

## 15. SOCIAL IMPACT ASSESSMENT

Social impact assessment (SIA) may be defined as:

*"the process of assessing or estimating, in advance, the social consequences that are likely to follow from specific policy actions or project developments, particularly in the context of appropriate national, state or provincial environmental policy legislation. Social impacts include all social and cultural consequences to human populations of any public or private actions that alter the ways in which people live, work, play, relate to one another, organise to meet their needs, and generally cope as members of society"* (International Committee on Guidelines and Principles, 1994, p. 108).

This chapter presents the results of a SIA for the proposed coal fired power station near the existing Matimba power station in Lephalale Local Municipality, Limpopo Province. The SIA was undertaken by Afrosearch – a social consultancy firm that is based in Pretoria and has extensive experience in the fields of sustainable development, public participation and impact assessment.

The SIA documented in this chapter builds on a preliminary SIA conducted as one of the specialist studies during the Scoping Phase of the EIA for the proposed power station. One of the aims of the scoping study was to form an initial estimate of the impacts that power station is likely to have on the social and biophysical environment. An additional aim was to recommend a preferred site for the power station and for the ancillary infrastructure. Eight potential sites had been identified prior to the Scoping Phase: the farms Eenzaamheid, Naauwontkomen, Nelsonskop, Appelvlaakte, Kromdraai, Kuipersbult, Zongezien and Droogeheuvel. Based on the outcomes of the various specialist studies conducted during the Scoping Phase, the farm Naauwontkomen was selected as the most preferred site for the power station and the adjoining farm Eenzaamheid as the most preferred site for the associated ash dump and ancillary infrastructure. From a social perspective, these sites are to be preferred because, in comparison to those located further to the north, they are relatively remote from densely populated areas such as the township of Marapong. The probability that the residents of these settlements would be negatively affected by construction activities, changes in air quality, increased noise levels, etc. is therefore significantly reduced.

The sites selected for the power station and ash dump are situated on the existing road that leads westwards from Lephalale and Onverwacht to the nearby town of Steenbokpan. This road would therefore have to be realigned if the construction of the power station is approved. Since more than one option presents itself for the realignment of the road, it is therefore necessary to identify the alternative that is most preferable in terms of its likely social impacts.

Alternative routes have also been proposed for the conveyor belt by which the power station will be supplied with coal from Grootegeluk Mine, and a selection must be made between these alternatives.

The objectives of the SIA reported in this chapter were therefore:

- To conduct more detailed investigations of the preferred site and its surrounding social environment;
- To make recommendations regarding the most preferred alignment of the Steenbokpan Road and the conveyor belt in respect of their likely social impacts;
- To assess the social impacts expected to occur as a result of the project, and to rate these impacts in terms of their duration, extent, severity, probability and mitigation potential; and
- To identify measures by which negative social impacts might be reduced and positive impacts enhanced.

## **15.2. Scope and Limitations**

The focus of this SIA is on the impacts that the project is expected to have on the local social environment, where the latter is defined as the area delimited by the boundaries of the local municipality (Lephalale). However, it is recognised that the project will also have impacts that extend to a provincial and perhaps even national level. The most pertinent of these large-scale effects is related to an increase in Eskom's capacity to supply electricity. If current trends in the growth of demand for electricity continue, it is likely that South Africa's surplus electricity supply will be exhausted by 2007 (Eskom Briefing Document, undated). If peak demand exceeds supply, the reliability and quality of electricity services will be negatively impacted. Unreliable electricity supply will, in turn, have significant negative economic (and hence social) consequences. The proposed power station can therefore rightly be regarded as having a significant positive social impact by helping to *prevent* such a negative scenario from materialising. However, no attempt was made during this study to quantify or rate the magnitude and significance of this impact.

An additional impact of the proposed power station will be an increase in the demand for coal. The existing Matimba power station is supplied with coal by the nearby Grootegeluk Mine, which is owned by Kumba Resources. It is likely that the proposed power station would also receive its coal from Grootegeluk Mine. If this turns out to be the case, the mine would have to expand its current operations to meet the increased demand. This, in turn, would necessitate an expansion in its labour force, thereby impacting on the social environment through the creation of additional job opportunities. When considered in conjunction with the employment opportunities that would be created by the

proposed power station, it is evident that this effect represents a *cumulative impact*. While this study recognises the indirect social impacts that will arise because of the increased demand for coal, it does not attempt to investigate them in detail. This omission is premised on the assumption that an expansion in the operations of the mine would require a separate EIA, including a specialist social impact assessment.

### **15.3. Methodology**

This section describes the methodology that was followed during the SIA. The study consisted of the following components:

- The compilation of a refined social profile of the study area;
- An assessment of the alternative alignments for the Steenbokpan Road and the conveyor belt with the aim of recommending a preferred alignment for each;
- A detailed assessment of the anticipated social impacts of the power station and associated infrastructure;
- Rating these impacts in terms of various dimensions, including their expected duration, extent, severity and probability; and
- The formulation of recommendations regarding the mitigation of social impacts associated with the proposed project.

Each of these components is described in greater detail below.

#### **15.3.1. Refined social profile of the study area**

In contrast with the social profile compiled during the SIA for the scoping study, this profile focuses specifically on the selected sites for the power station and ancillary infrastructure. Consequently, the areas further to the north (including the farms Appelvlakte, Nelsonskop, Zongezien and Droogeheuvel) are not described to the same level of detail as the farms further to the south. Data collection for the social profile included a survey of dwellings within a 5 km radius of the selected site. Interviews were also conducted with landowners and residents of potentially affected areas.

#### **15.3.2. Assessment of alternative alignments for the Steenbokpan Road and conveyor belt**

Information regarding the alternative alignments for the road and conveyor belt was obtained from the EIA consultant. These alignments were then superimposed on the profile of the social environment to ascertain which alternatives are likely to have the least significant negative impacts.

### **15.3.3. Assessment of social impacts**

This component involved a refined assessment of the potential social impacts that had been identified during the scoping study. The social impacts tentatively identified during the scoping study and earmarked for further investigation included the following:

- *Creation of employment opportunities.* It was determined that the proposed power station would lead to the creation of a number of job opportunities, both during its construction and operation.
- *Impacts on the local municipality.* It was determined during the scoping study that the power station would bring about a significant increase in the demand for housing and infrastructure in the surrounding area. This increase would have a substantial impact on the local municipality.
- *Impacts on public safety and daily movement patterns.* It was determined that the construction and operation of the power station are likely to result in an increase in traffic volumes. This could lead to damage of local roads and increased speeding through town, thereby impacting on the safety and daily movement patterns of residents in surrounding communities.
- *Social investment and infrastructural improvements.* Social investment initiatives by Eskom, as well as by Kumba Resources, could have significant positive impacts on surrounding communities. Such initiatives could include upgrading of existing infrastructure such as services.
- *Impacts on owners and residents of surrounding farms.* It was determined that the power station could impact on surrounding communities' way of life and on the area's sense of place. This, in turn, could have a negative effect on property values and on the attractiveness of the area as a destination for hunters and tourists.
- *Relocation of households.* It was determined that the construction of the power station might necessitate the relocation of certain farm owners and/or farm residents.
- *Influx of job seekers.* Because of high unemployment rates in the region, it is possible that news of the proposed development could lead to an influx of job seekers into the area.
- *Possible conflict between local residents and newcomers.* If construction workers are not sourced locally, but are housed close to the site, this may give rise to conflict between local residents and newcomers. If the area experiences an influx of job seekers, competition over scarce employment opportunities may also lead to conflict with locals.
- *Impacts on the residents of Marapong.* It was determined during the scoping study that, if the proposed power station were to be located on one of the northern sites (Nelsonskop or Appelvlakke), the residents of Marapong might suffer significant negative effects in terms of changes in air quality, noise pollution and the like.

