buy in from neighbours and local police.

- Meet with local municipality to discuss the potential impact of the proposed project on their service delivery.

- Erect signage to warn road users about construction traffic. Follow recommendations of the traffic impact assessment.

- Create an employment policy and communicate it to the stakeholders. Employ local people where possible.

- Compile a community relations strategy and appoint a community liaison officer.

- Put a complaints procedure/grievance mechanism in place.

- Compile a communication strategy to regularly communicate specifically with land owners affected by alternatives and keep them up to date with developments.

- Implement a drug and alcohol management policy for employees.

- Implement health and safety programme, including training, on site.

#### 6.1.5 Residual impact

Most of the impacts mentioned cannot be reversed through mitigation measures, but through effective mitigation measures, their impacts can be managed. It is very important that mitigation measures must be implemented consistently and according to the ways prescribed. The identified impacts will still be there, but to a lesser extent. With mitigation, the impacts will **possibly** be of a LOW negative significance, with effects experienced on a *local* level. The impact is *very likely* to happen and may extend beyond the life of the operation. The impact risk is thus **moderately-low**.

### 6.1.6 Impact matrix

The impacts identified and discussed above have been rated according to the impact assessment methodology described earlier in this section. These ratings are presented in the table below:

| Rated By: | | Site A | | | | | | |
|---|---|---|---|---|---|---|---|---|
| IMPACT DESCRIPTION | | Direction of Impact | **Degree of Certainty** | Magnitude | Spatial | Temporal | Probability | **Impact Risk** |
| Code | *Phase* | | | | | | | |
| | ***CONSTRUCTION*** | | | | | | | |
| **STATUS QUO** | INITIAL BASELINE IMPACTS TO ENVIRONMENT | Negative | **Definite** | | | | | |
| Project Impact 1 | Relocation/resettlement of business unit required | Negative | **Definite** | 3<br>MODL | 3<br>ADJ | 5<br>PERM | 5<br>OCCUR | **-4.1**<br>**HIGH** |
| Project Impact 2 | Breaking up of economic units | Negative | **Defite** | 7<br>SEV | 3<br>ADJ | 4<br>LONG | 5<br>OCCUR | **-5.2**<br>**VHIGH** |
| Project Impact 3 | Impacts of construction activities (dust, traffic, noise) on livelihoods | Negative | **Probable** | 5<br>HIGH | 3<br>ADJ | 3<br>MED | 5<br>OCCUR | **-4.1**<br>**HIGH** |
| Project Impact 4 | Threats to safety and security - increase in crime, intruders on properties, HIV/AIDS, deviant social behaviour | Negative | **Probable** | 4<br>MODH | 5<br>DIS | 3<br>MED | 4<br>VLIKE | **-3.5**<br>**MODH** |
| Project Impact 5 | Change in sense of place | Negative | **Definite** | 3<br>MODL | 5<br>DIS | 5<br>PERM | 4<br>VLIKE | **-3.8**<br>**MODH** |
| Project Impact 6 | Job creation | Positive | **Definite** | 3<br>MODL | 5<br>DIS | 2<br>SHORT | 5<br>OCCUR | **-3.7**<br>**MODH** |
| Project Impact | Influx of people | Negative | **Probable** | 4 | 5 | 3 | 4 | **-3.5** |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 7 | | | | MODH | DIS | MED | VLIKE | **MODH** |
| Project Impact 8 | Pressure on existing services | Negative | **Probable** | 4 | 5 | 3 | 4 | **-3.5** |
| | | | | MODH | DIS | MED | VLIKE | **MODH** |
| Project Impact 9 | Increase in traffic | Negative | **Definite** | 3 | 4 | 2 | 4 | **-2.7** |
| | | | | MODL | LOC | SHORT | VLIKE | **MODL** |
| Project Impact 10 | Uncertainty | Negative | **Definite** | 5 | 4 | 2 | 5 | **-4.1** |
| | | | | HIGH | LOC | SHORT | OCCUR | **HIGH** |
| **CUMULATIVE IMPACT** | INITIAL IMPACTS TO ENVIRONMENT + ADDITIONAL IMPACTS FROM PROJECT, **BEFORE MITIGATION** | Negative | **Definite** | 3 | 5 | 4 | 5 | **-4.4** |
| | | | | MODL | DIS | LONG | OCCUR | **HIGH** |
| **RESIDUAL IMPACT** | INITIAL IMPACTS TO ENVIRONMENT + ADDITIONAL IMPACTS FROM PROJECT, **AFTER MITIGATION** | Negative | **Probable** | 2 | 4 | 4 | 4 | **-2.9** |
| | | | | LOW | LOC | LONG | VLIKE | **MODL** |