The detailed investigations conducted during the second phase of the SIA (which coincided with the main Impact Assessment phase of the EIA) are described below. First a more precise estimate was made of the numbers of employment opportunities to be created by the project. This assessment was based on figures of labour requirements and skills profiles obtained from Eskom. Information was also obtained from Kumba Resources regarding the expansion of their labour force that would be required to meet the increased demand for coal. Further information supplied by Eskom and Kumba Resources concerned their current and planned social investment and infrastructure improvement initiatives.

Second, information was obtained from Lephalale Local Municipality regarding the expansion of infrastructure that would be required to meet the additional demands created by the power station. This information was used to render a more precise assessment of the impacts that the proposed project is likely to have on the municipality.

In order to assess the likely impacts of the project on the safety and daily movement patterns of local landowners and residents, as well as on the area's sense of place, it was necessary to incorporate data generated by other specialist studies forming part of the EIA. The results of the visual impact assessment and traffic impact assessment – which were conducted by Mr Lourens du Plessis and Mr Adrian Brislin, respectively, and are reported in Chapters 10 and 13 of this report – were therefore obtained and interpreted from a social point of view in order to assess their likely impacts on people.

Since the selected site for the proposed power station and ancillary infrastructure is situated on farms located some kilometres to the south of Marapong township (namely, on Naauwontkomen and Eenzaamheid), the probability that the residents of this township will be negatively affected by their physical proximity to the site is significantly reduced. These issues (i.e. the community being in close proximity to the power station as well as related health and air quality issues) were therefore not subject to more detailed investigation.

#### **15.3.4. Rating of impacts**

Each identified impact was then rated in terms of the following dimensions:

- *Expected duration.*  
The alternative values that could be assigned to an impact on this dimension are listed in the Table 15.1.

**Table 15.1:** Alternative ratings in terms of duration

Rating	Explanation
Short term	Less than 5 years (e.g. construction impacts)
Medium term	Between 5 and 15 years
Long term	Between 15 and 30 years
Permanent	Longer than 30 years

- *Spatial extent*

This dimension denotes the geographical area over which the impact is likely to be felt. The alternative values that could be assigned to an impact on this dimension are listed in Table 15.2.

**Table 15.2:** Alternative ratings in terms of extent

Rating	Explanation
Individual	The impact will affect individuals in the study area
Household	The impact will affect households in the study area
Localised	The impact will extend over all or part of the local district area
Regional	The impact will extend over all or part of the province
National	The impact will extend over all or part of the country
International	The impact will extend over more than one country

- *Intensity*

This variable denotes the expected severity of a negative impact or the magnitude of a positive impact. Table 15.3 summarises the values that could be assigned to an impact on this dimension.

**Table 15.3:** Alternative ratings in terms of intensity

Rating	Explanation
Very severe	Irreversible or permanent damage that cannot be mitigated
Severe	A long term impact that could be mitigated, although with some difficulty or expense
Moderately severe	A medium to long term impact that could be mitigated
Slight	A medium to short term impact that could be easily and affordably mitigated
Slightly beneficial	A medium to short term impact with negligible benefits that could be more easily obtained in other ways
Moderately beneficial	A medium to long term impact with real benefits that would be equally difficult or expensive to obtain in other ways
Beneficial	A long term impact and substantial benefit that would be more difficult, time consuming or expensive to obtain in other ways
Very beneficial	A permanent and very substantial benefit that could not readily be obtained in other ways
Undetermined	It is not possible to determine the severity of the impact

- *Probability*  
Alternative values that could be assigned to an impact on this dimension were “Very unlikely,” “Unlikely,” “May occur” and “Will definitely occur.”
- *Significance*  
This dimension represents in integrated assessment of the importance of an impact based in its expected duration, extent, intensity and probability. Positive as well as negative impacts might be rated as highly significant. The table below summarises the values that could be assigned to an impact to reflect its significance.

**Table 15.4:** Alternative ratings in terms of significance

Rating	Explanation
Very high	These impacts would be considered by society as constituting a major and usually permanent change to the social environment, and usually result in severe or very severe effects – or, alternatively, beneficial or very beneficial ones
High	These impacts would be considered by society as constituting an important and usually long term change to the social environment, and would be viewed in either a serious or a very positive light
Moderate	These impacts are real but not substantial, and would be viewed by society as constituting a fairly important and usually medium term change to the social environment
Low	These impacts have little real effect, and would be viewed by society as constituting a fairly unimportant and usually short term change to the social environment
No significance	These impacts have no primary or secondary consequences that are important to scientists or the public

- *Mitigation potential*  
This variable denotes the extent to which a negative impact could be reduced or avoided. Table 15.5 summarises the values that could be assigned to an impact on this dimension.

**Table 15.5:** Alternative ratings in terms of mitigation potential

Rating	Explanation
High	Negative impacts can be reduced fairly easily with little expense
Moderate	Negative impacts may be reduced, but with significant difficulty or at high cost
Low	It is unlikely that negative impacts can be effectively reduced or avoided
Not applicable	The impact is very beneficial, and therefore does not justify mitigation

- *Confidence*  
This variable denotes the degree of certainty associated with the assessment of a particular impact, and is thus related to the amount of data that is available to support a particular rating.

**Table 15.6:** Alternative ratings in terms of confidence

Rating	Explanation
Definite	More than 90% sure; substantial supporting data is available
Probable	More than 70% sure; sufficient supporting data is available
Possible	More than 40% sure; some supporting data is available
Unsure	Less than 40% sure; limited supporting data is available

### **15.3.5. Formulation of mitigation measures**

This component of the study involved the identification of appropriate mitigation measures. The purpose of these measures is to reduce adverse social impacts, either by modifying the planned developments, or else compensating for the impact. Mitigation measures are also intended to enhance positive impacts associated with the proposed project.

### **15.4. Social profile of the study area**

The proposed project falls within Lephalale Local Municipality (NP362), which is in the Waterberg District Municipality (DC36) in the northern part of Limpopo Province. Lephalale Local Municipality covers an area of 19 605 square kilometres (km<sup>2</sup>), and consists of 11 wards. The study area comprises three wards:

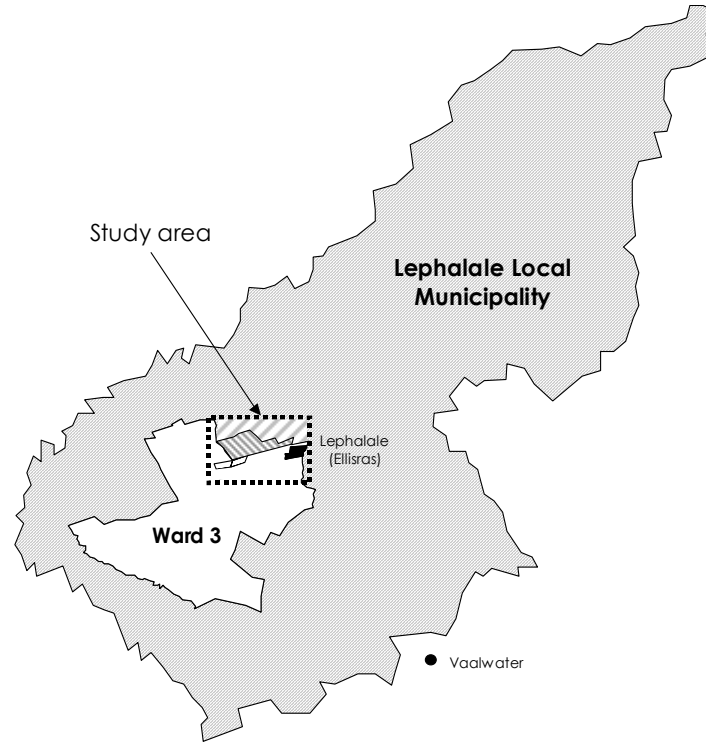
- Ward 2, which has an area of 77 km<sup>2</sup>, and includes Grootegeluk Mine and the township of Marapong;
- Ward 3, which is a much larger ward directly to the south of Ward 2. The ward has an area of 2 047 km<sup>2</sup>. Onverwacht, a residential area to the west of the town of Lephalale, lies in Ward 3; and
- Ward 4, which has an area of 16 km<sup>2</sup> and comprises the town of Lephalale (formerly Ellisras).

Figure 15.1 below indicates the location of these wards relative to the rest of Lephalale Local Municipality. The area enclosed in the dotted line in this figure is enlarged in Figure 15.2. This figure shows the location and names of the farms selected for the power station and ash dump during the scoping study.

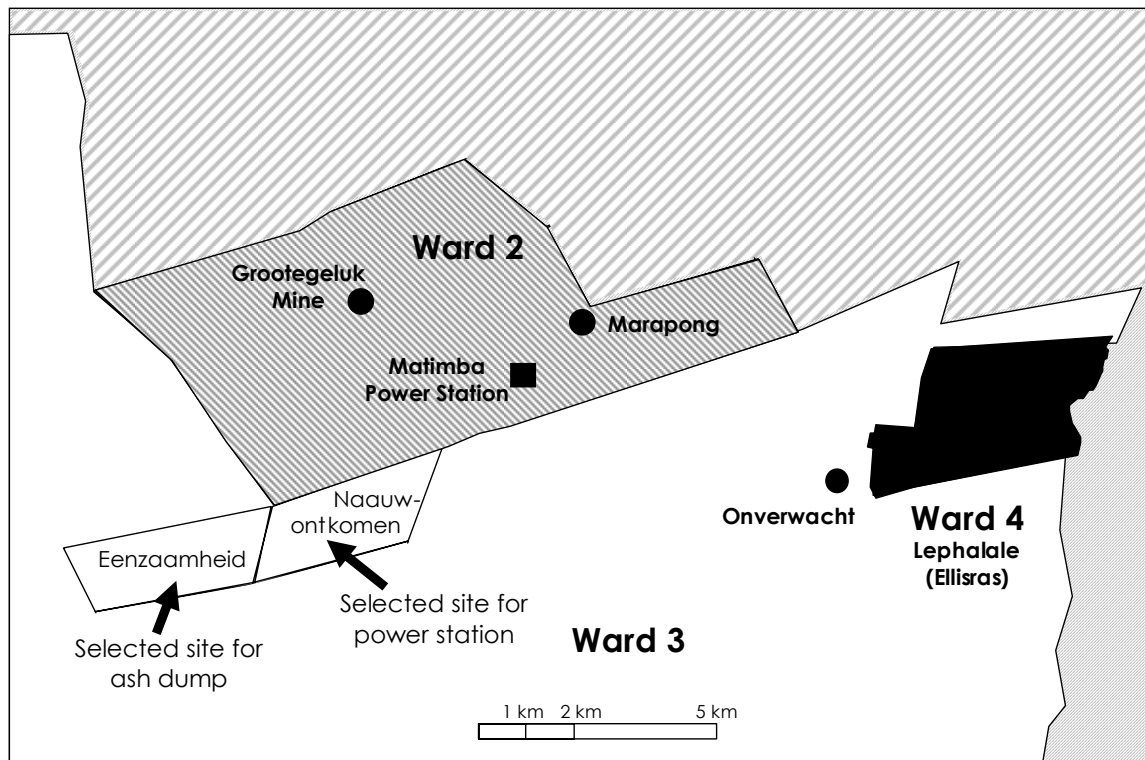
The first three sub-sections below provide an overview of the social conditions existing in these three wards. This overview was compiled by using secondary data sourced from Statistic South Africa and the Municipal Demarcation Board.



This is followed by a discussion of characteristics particular to the proposed site and its surrounding area, including ambient air quality, land use and potentially affected farms. In closing, alternative alignments for the Steenbokpan Road and the conveyor belt are discussed.



**Figure 15.1:** The regional context of the study area



**Figure 15.2:** Outline of the study area

### **15.4.1. Demographics**

- *Population*

The total population of Lephalale Local Municipality is in the order of 100 000. About 3% of this population (3000 people) live in the town of Lephalale. Ward 2 (Marapong), with a population of about 17 000, accounts for 17% of the total population of the municipal area (Mmoya, 2006, personal communication), while Ward 3 (with 10 000 people) accounts for a further 10%.

The average population density of Ward 3 (at 5 people per km<sup>2</sup>) is similar to that of Lephalale Local Municipality as a whole. By contrast, Ward 2 is more densely populated at about 75 people per km<sup>2</sup>, while the town of Lephalale is still more densely populated (about 180 people per km<sup>2</sup>).

About 90% of the population of Lephalale Local Municipality is African, with the remainder made up almost exclusively of Whites. According to the 2001 Census results, the populations of the town of Lephalale and the larger Ward 3 consisted of roughly equal proportions Africans and Whites, although the balance has swung in the direction of Africans in the intervening years. Ward 2 (Marapong) is almost exclusively African.

- *Age and gender distribution*

One-third of the population of Ward 2 (Marapong) is under 15 years of age. This is similar to the age distribution of Lephalale Local Municipality as a whole. By contrast, the population of Ward 3 and the town of Lephalale is slightly older, with between one-quarter and one-fifth of the population being under 15 years of age.

In Marapong as well as the town of Lephalale, the population distribution displays a preponderance of males over 35 of age. In these areas, males between 35 and 64 years of age constitute 60% of the total population in this age group. This pattern is indicative of large numbers of migrant workers. These workers are attracted by the possibility of employment at the Grootegeluk Mine and the existing power station. They most probably originate from other parts of Limpopo Province, which is one of the poorest provinces in South Africa, and consequently has a high unemployment rate.

- *Education*

In Wards 2, 3 and 4, about 10% of the population over 20 years of age report not having had any schooling. This figure is significantly lower than for Lephalale Local Municipality as a whole, where nearly one-quarter of over 20-year olds have not had any schooling. In Marapong, approximately a quarter

of the adult population is functionally illiterate while a third of young people have completed Grade 12 (Mmoya, 2006, personal communication).

#### **15.4.2.        *Employment and income***

- *Unemployment rates*

The unemployment rate in Lephalale Local Municipality is in the order of 20%. This figure is higher in Marapong, where roughly one-third of the workforce is unemployed. In Ward 3 the unemployment rate is about 10%, while in the town of Lephalale it is less than 5%.

- *Sectoral employment*

In Lephalale Local Municipality, agriculture is the largest source of employment, with one-third of the active labour force employed in this sector. In Marapong, mining is the largest source of employment (40%). In the town of Lephalale, the largest source of employment is the Community/Social/Personal Services sector (30%). Game farming constitutes an important economic activity on many of the farms surrounding the study area (including those in Ward 3).

- *Income*

Limpopo Province is one of the poorest provinces in the Republic of South Africa. Poverty is also a widespread problem in Lephalale Local Municipality: roughly 20% of households report not earning any income, while an additional 45% of households earn less than R800 per month. The situation is slightly less severe in Ward 2 (Marapong), where 15% of households earn no income and 25% earn less than R800 per month. In Ward 3 and the town of Lephalale, by contrast, only 8% of households report not earning any income, while one-quarter of households earn less than R800 per month.

#### **15.4.3.        *Housing and services***

- *Housing*

In Lephalale Local Municipality, 80% of households live in formal dwellings, while roughly equal proportions of the remainder live either in traditional or informal dwellings. In Ward 2, slightly less than 50% of households live in formal dwellings, while the remainder live in informal dwellings. The township of Marapong itself is a formal settlement to which infrastructure has been supplied. In Ward 3 and the town of Lephalale, the vast majority (more than 90%) of households live in formal dwellings.