### 6.1.7 Environmental management plan

| **Management / Environmental Component:** | **EMPr Reference Code:** | | |
|---|---|---|---|
| Social | | | |
| **Primary Objective:** | | | |
| To reduce nuisance impacts as a result of construction activities | | | |
| To deal with community grievances | | | |
| To focus on local labour | | | |
| **Implementation** | **Responsibility** | **Resources** | **Monitoring / Reporting** |
| Establish an environmental forum to discuss water, dust and other environmental issues and involve farmers in environmental monitoring process. | Eskom | Environmental management forum Minutes of quarterly meetings | Quarterly |
| Put dust buckets on all neighbouring properties and monitor on a monthly basis. Give farmers access to results at environmental forum meetings. | Eskom | Dust monitoring report | Monthly |
| Compile an access protocol that employees and contractors must follow | Eskom | Access protocol | Ongoing |

| | | | |
|---|---|---|---|
| before they access property that does not belong to Eskom. The protocol should include the wearing of a photo-identification card and marked vehicles. As a matter of courtesy this should be extended to people who rent the properties. The protocol must be distributed to the farmers, as well as the recourse that they have if the protocol was not followed. | Contractors | | |
| Develop detailed traffic control plans with input from the traffic police to minimise road and traffic disruptions. | Eskom | Completed traffic control plan | Ongoing |
| Appoint a community liaison officer that deals specifically with the farming community. Compile a community relations plan. | Eskom | Appointment letter of community liaison officer.<br>Completed community relations plan | Ongoing |
| Establish a detailed grievance mechanism for farming community to lodge concerns, suggestions and complaints which can be dealt with by the Project in a timely manner. | Eskom<br>Contractors | Completed community grievance mechanism<br>Mechanism communicated to local residents through a variety of media | Ongoing |
| Provide advanced communication (i.e. signage, advertisements in local papers) about changes to local access, potential road hazards and expected traffic volumes during construction. | Eskom<br>Contractors | Design of appropriate signage and communication material | Ongoing |
| Encourage workforce to live in established residential areas. Provide transport from these areas to the ash disposal facility. | Eskom | Signed transport agreements | Ongoing |
| Develop a recruitment policy that allows equal opportunity to all people (woman, disabled) and give preference to local labour. Refrain from employing farm workers for short-term positions. | Eskom<br>Contractors | Approved recruitment policy | Ongoing |
| Design and implement a Drug and Alcohol Management Policy, and undertake regular testing on site, to minimise negative interactions with the local community. | Eskom<br>Contractors | Approved Drug and Alcohol Management Policy/procedure, applicable to all employees and contractors<br>Drug and alcohol tests | Ongoing |

| | | | |
|---|---|---|---|
| | | conducted on site at stipulated intervals | |
| Implement a Health and Safety Program on site, including safety consciousness and awareness training. The program should also include relevant health aspects, e.g. sexual health, fatigue management, social health. | Eskom Contractors | Provision of safety training on site to all workers | Ongoing |
| Provide regular information updates to the Police 'Officer in Charge' at the Police Stations in the area. Invite local Police to attend relevant induction sessions – provide information on relevant safety and security issues, as well as relevant behaviour protocols, to the workforce. | Eskom | Established key contact at local Police Stations<br>Provision of regular written Project updates at agreed intervals<br>Police attendance at induction sessions | Ongoing |
| Implement workforce education programs on cultural diversity and tolerance. | Eskom | Developed and presented information materials on cultural diversity to the workforce | Ongoing |
| **Existing management plans / procedures:** | | | |
| Revise existing plans to align with recommendations | | | |

## 6.2 Operation Phase

Most of the social impacts anticipated in the operation phase that are likely to be a continuation of impacts that started during the construction or pre-construction phases of the project.