The average household size in Lephalale Local Municipality is 3.5 persons per household. This figure is slightly larger in Marapong (4 persons per household) and smaller in Ward 3 and the town of Lephalale (2,6 persons per

household). The average dwelling size in Marapong is 3,3 rooms per dwelling. Dwellings in Ward 3 and the town of Lephalale are somewhat larger (3,9 and 4,2 rooms per dwelling, respectively).

- *Transport*

The most common methods of travelling to work or school in Ward 2 (Marapong) is by foot (49% of people), followed by buses (36%). In Ward 3 and the town of Lephalale, 40% of people travel to work or school by foot, while 20% make use of buses and 30% of cars.

- *Access to electricity*

Approximately 70% of households in Lephalale Local Municipality have electricity for household lighting, while the remainder use candles. In Ward 2 (Marapong), this figure is slightly higher (75%), and in Ward 3 it is still higher (85%). Virtually all households in the town of Lephalale have access to electricity.

- *Water*

A very high percentage of communities in Limpopo Province are still below 50% of RDP standards in terms of water supply. In the Waterberg District Municipality, about 235 688 of people (i.e. 48 000 households) do not have access to water at least 98% of the time. On the other hand about 130 000 people still have to walk more than 200 m to fetch water from the nearby water sources.

In Lephalale Local Municipality, one-third of households do not have access to water in the dwelling or yard, but have to make use of community standpipes. In Marapong, this figure is somewhat lower (15% of households make use of community standpipes), more than half of households have a tap in the yard, and one-third of households have access to water inside their dwelling. In Ward 3 and the town of Lephalale, approximately 75% of households have access to water inside their dwelling, while 20% have a tap in the yard. The remainder make use of community standpipes.

- *Sanitation*

A similar pattern emerges with regard to sanitation services. In Lephalale Local Municipality, 20% of households have no access to sanitation services, 50% make use of pit latrines, while 30% have flush toilets. In Marapong and the town of Lephalale, virtually all households have flush toilets. In Ward 3, 85% of households have flush toilets, 5% make use of pit latrines, and slightly less than 10% have no access to sanitation services.

#### **15.4.4. Ambient air quality of areas surrounding the site**

Air quality data pertaining to the existing Matimba Power Station, which were collected from the Grootestryd Monitoring Site, indicate that:

- Dominant winds in the area are from the northeast and east-northeast during the day and by night, with a smaller west-south-westerly component at night.
- Air pollution impacts from power station plumes are most dominant during the day, between 10:00 and 15:00.
- As a result of atmospheric instability, the highest impacts occur approximately 2 km downwind from the site.
- Ambient as well as infrequent, extreme concentrations of SO<sub>2</sub> are below the limits set by DEAT guidelines.

#### **15.4.5. Surrounding farms and other land uses**

Principle land uses in the area surrounding the site include:

- Agricultural land devoted mainly to game and cattle farming;
- Residential and industrial areas – e.g. Onverwacht, the town of Lephale, and Marapong. Plans have been made to expand Marapong towards the east;
- Grootegeluk Mine, which is owned by Kumba Resources Pty Ltd;
- A conglomeration of ecotourist destinations further to the east (in the vicinity of the Waterberg Biosphere, between Lephale and Polokwane); and
- Sewage works on the farms Zongezien and Nelsonskop.

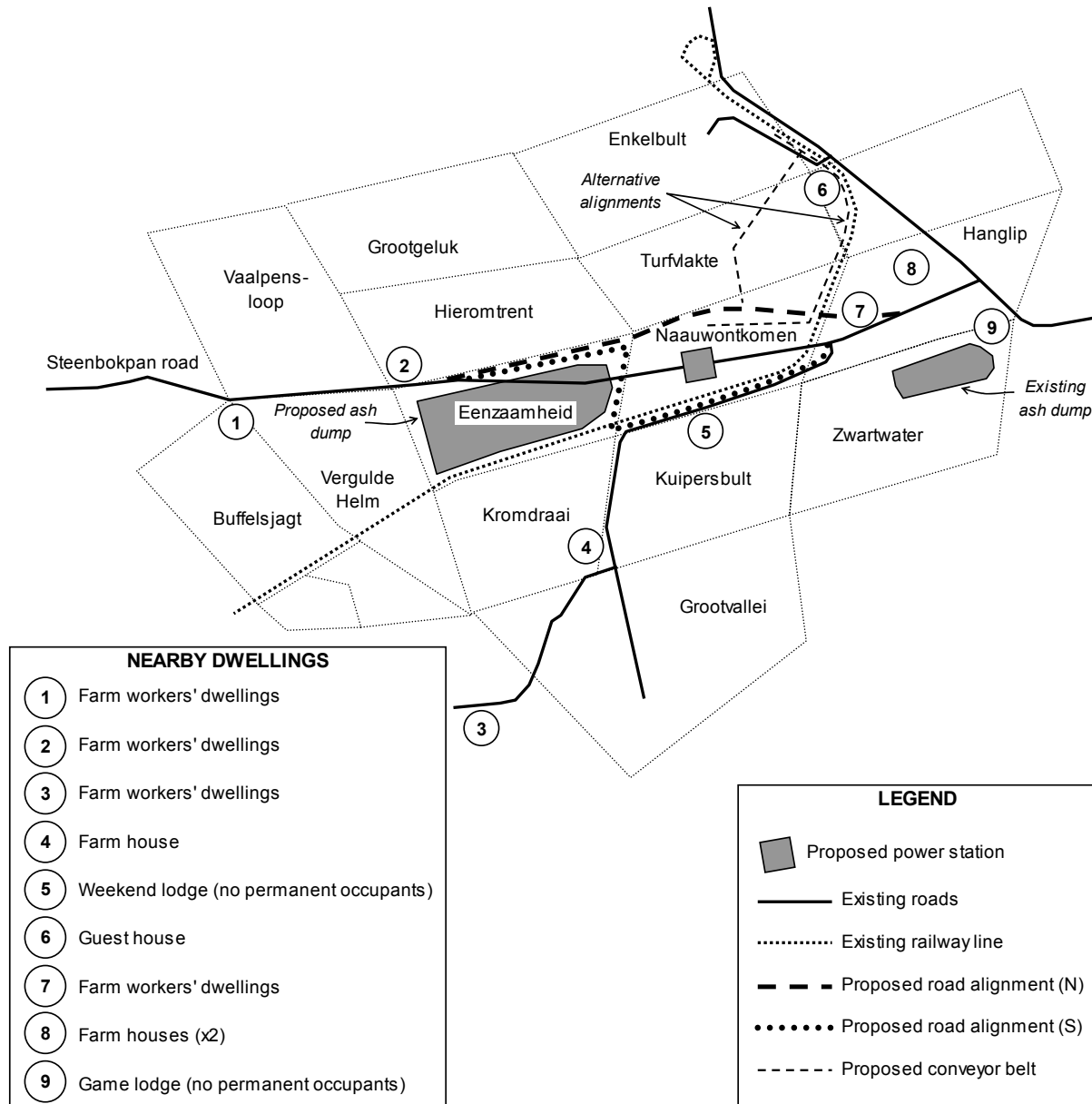
Table 15.7 summarises the details of the farms selected for the proposed power station and ancillary services. Also included in this table are the details of the farms surrounding the proposed sites. These details include the location of each farm, its owner and his or her main concerns regarding the proposed project. The locations of the farms closest to the proposed site are depicted in Figure 15.3 below.

**Table 15.7:** Details of the selected sites and surrounding farms

<b>Farm</b>	<b>Location</b>	<b>Comments</b>
Naauwontkomen (selected site for power station)	South west of Matimba	Owned by Kumba Resources Pty Ltd
Eenzaamheid (selected site for ash dump)	Directly west of Naauwontkomen	Owned by Mr. JJ Thuynsma, who also owns the farm Kuipersbult. He lives in town. Has one full-time worker, who has lived on the farm for 1 year. Farms with cattle.

<b>Farm</b>	<b>Location</b>	<b>Comments</b>
Kromdraai	Directly south of Eenzaamheid	Owned by Mr. Leon Steyn. Has been living there for 45 yrs. Because of prevailing wind direction, they would be negatively affected by emission from the power station.
Kuipersbult	Directly south of Naauwontkomen	Owned by Mr. JJ Thuynsma, who also owns the farm Eenzaamheid.
Turfvlakte	Directly north of Naauwontkomen	Part of Grootegeeluk Mine. Owned by Kumba Resources
Hieromtrent	Directly north of Eenzaamheid	Part of Grootegeeluk Mine. Owned by Kumba Resources
Hanglip	Directly east of Naauwontkomen	Owned by Mr H Pieterse. Farms with cattle, and lives on the farm. Sometimes receives hunters.
Kalkfontein	Directly east of Zongezien	Owned by Mr J van Rooyen. He lives on the farm, farms with cattle and game. Receives hunters, has accommodation for them on the farm. He is concerned about housing for construction workers.
Eendracht	Directly east of Hanglip	Owned by Mr JJ Lambrect, who also owns the farm Fancy. May be negatively affected by influx of people and expansion of residential infrastructure.
Altoostyd	South of Eendracht	Portions of farm owned by Mr. M. Erasmus, who is in favour of the project. Other portions owned by Mr J van Rooyen and Mr P Nel
Grootvallei	Directly south of Kromdraai and Kuipersbult	Owned by Mr. Leon Steyn, who also owns Kromdraai. Has been living there for 45 yrs.
Fancy	South of Grootvallei	Owned by Mr JJ Lambrecht, who also owns Eendracht.
Vergulde Helm	Directly west of Eenzaamheid	Owned by Mr H. Hills, who also owns Buffelsjagt. Because of prevailing wind direction, the farm may be negatively affected by emissions from the power station.
Buffelsjagt	Directly west of Vergulde Helm	Owned by Mr H. Hills, who also owns Vergulde Helm. He lives on Buffelsjagt. Concerned about crime. Because of prevailing wind direction, the farm may be negatively affected by emissions from the power station
Hooikraal	Directly north of Buffelsjagt	Owned by Mr van Tonder for 20 yrs. Concerned about property value
Massenberg	Directly north of Hooikraal	Owned by Mr Grobler, frequently houses overseas hunters. He is concerned about the effect of the power station on sense of place and property value

In addition to showing the locations of farms surrounding the proposed site, Figure 15.3 also indicates the location of various dwellings within a five-kilometre radius of the site. These are denoted by circled numbers, and a brief description of each dwelling is provided below the map. Additional information included in the map is the alternative alignments for the Steenbokpan Road and the conveyor belt. These alternatives are discussed in greater detail in the following section.



**Figure 15.3:** Map indicating farms and settlements surrounding the proposed site, as well as alternative alignments for Steenbokpan Road and conveyor belts

#### **15.4.6. Alternative road and conveyor belt alignments**

- *The Steenbokpan Road*

As the map in Figure 15.3 indicates, two alternative alignments for the Steenbokpan Road are under consideration. These have been dubbed the "northern alternative" and the "southern alternative." The northern alternative veers off to the north of the existing road, cuts across the north-eastern corner of the farm Naauwontkomen, then travels along the border of Hieromtrent and Eenzaamheid to rejoin the existing road alignment. The southern alternative follows the existing dirt road that joins the Steenbokpan Road from the south. It then turns to the north to follow the existing border between Naauwontkomen and Eenzaamheid, which places it between the proposed power station and ash dump. Upon reaching the border between Eenzaamheid and Hieromtrent, it turns to the west again to follow the same route as the northern alternative.

- *The conveyor belt*

As Figure 15.3 shows, two alternative alignments are also being considered for the conveyor belt between Grootegeluk Mine and the proposed power station. One alignment (the eastern alternative) follows the existing railway line until it turns in a westward direction just to the south of the northern alignment of the Steenbokpan Road. The western alternative cuts across the farm Turfvlakte in a south-westerly direction.

#### **15.5. Assessment of social impacts**

This section provides an evaluation of the predicted social impacts of the proposed power station and ancillary infrastructure. In each case, a table is provided in which the impact is rated in terms of its expected duration, spatial extent, intensity, probability, significance, mitigation potential and the confidence attached to the assessment. Each table also contains recommended mitigation measures relevant to that impact.

The tables distinguish between impacts that are expected to arise during the construction phase of the project and those that are expected to occur during its operation. In some cases, however, an impact may begin during the construction phase and continue during the operational phase. (For instance, an influx of job seekers into the area might take place during or even prior to construction, but these newcomers might remain in the area after construction has been completed.) In such cases, the impact was listed in the table under "Construction," but its duration was listed as medium term or long term.



### **15.5.1. Employment creation**

- *Employment creation during the construction phase*

Construction activities will create a number of temporary employment opportunities. The magnitude of this impact will depend on the *number* of construction workers to be employed, either by Eskom itself or by contractors. Sourcing of construction workers from the local labour pool is likely to be limited to *unskilled workers* due to the highly technical nature of the work to be undertaken. This could have some economic benefits for surrounding communities, although only of a temporary nature. The construction process is expected to last approximately 42 months. At its peak, it will involve some 5 000 construction workers, of which 60% will be sourced from Lephalale and surrounding areas.

An addition to creating job opportunities for construction workers, the project may also offer other sources of temporary employment. These include rehabilitation of the buffer zone around the power station after the completion of construction activities. Indirect employment creation in the informal sector may also occur, for instance in terms of food stalls for the convenience of construction workers.

- *Employment creation during operation*

The operational phase of the power station will result in the creation of approximately 500 employment opportunities. Of these, roughly 180 will be part of the Eskom workforce, with the remainder being filled by permanent contractors. All of these will be housed in the Marapong/ Lephalale area.

Whether the benefits of these employment opportunities will accrue to surrounding communities will depend on whether those positions will be filled by local residents. This will, in turn, depend on whether the necessary *skills* are available in surrounding communities. Eskom has indicated that the majority of jobs among contractors would be semi-skilled. Its permanent workforce, on the other hand, would comprise management, engineering and operations/ maintenance staff - i.e positions requiring fairly high skills levels. The numbers envisaged in each category are indicated in Table 15.8.

**Table 15.8:** Permanent staff required for the proposed power station

<b>Occupational category</b>	<b>Number</b>
Management	15
Operating	50
Maintenance	50
Engineering	40
Services	25
Total	180

Information received from the local Ward Councillor (Mmoya, 2006, personal communication) indicates that, among young people in Marapong, 30% have a Grade 12 qualification. Of these, 40% have some further training, mostly related to computer use or technical professions such as electricians. Approximately 20% of young people with Grade 12 qualifications also have higher qualifications. It can therefore be concluded that the employment opportunities for local communities as a result of the project will be at the level of semi-skilled labour, with a relatively smaller number of skilled jobs being created.

It is likely that Kumba Resources would expand their current operations in order to supply coal to the proposed power station (Interview: E. Goldenhuys). It is expected that these mining operations will create a similar number of additional employment opportunities.

**Table 15.9:** Rating of impact – Creation of employment opportunities

<b>RATING OF IMPACT: CREATION OF EMPLOYMENT OPPORTUNITIES</b>		
<b><u>Dimension</u></b>	<b><u>During construction</u></b>	<b><u>During operation</u></b>
<b>Duration</b>	Short term	Long term
<b>Extent</b>	Localised (If labour for construction and rehabilitation of the buffer zone is sourced from surrounding communities)	Localised (If labour for operations is sourced from surrounding communities)
<b>Intensity</b>	Very beneficial	Beneficial
<b>Probability</b>	Will definitely occur	Will definitely occur
<b>Significance</b>	High	High
<b>Mitigation potential</b>	Moderate (positive impact may be enhanced by maximising local recruitment)	Moderate (positive impact may be enhanced by maximising local recruitment)
<b>Confidence</b>	Definite	Definite
<b>Recommended mitigation measures</b>	Make use of local labour where possible. Liase with local community structures to identify local labour pool.	Make use of local labour where possible. Liase with local community structures to identify local labour pool.