### 6.2.1 Status Quo

The area is already experiencing an in-migration of people as a result of new developments such as the Kusile power station, the New Largo mine and other developments in the area. Farm workers are supplying accommodation to workers for an additional income, while people in Kendal Forest Holdings are also providing accommodation to contractors, putting additional pressure on infrastructure. Impacts that are currently being experienced as a result of the in-migration of people is pressure on physical infrastructure (especially in Phola), an increase in crime and a change in the quality of the living environment, such as an increase in dust, noise and traffic. The commercial farmers have indicated that dust has an impact on the quality of their crops as well as their livestock. They already had to start adding lime to the ground to counter existing impacts from dust. The Bravo Cooperative has reported that the noise from the construction of the Kusile power station is such a nuisance at night that it keeps them awake. The commercial farmers also have concerns about the quality of their water. Currently their water is of a fairly good quality, but they have concerns about the future. The urban communities as well as the farming community are concerned about the impact of dust on their health in terms of diseases like asthma and sinusitis.

### 6.2.2 Project impact

Opportunistic jobseekers may continue to come to the area, leading to pressure on physical and social infrastructure, an increased presence of strangers in the area, as well as an increase in crime.

During the operation of the project there may be an increase in dust in the area, as well as noise and an increase in traffic. An increase in dust will have an impact on livestock, crops as well as the health and well-being of humans. The aesthetic quality and sense of place of the area will change as a result of the visual presence of the ash disposal facility. Community members are of the opinion that many impacts cannot be mitigated effectively and that mitigation measures are not consistently applied, using current projects in the area as frame of reference.

The operation phase will lead to an increase in the number of available permanent job opportunities in the area. People from the Bravo Cooperative expect to benefit from the job opportunities, as do people from Phola. Residents from Phola felt that they were excluded from jobs during the construction of the Kusile power station although they were the nearest community because they were in a different municipal area.

### 6.2.3 Cumulative impact

It is almost impossible to ascribe a portion of a social impact to a specific project, but it is estimated that the bulk of the existing negative impacts in the area occur as a result of current mining activities in the area, as well as the construction of the Kusile power station and the New Largo mine. The baseline impacts are considered to already being substantial and the additional project impact without mitigation measures will be **probably** be of a MODERATELY-HIGH negative significance affecting the area on a *district* level (more than 5km from the project site). Some of the impacts will *definitely happen* and most of the will last for the life of the operation. The impact risk class is **high**. It must be noted that social impacts are not linear in nature and thus cannot cancel out one another. When expressing an opinion about a groups of impacts like this, one must be guided by the impacts with the most severe effect and use them as a guideline.

### 6.2.4 Mitigation measures

The following mitigation measures are suggested:

- Ensure that the recommendations of the relevant bio-physical studies (noise, air quality, etc) are followed to minimise impacts. Create a grievance mechanism to ensure nuisances can be reported and dealt with quickly.
- Make sure workers wear identification cards and vehicles can easily be identified. Create/join a community policing forum for the area with buy in from neighbours and local police.
- Create an employment policy and communicate it to the stakeholders. Employ local people where possible.
- Compile a stakeholder communication strategy and appoint a community liaison officer.
- Put a complaints procedure in place.

- Implement a drug and alcohol management policy for employees.
- Implement health and safety programme, including training, on site.

### 6.2.5 Residual impact

Most of the impacts mentioned cannot be reversed through mitigation measures, but through effective mitigation measures, their impacts can be managed. It is very important that mitigation measures must be implemented consistently and according to the ways prescribed. The identified impacts will still be there, but to a lesser extent. With mitigation, the impacts will **possibly** be of a MODERATELY-LOW negative significance, with effects experienced on a *local* level. The impact is *very likely* to happen and is likely to last for the life of the operation. The impact risk is thus **moderately-low.**

### 6.2.6 Impact matrix

| Rated By: | | Site A | | | | | | |
|---|---|---|---|---|---|---|---|---|
| IMPACT DESCRIPTION | | Direction of Impact | **Degree of Certainty** | Magnitude | Spatial | Temporal | Probability | **Impact Risk** |
| Code | *Phase* | | | | | | | |
| | ***OPERATION*** | | | | | | | |
| **STATUS QUO** | INITIAL BASELINE IMPACTS TO ENVIRONMENT | Negative | **Definite** | | | | | |
| Project Impact 1 | Impacts on livelihoods in terms of dust, noise and water impacts on neigbouring properties (biophysical impacts will impact on the social arena - the social impacts are estimated and informed by the opinion of the affected parties regarding things such as prevailing wind direction and existing impacts, but need to be cross referenced to the relevant bio-physical specialists) | Negative | **Definite** | 5<br>HIGH | 4<br>LOC | 3<br>MED | 5<br>OCCUR | **-4.4**<br>**HIGH** |
| Project Impact 2 | Impacts on the health of humans and livestock | Negative | **Probable** | 4<br>MODH | 4<br>LOC | 3<br>MED | 4<br>VLIKE | **-3.2**<br>**MODH** |
| Project Impact 3 | Threats to safety and security - increase in crime, intruders on properties | Negative | **Probable** | 4<br>MODH | 5<br>DIS | 3<br>MED | 5<br>OCCUR | **-4.4**<br>**HIGH** |
| Project Impact 4 | Change in quality of life as a result of impacts on livelihoods and on health | Negative | **Probable** | 4<br>MODH | 3<br>ADJ | 4<br>LONG | 4<br>VLIKE | **-3.2**<br>**MODH** |
| Project Impact 5 | Creation of employment | Positive | **Definite** | 3<br>MODL | 5<br>DIS | 3<br>MED | 5<br>OCCUR | **-4.1**<br>**HIGH** |
| Project Impact 6 | Increase in traffic | Negative | **Definite** | 3<br>MODL | 5<br>DIS | 3<br>MED | 4<br>VLIKE | **-3.2**<br>**MODH** |
| **CUMULATIVE IMPACT** | INITIAL IMPACTS TO ENVIRONMENT + ADDITIONAL IMPACTS FROM PROJECT, **BEFORE MITIGATION** | Negative | **Probable** | 4<br>MODH | 5<br>DIS | 3<br>MED | 5<br>OCCUR | **-4.4**<br>**HIGH** |
| **RESIDUAL IMPACT** | INITIAL IMPACTS TO ENVIRONMENT + ADDITIONAL IMPACTS FROM PROJECT, **AFTER MITIGATION** | Negative | **Probable** | 3<br>MODL | 4<br>LOC | 3<br>MED | 4<br>VLIKE | **-2.9**<br>**MODL** |

### 6.2.7 Environmental management plan

| **Management / Environmental Component:** | **EMPr Reference Code:** | | |
|---|---|---|---|
| Social | | | |
| **Primary Objective:** | | | |
| To reduce nuisance impacts as a result of construction activities | | | |
| To deal with community grievances | | | |
| To focus on local labour | | | |
| **Implementation** | **Responsibility** | **Resources** | **Monitoring / Reporting** |
| Establish an environmental forum to discuss water, dust and other environmental issues and involve farmers in environmental monitoring process. | Eskom | Environmental management forum<br>Minutes of quarterly meetings | Quarterly |
| Put dust buckets on all neighbouring properties and monitor on a monthly basis. Give farmers access to results at environmental forum meetings. | Eskom | Dust monitoring report | Monthly |
| Compile an access protocol that employees and contractors must follow before they access property that does not belong to Eskom. The protocol should include the wearing of a photo-identification card and marked vehicles. As a matter of courtesy this should be extended to people who rent the properties. The protocol must be distributed to the farmers, as well as the recourse that they have if the protocol was not followed. | Eskom<br>Contractors | Access protocol | Ongoing |
| Appoint a community liaison officer that deals specifically with the farming community. Compile a community relations plan. | Eskom | Appointment letter of community liaison officer.<br>Completed community relations plan | Ongoing |
| Establish a detailed grievance mechanism for farming community to lodge concerns, suggestions and complaints which can be dealt with by the Project | Eskom | Completed community grievance mechanism | Ongoing |