### **15.5.2. Influx of job seekers**

As news regarding the proposed project spreads, expectations regarding possible employment opportunities may take root. Consequently, the area surrounding the site will experience an influx of job seekers. Available data indicates that Marapong is already experiencing a significant influx of people looking for work (Mmoya, 2006, personal communication), and it is likely that this will increase once construction activities commence.

The magnitude of this impact will depend on the severity of unemployment in surrounding areas. As was mentioned in Section 15.4.1, the fact that males outnumber females in the 35-64 age group indicates that a large number of migrant workers are already present. Furthermore, poverty is a widespread problem in Lephalale Local Municipality, with an unemployment rate in the order of 20%. This figure is higher in Marapong, where roughly one-third of the workforce is unemployed. Given these figures, it is likely that a large enough number of job seekers will flock into the area to have a fairly significant population impact on the immediate social environment. This population increase will impact on Lephalale Local Municipality in terms of additional demand for services and infrastructure – an issue that is discussed in greater detail in Section 15.5.4 below.

This impact is listed below as a construction-related impact. However, it is possible that the impact may commence prior to construction, and may continue after construction has been completed. Contact between newcomers and locals could also create various social problems. These are discussed in greater detail in the following section.

**Table 15.10:** Rating of impact – Influx of job seekers

<b>RATING OF IMPACT: INFLUX OF JOB SEEKERS</b>		
<b><u>Dimension</u></b>	<b><u>During construction</u></b>	<b><u>During operation</u></b>
<b>Duration</b>	Medium term	-
<b>Extent</b>	Localised	-
<b>Intensity</b>	Moderately severe	-
<b>Probability</b>	May occur	-
<b>Significance</b>	Moderate	-
<b>Mitigation potential</b>	Moderate	-
<b>Confidence</b>	Probable	-
<b>Recommended mitigation measures</b>	As far as possible, make use of local labour. Liaise with local community structures (e.g. the Marapong Development Association) to identify mutually acceptable means of controlling the influx of job seekers or, if this is not possible, to mitigate the negative effects of such an influx.	-

### **15.5.3. Social problems arising from population influx**

As was indicated above, the construction workforce will consist of approximately 5 000 on-site workers, of which roughly 3 000 will be locals. The remaining 2 000 will constitute the core teams of the various contractors. These will have to be housed reasonably close to the construction site. One option currently being considered by Eskom is to house these workers in the Marapong/ Lephalale area. If this is the case, a number of new housing units will have to be constructed – a requirement that will place significant demands on the local municipality. This issue is taken up again in the following section.

Another option being considered is that of housing only a very small proportion of these 2 000 workers in the Lephalale area. The remainder will then be housed in a *construction village* that is to be established on the farm Eenzaamheid (the selected site for the ash dump). The construction village will be demolished after construction has been completed.

Regardless of which option is implemented, it is possible that conflict might arise between the newcomers and local residents. One possible reason for such conflict would be the perception among locals that the outsiders are taking up jobs that could have gone to unemployed members of the local community. An influx of unemployed job seekers (which was discussed in the preceding section) could add to the potential for conflict. Evidence supporting this conjecture is provided by the fact that the area has already experienced such conflicts in the past – particularly between Zulu and Sotho people (Erasmus, 2006, personal communication).

An influx of construction workers and job seekers might be accompanied by an increase in crime. Even if particular instances of crime are not as a result of the newcomers, they may still be attributed to them by local communities.

Another possibility is that a population influx will contribute to alcoholism, drug abuse and the spread of sexually transmitted diseases in the local population. According to a representative of Lephalale Local Municipality (see Erasmus, 2006, personal communication), alcoholism and (more recently) drug abuse are among the most significant social problems that have been attributed to the existing Matimba power station. Alcoholism in particular has left its scars on the community due to some families being abused. A special initiative by the name of BRAVO was created to assist families in difficulty. The possibility can therefore not be overlooked that an additional influx of people will cause these problems to escalate.

As Table 15.11 indicates, this impact may begin during or even prior to construction of the proposed power station. However, it might also continue after construction has been completed and the power station becomes operational.

**Table 15.11:** Rating of impact – Social problems arising from population influx

<b>RATING OF IMPACT: SOCIAL PROBLEMS ARISING FROM POPULATION INFLUX</b>		
<b><u>Dimension</u></b>	<b><u>During construction</u></b>	<b><u>During operation</u></b>
<b>Duration</b>	Medium term	-
<b>Extent</b>	Localised	-
<b>Intensity</b>	Moderately severe	-
<b>Probability</b>	May occur	-
<b>Significance</b>	Moderate	-
<b>Mitigation potential</b>	Moderate	-
<b>Confidence</b>	Possible	-
<b>Recommended mitigation measures</b>	Meet with residents' associations and local Community Policing Forum to identify effective strategy for combating crime in the area. Implement HIV/AIDS awareness campaign for workers and/or local communities.	Coordinate efforts to address social problems with those of BRAVO initiative. Ensure effective management of hostels so as to prevent them from being occupied informally after completion of construction.

#### **15.5.4. Change in local infrastructure requirements**

As was mentioned above, the project is expected to have a two-fold impact on the size of the local population. On the one hand, it will create a number of employment opportunities during its construction as well as its operational phase. While a proportion of these positions will probably be filled by local residents, it will also be necessary to source staff from other areas. At the same time, news of the project may bring about an influx of job seekers.

The increase in the local population is expected to impact on the local municipality in various ways (J. Erasmus, 2006, personal communication; Interview with HODs of local municipality). These include:

- *Access roads.* The R33 from Modimolle (Nylstroom) to Vaalwater and Lephalale needs to be upgraded. This will involve, amongst other things, rebuilding the section between Modimolle and Vaalwater. Funds in the order of R200 million had been made available for this upgrade, but the project was put on hold when the road was recently upgraded to a national road. The National Roads Agency is therefore now responsible for the road. The road upgrade is considered critical for the future development of Lephalale. A pressing need also exists for the construction of bypass roads around

Lephalale. The only existing access road to the proposed power station (Nelson Mandela Drive) runs through the middle of the town, and heavy vehicles taking this road to the existing power station and to the mine already present problems in terms of traffic flow and damage to the road.

- *Water.* Water is a scarce resource in Lephalale. In order to meet the increased demand incurred by the population influx, additional water will have to be secured. This would entail either lifting the dam wall of the Mokolo Dam (from which water is currently obtained) with 12 meters in order to double its capacity, or else importing water from the Crocodile River system.
- *Sanitation.* The Council's water treatment plant will have to be enlarged and several new pump stations installed.
- *Housing.* As was mentioned in the previous section, approximately 60% of the construction workforce will be locals, while the remainder will have to be housed in the vicinity. One option would be to house them in a construction village on the farm Eenzaamheid. The other option will be to house them in the Lephalale/ Marapong area. This will require that the local municipality invest in the construction of additional housing units. During the construction of the existing Matimba power station, approximately 600 new houses were required. Only about 100 of these remained occupied after construction was completed. It is expected that a similar situation will result in the case of the proposed power station.
- *Health Care.* It is foreseen that it will be necessary to establish at least one more clinic to service the local population.
- *Schools.* It is foreseen that it will be necessary to establish another High School, as the current one is already occupied beyond capacity. The most appropriate location for the new school would be in Onverwacht (De Ridder, 2006, personal communication).
- *Integrated development planning (IDP).* It will be necessary to adapt the municipality's IDP planning process to take into account the population increase.