| | | | |
|---|---|---|---|
| in a timely manner. | Contractors | Mechanism communicated to local residents through a variety of media | |
| Encourage workforce to live in established residential areas. Provide transport from these areas to the mine. | Eskom | Signed transport agreements | Ongoing |
| Develop a recruitment policy that allows equal opportunity to all people (woman, disabled) and give preference to local labour. Refrain from employing farm workers for short term positions. | Eskom Contractors | Approved recruitment policy | Ongoing |
| Design and implement a Drug and Alcohol Management Policy, and undertake regular testing on site, to minimise negative interactions with the local community. | Eskom Contractors | Approved Drug and Alcohol Management Policy/procedure, applicable to all employees and contractors<br>Drug and alcohol tests conducted on site at stipulated intervals | Ongoing |
| Implement a Health and Safety Program on site, including safety consciousness and awareness training. The program should also include relevant health aspects, e.g. sexual health, fatigue management, social health. | Eskom Contractors | Provision of safety training on site to all workers | Ongoing |
| Provide regular information updates to the Police 'Officer in Charge' at the Police Stations in the area. Invite local Police to attend relevant induction sessions – provide information on relevant safety and security issues, as well as relevant behaviour protocols, to the workforce. | Eskom | Established key contact at local Police Stations<br>Provision of regular written Project updates at agreed intervals<br>Police attendance at induction sessions | Ongoing |
| Implement workforce education programs on cultural diversity and tolerance. | Eskom | Developed and presented information materials on cultural | Ongoing |

| | | | |
|---|---|---|---|
| | | diversity to the workforce | |
| **Existing management plans / procedures:** | | | |
| Revise existing plans to align with recommendations | | | |

## 6.3 Closure Phase

### 6.3.1 Status Quo

Some of the communities in the area are characterised by poverty and unemployment.

### 6.3.2 Project impact

Closure of the ash disposal facility would in all likelihood lead to job losses if the employees could not be accommodated elsewhere in the organisation. There can also be a loss of livelihood of those who depended on the project to make a living, but were not necessarily employed by Eskom. It must be noted that it is almost impossible to anticipate impacts more exactly so far in the future and the social environment in the area may at the time look very different from the status quo.

### 6.3.3 Cumulative impact

Should the status quo of the social environment still be valid at the time of closure, the additional project impact without mitigation measures will be **probably** be of a MODERATELY-HIGH negative significance affecting the area on a *local* level. Some of the impacts will *definitely happen* and most of the will extend beyond the life of the operation. The impact risk class is **moderately high**.

### 6.3.4 Mitigation measures

The following mitigation measures are suggested:

- Prepare employees for closure phase well in advance. Employee assistance programme can assist with mental and physical preparation of employees.
- Assist staff with finding alternative employment.
- Give referrals to regular suppliers, especially SMME's.
- Follow IFC retrenchment guidelines.

### 6.3.5 Residual impact

Most of the impacts mentioned cannot be reversed through mitigation measures, but through effective mitigation measures, their impacts can be softened. It is very important that mitigation measures must be implemented consistently and according to the ways prescribed. The identified impacts will still be there, but to a lesser extent. With mitigation, the impacts will **possibly** be of a MODERATELY-HIGH negative significance, with effects experienced on a *local* level. The impacts are *very likely* to happen and are likely to last just beyond the life of the operation. The impact risk is thus **moderately-high.**

### 6.3.6 Impact matrix

| Rated By: | | Site A | | | | | | |
|---|---|---|---|---|---|---|---|---|
| IMPACT DESCRIPTION | | Direction of Impact | **Degree of Certainty** | Magnitude | Spatial | Temporal | Probability | **Impact Risk** |
| Code | *Phase* | | | | | | | |
| | ***CLOSURE*** | | | | | | | |
| **STATUS QUO** | INITIAL BASELINE IMPACTS TO ENVIRONMENT | Negative | **Definite** | | | | | |
| Project Impact 1 | Loss of employment | Negative | **Probable** | 4 | 4 | 4 | 5 | **-4.4** |
| | | | | MODH | LOC | LONG | OCCUR | **HIGH** |
| Project Impact 2 | Loss of livelihoods | Negative | **Probable** | 4 | 4 | 4 | 5 | **-4.4** |
| | | | | MODH | LOC | LONG | OCCUR | **HIGH** |
| **CUMULATIVE IMPACT** | INITIAL IMPACTS TO ENVIRONMENT + ADDITIONAL IMPACTS FROM PROJECT, **BEFORE MITIGATION** | Negative | **Probable** | 4 | 4 | 4 | 4 | **-3.5** |
| | | | | MODH | LOC | LONG | VLIKE | **MODH** |
| **RESIDUAL IMPACT** | INITIAL IMPACTS TO ENVIRONMENT + ADDITIONAL IMPACTS FROM PROJECT, **AFTER MITIGATION** | Negative | **Probable** | 4 | 4 | 3 | 4 | **-3.2** |
| | | | | MODH | LOC | MED | VLIKE | **MODH** |