Meeting these demands will imply significant capital expenditure on the part of the municipality. In view of the fact that the municipality already suffers from a lack of funds, it would be essential that discussions between Eskom and the Local Authority are initiated. Agreement would need to be reached regarding mandates and responsibility for issues relating to the upgrading of infrastructure and the allocation of land for housing.

The Lephalale Strategic Development Steering Committee (LSDSC) and the Lephalale Development Company (LDC) were recently established with the specific aim of meeting the challenges brought about by the proposed new development. It is therefore recommended that plans for mitigating the impacts of the project on the local municipality be formulated in close collaboration with these bodies.

**Table 15.12:** Rating of impact – Change in local infrastructure requirements

<b>RATING OF IMPACT: CHANGE IN LOCAL INFRASTRUCTURE REQUIREMENTS</b>		
<b><u>Dimension</u></b>	<b><u>During construction</u></b>	<b><u>During operation</u></b>
<b>Duration</b>	Short term	Medium term
<b>Extent</b>	Localised	Localised
<b>Intensity</b>	Severe	Severe
<b>Probability</b>	Will definitely occur	Will definitely occur
<b>Significance</b>	High	High
<b>Mitigation potential</b>	Moderate	Moderate
<b>Confidence</b>	Definite	Definite
<b>Recommended mitigation measures</b>	Timely negotiation with the Local Municipality, the LSDSC and the LDC to identify resources required to meet increased demand for services, infrastructure and land for housing, and to discuss possible support by Eskom to the municipality.	Timely negotiation with the Local Municipality, the LSDSC and the LDC to identify resources required to meet increased demand for services, infrastructure and land for housing, and to discuss possible support by Eskom to the municipality.

#### **15.5.5. Social investment initiatives**

As was mentioned above, the project will offer socio-economic benefits in the form of employment creation. These benefits may be augmented by social investment activities initiated by Eskom. Two factors will play a key role in determining the effectiveness of such initiatives: whether they actually meet the needs of local communities, and whether they are adequately coordinated with other, existing development initiatives in the area. Such coordination will be essential to avoid unnecessary overlap and fragmentation of efforts. It is therefore recommended that social investment initiatives be planned in close collaboration with local community structures (such as the Marapong Development Association) as well as with representatives of the local municipality that are involved with Local Economic Development (LED).

In the table below, the social impacts of such initiatives are listed as occurring during operational phase of the proposed power station. However, this does not discount the possibility that such initiatives may materialise sooner.

**Table 15.13:** Rating of impact – Social investment initiatives

<b>RATING OF IMPACT: SOCIAL INVESTMENT INITIATIVES</b>		
<b><u>Dimension</u></b>	<b><u>During construction</u></b>	<b><u>During operation</u></b>
<b>Duration</b>	-	Long term
<b>Extent</b>	-	Localised
<b>Intensity</b>	-	Moderately beneficial

<b>Probability</b>	-	May occur (referring to expansion of social investment programme)
<b>Significance</b>	-	Moderate
<b>Mitigation potential</b>	-	Moderate (in terms of enhancing positive impacts)
<b>Confidence</b>	-	Probable
<b>Recommended mitigation measures</b>	-	Consultation with communities regarding their needs. Careful coordination with other, existing initiatives to avoid fragmentation and overlap of efforts.

#### **15.5.6. Effects on local farm owners and residents**

During the public participation process, several of the inhabitants and owners of surrounding farms raised concerns that the proposed power station may bring about an increase in air and noise pollution, and that this may impact on their health. There are indications that these concerns are shared by members of the Marapong community (Interview: T. Mmoya).

Landowners surrounding the proposed sites raised a number of additional concerns. These include:

- The effect of acid rain as a result of air pollution. Several farmers claimed that air pollution from the current power station greatly accelerates the rate at which metal (such as the wire of boundary fences) rusts.
- Light pollution. Landowners in close proximity to the existing Matimba Power Station have voiced their dissatisfaction regarding the amount of light emanating from the power station at night. Concerns have been raised that farm owners and farm residents in the proximity of the proposed power station will experience similar effects.
- The possible effect of the power station on the future quality and quantity of groundwater.
- An influx of workers or job seekers, which may lead to an increase in trespassing, stock theft and poaching.
- The negative effect that the proximity of the power station will have on their farms' sense of place – which, in turn, may make them less attractive destinations for hunters. As was mentioned in Section 15.4.5, some landowners have built lodges on their farms to house guests during hunting expeditions. The locations of these lodges are indicated in Figure 15.3. A decline in hunting activities could result in a loss of revenue for the owners of these lodges.



- The possibility that the aforementioned factors might have a negative effect on property values.

The extent to which people's quality of life is affected by the new power station will depend on their proximity to it. It is assumed that the closest landowners and communities will be most affected. An additional factor to be taken into consideration is the fact that the selected farms (Naauwontkomen and Eenzaamheid) are relatively remote from other major infrastructure developments. The proposed power station and ancillary infrastructure will therefore constitute a significant change in the immediate landscape – a fact that will add to the significance of the project's impact on the landscape's sense of place (Petrich, 1993).

Notwithstanding these concerns, some farm owners (particularly those who do not reside on their farms, but live in town) are very positive regarding the proposed project. There has, furthermore, not been any organised opposition to the proposed project to date. This may be partly explained by a widespread perception amongst farm owners that the proposed project will not continue. This perception appears to be the result of a recent newspaper article (Financial Mail, 27 January 2006) in which it was stated that the proposed project might not continue, as Eskom is considering sourcing electricity from a 3 600 MW power station to be constructed just across the border in Botswana.

As the table below indicates, the impacts of the project on surrounding farms are likely to make themselves felt during the construction phase of the project. However, they may continue during the operational phase.

**Table 15.14:** Rating of impact – Effects on local farm owners and residents

<b>RATING OF IMPACT: EFFECTS ON LOCAL FARM OWNERS AND RESIDENTS</b>		
<b><u>Dimension</u></b>	<b><u>During construction</u></b>	<b><u>During operation</u></b>
<b>Duration</b>	Short term	Long term
<b>Extent</b>	Localised	Localised
<b>Intensity</b>	Severe	Moderately severe
<b>Probability</b>	May occur	May occur
<b>Significance</b>	High	High
<b>Mitigation potential</b>	Moderate	Low
<b>Confidence</b>	Probable	Probable
<b>Recommended mitigation measures</b>	Minimise effects of construction activities on surrounding landowners through effective management and monitoring.	Negotiate with affected landowners regarding mutually acceptable means of mitigating or compensating for impacts experienced by them.

### 15.5.7. Relocation of households

As was mentioned in Section 15.4.5, the farm Naauwontkomen (the selected site for the proposed power station) is owned by Kumba Resources. There are currently no people living on the site. The neighbouring farm Eenzaamheid (the selected site for the ash dump) is owned by Mr J. J. Thuynsma, and there is one full-time worker on the farm. This worker has been living on the farm for approximately one year. Mr Thuynsma himself does not live on the farm. As he also owns other properties in the close vicinity, it is not foreseen that relocation of the aforementioned farm worker will present a significant impact.

The farm Kromdraai, directly to the south of Eenzaamheid, is owned by Mr L. Steyn. He and his wife have been living there for 45 years. Due to the fact that their residence will be located within a few kilometres (and downwind) of the proposed power station and ash dump, the impact on their quality of life is likely to be very significant. It may be necessary for Mr Steyn and his wife to relocate. Since they have been living there most of their adult lives, and especially since his wife suffers from ill health, such a move is likely to be very traumatic. In the table below, the impact arising from the possible need for Mr Steyn and his wife to relocate has been listed as a construction-related impact. However, it is also possible that the need for them to relocate will not materialise until the power station commences operation.