### 6.3.7 Environmental management plan

| **Management / Environmental Component:** | **EMPr Reference Code:** | | |
|---|---|---|---|
| Social | | | |
| **Primary Objective:** | | | |
| To reduce social impacts associated with closure | | | |
| **Implementation** | **Responsibility** | **Resources** | **Monitoring / Reporting** |
| Compile communication strategy that will provide employees and other stakeholders with the relevant information that they may require and that will indicate what resources are available as well as how to access them. The strategy must be transparent and accessible. | Eskom | Completed communication strategy | Ongoing |
| Develop an Employee Assistance Programme to assist employees and their families in dealing with the effects of retrenchment. | Eskom | Completed Employee Assistance Programme | Ongoing |
| Provide portable skills development programme for employees that will be retrenched on closure. | Eskom | Portable skills development programme | Ongoing |
| Provide assistance to retrenched employees in finding new employment, like time off to go for interviews, fax and e-mail services, referrals etc. | Eskom | E-mail and fax facilities Recruitment agencies | Ongoing |
| **Existing management plans / procedures:** | | | |
| Revise existing plans to align with recommendations | | | |

## 6.4 Post-closure Phase

### 6.4.1 Status Quo

Some of the communities in the area are characterised by poverty and unemployment. Property values may already have been affected by developments in the area.

### 6.4.2 Project impact

Those who experienced job losses and loss of livelihoods as identified in the closure phase will in all likelihood still be experiencing economic hardship. It must be noted that it is almost impossible to anticipate impacts more exactly so far in the future and the social environment in the area may at the time look very different from the status quo.

### 6.4.3 Cumulative impact

Should the status quo of the social environment still be valid at the time of closure, the additional project impact without mitigation measures will be **probably** be of a MODERATELY-HIGH negative significance affecting the area on a *local* level. These impacts will *very likely happen* and most of the will extend beyond the life of the operation. The impact risk class is **moderately high**.

### 6.4.4 Mitigation measures

The following mitigation measures are suggested:

- Redeploy staff where possible.
- Assist staff with finding alternative employment.
- Give referrals to regular suppliers, especially SMME's.
- Follow IFC retrenchment guidelines.

### 6.4.5 Residual impact

Most of the impacts mentioned cannot be reversed through mitigation measures, but through effective mitigation measures, their impacts can be softened. It is very important that mitigation measures must be implemented consistently and according to the ways prescribed. The identified impacts will still be there, but to a lesser extent. With mitigation, the impacts will **possibly** be of a MODERATELY-HIGH negative significance, with effects experienced on a *local* level. The impacts are *very likely* to happen and are likely to last just beyond the life of the operation. The impact risk is thus **moderately-high.**

### 6.4.6 Impact matrix

| Rated By: | | Site A | | | | | | |
|---|---|---|---|---|---|---|---|---|
| IMPACT DESCRIPTION | | Direction of Impact | **Degree of Certainty** | Magnitude | Spatial | Temporal | Probability | **Impact Risk** |
| Code | *Phase* | | | | | | | |
| | ***POST CLOSURE*** | | | | | | | |
| **STATUS QUO** | INITIAL BASELINE IMPACTS TO ENVIRONMENT | Negative | **Definite** | | | | | |
| Project Impact 1 | Loss of employment | Negative | **Definite** | 4 | 4 | 4 | 5 | **-4.4** |
| | | | | MODH | LOC | LONG | OCCUR | **HIGH** |
| Project Impact 2 | Impact on livelihoods | Negative | **Probable** | 4 | 4 | 4 | 5 | **-4.4** |
| | | | | MODH | LOC | LONG | OCCUR | **HIGH** |
| Project Impact 3 | Decrease in property values | Negative | **Possible** | 4 | 3 | 4 | 3 | **-2.4** |
| | | | | MODH | ADJ | LONG | LIKE | **MODL** |
| **CUMULATIVE IMPACT** | INITIAL IMPACTS TO ENVIRONMENT + ADDITIONAL IMPACTS FROM PROJECT, **BEFORE MITIGATION** | Negative | **Probable** | 4 | 4 | 4 | 4 | **-3.5** |
| | | | | MODH | LOC | LONG | VLIKE | **MODH** |
| **RESIDUAL IMPACT** | INITIAL IMPACTS TO ENVIRONMENT + ADDITIONAL IMPACTS FROM PROJECT, **AFTER MITIGATION** | Negative | **Probable** | 4 | 4 | 3 | 4 | **-3.2** |
| | | | | MODH | LOC | MED | VLIKE | **MODH** |

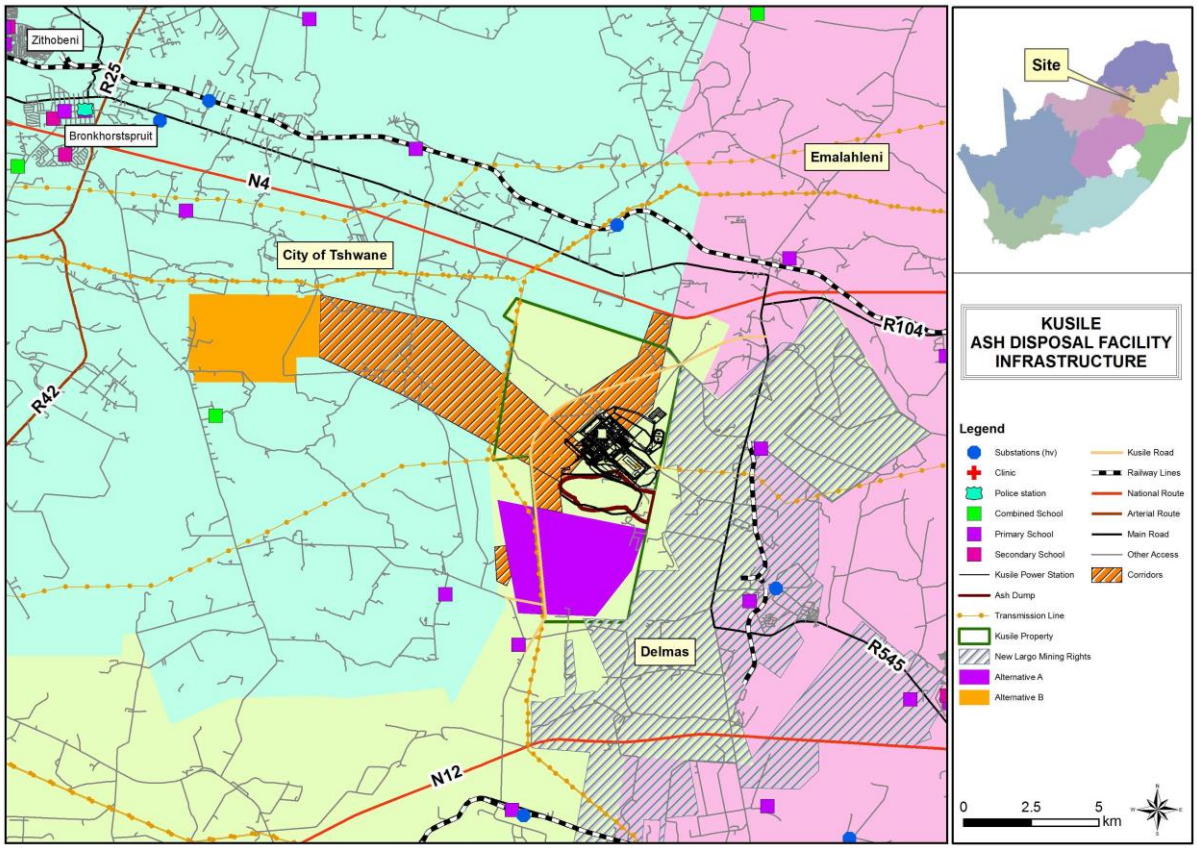
### 6.4.7 Environmental management plan

| **Management / Environmental Component:** | **EMPr Reference Code:** | | |
|---|---|---|---|
| Social | | | |
| **Primary Objective:** | | | |
| To reduce social impacts associated with closure | | | |
| **Implementation** | **Responsibility** | **Resources** | **Monitoring / Reporting** |
| Develop an Employee Assistance Programme to assist employees and their families in dealing with the effects of retrenchment. | Eskom | Completed Employee Assistance Programme | Ongoing |
| Provide portable skills development programme for employees that will be retrenched on closure. | Eskom | Portable skills development programme | Ongoing |
| Provide assistance to retrenched employees in finding new employment, like time off to go for interviews, fax and e-mail services, referrals etc. | Eskom | E-mail and fax facilities Recruitment agencies | Ongoing |
| **Existing management plans / procedures:** | | | |
| Revise existing plans to align with recommendations | | | |