**Table 15.15:** Rating of impact – Relocation of households

<b>RATING OF IMPACT: RELOCATION OF HOUSEHOLDS</b>		
<b><u>Dimension</u></b>	<b><u>During construction</u></b>	<b><u>During operation</u></b>
<b>Duration</b>	Permanent	-
<b>Extent</b>	Household	-
<b>Intensity</b>	Very severe (specifically in terms of the impact on Mr Steyn and his wife)	-
<b>Probability</b>	May occur	-
<b>Significance</b>	Very high	-
<b>Mitigation potential</b>	Low	-
<b>Confidence</b>	Probable	-
<b>Recommended mitigation measures</b>	It is recommended that Eskom negotiate with Mr Steyn (who is being assisted by his son, Mr. Louis Steyn) regarding mutually acceptable means of mitigating or compensating for the impact of the proposed project on him and his wife.	-

### 15.5.8. Safety and daily movement patterns

As was mentioned earlier, the only existing access road to the proposed power station (Nelson Mandela Drive) runs through the middle of the Lephalale town. Heavy vehicles taking this road to the existing power station and to the mine already present problems in terms of traffic flow, speeding and damage to the road. The construction and operation of the power station are likely to exacerbate these problems (Interview: HODs of local municipality), thereby impacting on the safety and daily movement patterns of residents in surrounding communities. The magnitude of these impacts will depend on the traffic volumes that will be associated with construction and operation activities.

**Table 15.16: Rating of impact – Safety and daily movement patterns**

<b>RATING OF IMPACT: SAFETY AND DAILY MOVEMENT PATTERNS</b>		
<b><u>Dimension</u></b>	<b><u>During construction</u></b>	<b><u>During operation</u></b>
<b>Duration</b>	Short term	Long term
<b>Extent</b>	Localised	Localised
<b>Intensity</b>	Moderately severe	Moderately severe
<b>Probability</b>	May occur	May occur
<b>Significance</b>	High	Moderate
<b>Mitigation potential</b>	Moderate	Moderate
<b>Confidence</b>	Probable	Probable
<b>Recommended mitigation measures</b>	Construction activities planned so as to minimize added disruption of traffic flow, esp. during peak hours. Ensure effective enforcement of traffic laws.	Ensure that intersections, etc. are clearly marked by road signs. Implement traffic safety awareness campaign for staff. Ensure effective enforcement of traffic laws.

### 15.5.9. Nomination of preferred road and conveyor belt alignments

- *The Steenbokpan Road*

The results of the traffic impact assessment (see Chapter 13) indicate that the northern alternative is less likely to have a negative impact in terms of safety of drivers who frequently use the road. This advantage is related to the fact that this alignment will involve fewer turns and junctions than the southern alternative. The results of the visual impact assessment (see Chapter 10) also indicate that the northern alternative will reduce the physical intrusiveness of the site. This advantage is related to the fact that this route will not take drivers between the power station and the ash dump.

If the results of these studies are interpreted from the perspective of their social consequences, it is evident that the southern alternative will have a greater negative impact on the local population in terms of their safety, daily

movement patterns and sense of place. In the light of these considerations, it is recommended that the northern alternative be selected for the realignment of the Steenbokpan Road.

- *The conveyor belt*

As was mentioned earlier, the eastern alternative for the conveyor belt alignment follows the existing railway line. This presents an advantage in that having the two structures in close proximity to each other reduces their combined impact. However, this alternative will bring the conveyor belt close to guest house that is indicated by the number 6 on the map in Figure 15.3. This guest house is managed by Mr Craig Bruce on behalf of Kumba Resources.

While the guest house is also close to the existing railway line, it is likely that the impacts arising from its proximity to the conveyor belt will be far more severe than those currently experienced as a result of the railway line. This possibility derives from the fact that, whereas activity on the railway line is intermittent, that of the conveyor belt will be virtually continuous. In the light of these considerations, it is recommended that the *western alternative* be selected for the conveyor belt.

## 15.6. Conclusions and recommendations

The first sub-section below provides a tabular summary of the identified social impacts and their respective ratings. The second sub-section summarises the recommendations made in the preceding sections of this chapter.

### 15.6.1. Summary of impact ratings and mitigation measures

Table 15.18 below summarises the identified social impacts discussed in the previous section, as well as the ratings and recommended mitigation measures for each impact. The symbols employed in the table to indicate the ratings are explained in Table 15.17.

**Table 15.17:** Symbols for rating of impacts

Dimension	Ratings
<b>Duration</b>	Short term: - Medium term: 0 Long term: + Permanent: ++
<b>Extent</b>	Individual: -- Household: - Localised: 0 Regional: + National: ++ International: +++
<b>Intensity</b>	Very severe: H- Severe: M- Mod. severe: L- Slight: O- Very beneficial: H+ Benef.: M+ Mod. benef.: L+ Slightly benef.: O+ Undetermined: 0
<b>Probability</b>	Very unlikely: - Unlikely: 0 May occur: + Definitely occur: ++

<b>Significance</b>	None: -- Low: - Moderate: 0 High: + Very high: ++
<b>Mitigation potential</b>	Low: - Moderate: 0 High: + Not applicable: N/A
<b>Confidence</b>	Unsure: - Possible: 0 Probable: + Definite: ++

**Table 15.18:** Summary of impact ratings and recommended mitigation measures

<b>Impact</b>	<b>Duration</b>	<b>Extent</b>	<b>Intensity</b>	<b>Probability</b>	<b>Significance</b>	<b>Mitigation potential</b>	<b>Confidence</b>	<b>Mitigation</b>
<b>Employment creation during construction</b>	-	0	H+	++	+	0	++	Make use of local labour where possible. Liase with local community structures to identify local labour pool.
<b>Employment creation during operation</b>	+	0	M+	++	+	0	++	Make use of local labour where possible. Liase with local community structures to identify local labour pool.
<b>Influx of job seekers</b>	0	0	L-	+	0	0	+	Use local labour. Liase with local community structures to identify means of controlling the influx of job seekers or mitigating negative effects of influx.
<b>Social problems arising from population influx</b>	0	0	L-	+	0	0	0	Coordinate efforts to address social problems with those of BRAVO initiative. Meet with residents' associations and local CPF to identify strategy for combating crime. Implement HIV/AIDS awareness campaign for workers and/or local communities.
<b>Change in local infrastructure requirements</b>	0	0	M-	++	+	0	++	Timely negotiation with Local Municipality, the LSDSC and the LDC to identify resources required to meet increased demand for services and infrastructure, and to discuss possible support by Eskom to the municipality.

Impact	Duration	Extent	Intensity	Probability	Significance	Mitigation potential	Confidence	Mitigation
<b>Social investment initiatives</b>	+	0	L+	+	0	0	+	Consultation with communities regarding their needs. Careful coordination with other, existing initiatives to avoid fragmentation and overlap of efforts.
<b>Effects on local farm owners and residents</b>	+	0	L-	+	+	-	+	Negotiate with affected landowners regarding mutually acceptable means of mitigating or compensating for impacts experienced by them.
<b>Relocation of households</b>	++	-	H-	+	++	-	+	Negotiate with most-affected landowner(s) regarding mutually acceptable means of mitigating or compensating for impact.
<b>Safety and daily movement patterns</b>	+	0	L-	+	0	0	+	Construction activities minimize disruption of traffic flow. Ensure intersections, etc. clearly marked. Traffic safety awareness campaign. Effective enforcement of traffic laws.

### 15.6.1. Recommendations

As the analysis shows, many of the negative impacts are anticipated to respond favourably to mitigation measures, whereas some of the positive impacts (e.g. maximisation of employment opportunities for members of local communities) can be optimised. Mitigation measures implemented during the project should be informed by the suggestions made in this report, formalised in the Environmental Management Plan (EMP) and subjected to a mitigation and monitoring process throughout the construction and operational phases.

Furthermore, it is recommended (based on the analysis presented in Section 15.5.9) that the *northern alternative* be selected for the realignment of the Steenbokpan Road and that the *western alternative* be selected for the conveyor belt that will connect the proposed power station to Grootegeeluk Mine.