# 7 Comparison of alternatives

Two alternative sites where investigated for the purpose of this report. The map below indicates the positions of these alternatives.

**Figure 21: Positions of Alternative A and B**




The following factors were considered in the analysis of the alternatives:

- Social impacts and mitigation required for Site A versus social impacts and mitigation required for site B;
- Cumulative social impacts with and without the New Largo Mine; and
- Strategic catchment management goals and objectives.

Each of these considerations will be discussed in the paragraphs below.

### 7.1 Social impacts and mitigation required for Site A versus social impacts and mitigation required for site B

It must be considered that social impacts occur in the area around the physical footprint of the site, and not only on the affected site. Most of the social impacts identified in this report will occur irrespective of which site is selective. The social impact that is of most concern is the impact on livelihoods and job creation, especially amongst vulnerable communities. Site A will not have an impact on any livelihoods as all the land already belong to Eskom.

In stark contrast, should Site B be chosen, there will be a severe impact on the livelihoods of a significant number of people, including farm workers who are seen as an extremely vulnerable group. It would be very difficult to recreate some of the livelihoods. Resettlement and compensation will be an expensive process given the fact that farms will need to be purchased as economic units, and some of the farms in the area are highly specialised. There will be down-stream social impacts on suppliers and food security.

The potential social impacts will be severe and mitigation associated with these impacts will increase the project budget significantly, should Site B be chosen. It must also be noted that it is not possible to mitigate some of the impacts to a level similar to or better than the status quo in a short period of time. This mitigation will have to take place over an extended period of time to ensure it is sustainable, and it will put people in a worse situation that they are currently in.

### 7.2 Cumulative social impacts with and without the New Largo Mine

The cumulative social impacts associated with New Largo Mine have no relevance to the site selection process. Irrespective of whether New Largo Mine existed or not, the preferred alternative would remain Site A.

### 7.3 Strategic catchment management goals and objectives

The National Water Resource Strategy acknowledges the importance of balancing the economy, society and ecology in the management of water resources. From a social perspective it is important to consider equity and distribution issues. It must also be acknowledged that the right to clean water is a basic environmental and human right. The consideration of strategic water management goals and objectives in a social context is not simple. It is outside the scope of this report to enter into such a debate, and the recommendation is that all aspects including livelihoods and food security should be considered when a final recommendation for site selection is made. From a social

perspective it would be irresponsible to recommend Site B given the severity and magnitude of the potential social impacts, and therefore Site A remains the preferred alternative.

# 8 Conclusions and recommendations

When considering the social impacts of the ash disposal facility, the importance of the Kusile power station on a national scale must be considered. The supply of electricity is a critical issue in South Africa and the proposed project will add to the stability of the service. The new ash disposal facility will extend the life of the power station, which is extremely important on a national level. Most of the land on Alternative A already belongs to Eskom and no people will have to be resettled, only parts of commercial farming units. In contrast, Site B belongs to individual land owners and will result in significant loss of livelihoods and job opportunities. There will also be a down-stream impact on food security. The biggest impact on the surrounding communities will be a change in the quality of their living environment, with an anticipated increase in nuisance created by dust, noise, traffic (increase in commuting time) and the presence of strangers. There are concerns about the health of the community members as well as that of livestock and crops. Pressure on physical and social infrastructure is also a concern, but it is anticipated that the project's contribution to this pressure would be quite small. Most of the impacts can to some extent be managed, although the communities have expressed a lack of faith in mitigation measures as either not being applied, or not being particularly effective, basing their views on current experiences.

The need for the proposed project is undeniable in the current economic conditions. Alternative A has the smallest impact of all the alternatives that were considered from a social perspective. It is therefore recommended that the proposed project is approved with Alternative A.

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