

## **16. SOCIAL IMPACT ASSESSMENT**

This chapter presents the results of a scoping study that was conducted to identify potential social impacts of the proposed project. The findings presented in the report are based on a desktop-level study as well as on information obtained from the stakeholder engagement process conducted by Ms. Ingrid Snyman on behalf of Bohlweki Environmental.

The objectives of the scoping study were:

- To form an initial estimate of the impacts that the proposed power station and ancillary services are likely to have on the daily lives, socio-economic well-being and overall quality of life of individuals and communities living in the surrounding area.
- To rank the eight alternative sites in terms of the severity of social impacts they are expected to experience.
- Based on this ranking, to make a recommendation as to the most suitable site for the proposed power station and its ancillary facilities.
- To identify additional studies that may be required to be conducted in order to assess the probable social impacts of the project with greater accuracy.
- To determine the most appropriate methods for conducting such additional studies.

### **16.1. Methodology**

#### **16.1.1. Definition of Social Impact Assessment**

Social impact assessment 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 development, particularly in the context of appropriate national, state or provincial environmental policy legislation. Social impacts include all social and cultural consequences to human populations of any public or private actions that alter the ways in which people live, work, play, relate to one another, organise to meet their needs, and generally cope as members of society."*<sup>1</sup>

The foregoing definition should make it clear that SIA is often closely intertwined with other forms of impact assessment, such as environmental impact assessment (EIA). An increase in air pollution as a result of a project, for instance, is aptly classified as an *environmental* impact. However, this impact is

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<sup>1</sup> International Committee on Guidelines and Principles (1994). Guidelines and principles for social impact assessment. *Impact assessment*, 12, 107-152.

also likely to have significant consequences for people living in the affected area. In such situations, the question may arise of where environmental (or other) impacts end and social impacts begin. Vanclay (1999, p. 301) answers this question by defining the difference between SIA and other forms of impact assessment as one of *emphasis*: "in contradistinction to environmental impact assessment ... SIA has something to do with understanding (or considering) the impacts of a project or policy on *people*".<sup>2</sup>

### **16.1.2. Steps followed in the Scoping Study**

The methodology employed during the SIA is based on internationally recognised standards of best practice, such as those promulgated by the International Association for Public Participation (IAP2). The study consisted of six steps or stages. Although these stages are described in linear fashion, iterations in the process allowed issues to be revisited, adjustments made to the methodology and further issue-based consultations to be held. The six stages are as follows:

- *Compiling a Comprehensive List of Social Impact Variables*
- *A comprehensive list of possible social impact variables was developed on the basis of the guidelines of the International Committee on Guidelines and Principles for Social Impact Assessment (1994). These impact variables are listed in Table 16.1. As this table shows, the list is organised into themes or categories. The purpose of this checklist was to serve as a guide to identify potentially relevant issues when conducting the investigation.*
- *Assessment of Stakeholder Views*  
This phase involved the collection of information on the perceptions, concerns and priorities of potentially affected publics. The primary vehicle for obtaining such information was the stakeholder engagement process.
- *Description of the Proposed Project*  
This phase involved obtaining information on the proposed project, including the alternative sites for the power station and ancillary infrastructure. Information obtained during this phase included locations, land requirements, needs for ancillary facilities (roads, transmission lines, sewer and water lines), the construction schedule, size of the work force (construction and operation), facility size and shape, institutional resources, etc.

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<sup>2</sup> Vanclay, F. (1999) Social impact assessment. In J. Petts (Ed) Handbook of environmental impact assessment. Volume I: Environmental impact assessment: Process, methods and potential (pp301-325). London: Blackwell Science.

**Table 16.1:** Social impact variables and themes

Theme	Impact variable
Population Characteristics	Population Change Ethnic and racial distribution Relocated populations Influx or outflows of temporary workers Seasonal residents
Community and Institutional Structures	Interest group activity Size and structure of local government Historical experience with change Employment/income characteristics Employment equity of minority groups Enhanced economic inequities Local/regional/national linkages Industrial/commercial diversity Presence of planning and zoning activity
Conflicts between local residents and newcomers	Presence of an outside agency Introduction of new social classes
Political and Social Resources	Distribution of power and authority Identifications of stakeholders Interested and affected publics Leadership capability and characteristics
Individual and Family Changes	Perceptions of risk, health, and safety Displacement/relocation concerns Trust in political and social institutions Residential stability Density of acquaintanceship Attitudes toward policy/project Family and friendship networks Disruption of daily movement patterns Concerns about social well-being Change in leisure opportunities
Community Resources	Change in community infrastructure Land use patterns Land acquisition and disposal Effects on cultural, historical, and archaeological resources

- *Initial Description of Baseline Conditions*

A profile was developed of the social characteristics and history of the study area. This profile served as a point of departure for estimating potential positive and negative effects of the proposed development. Information for this phase included population characteristics, land use patterns and local and regional economy. This information was mainly obtained from secondary

sources, such as the website of the Municipal Demarcation Board<sup>3</sup> and Statistics South Africa.

- *Identification of potential impacts.*

After obtaining a technical understanding of the proposed project and baseline conditions, the SIA team compiled a list of possible impacts. This list was based on the set of social impact variables listed in Section 16.1.2 above, supplemented and modified to accommodate particular features of the project context. The list of potential impacts was then narrowed by applying the professional judgement and past experience of team members to select potentially significant impact variables.

- *Relationships Among Impact Variables*

In many cases, a domino effect may occur in which initial impact give rise to longer-term, indirect impacts. (A population change, for instance, may result in a redistribution of power and authority, or may change a community's employment and income characteristics.) In order to emphasise this interdependence of social impacts, a diagram was developed indicating *the interrelationships among impact variables*. This diagram is included in Section 16.3.4.

### **16.1.3. Ranking of Alternative Sites**

As previously mentioned, one of the objectives of this Scoping Study was in order to offer a recommendation as to the most appropriate site in terms of social impacts for the proposed power station. In order to make such a recommendation, a distinction was drawn between:

- social impacts that are *not* expected to differ between the eight alternative sites (for example, the number of employment opportunities that will be created through the operation of the power station is expected to remain the same, irrespective of the site that is chosen); and
- social impacts that *are* expected to differ between the alternative sites (for example, the impact on residents of Marapong in terms of air quality will depend on the site of the power station).

By focusing on the second category of social impacts (those that are expected to depend on the choice of site), the relative advantages and disadvantages of the alternative sites were assessed to determine which site is likely to have the least deleterious social impacts.

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<sup>3</sup> URL: [www.demarcation.co.za](http://www.demarcation.co.za)

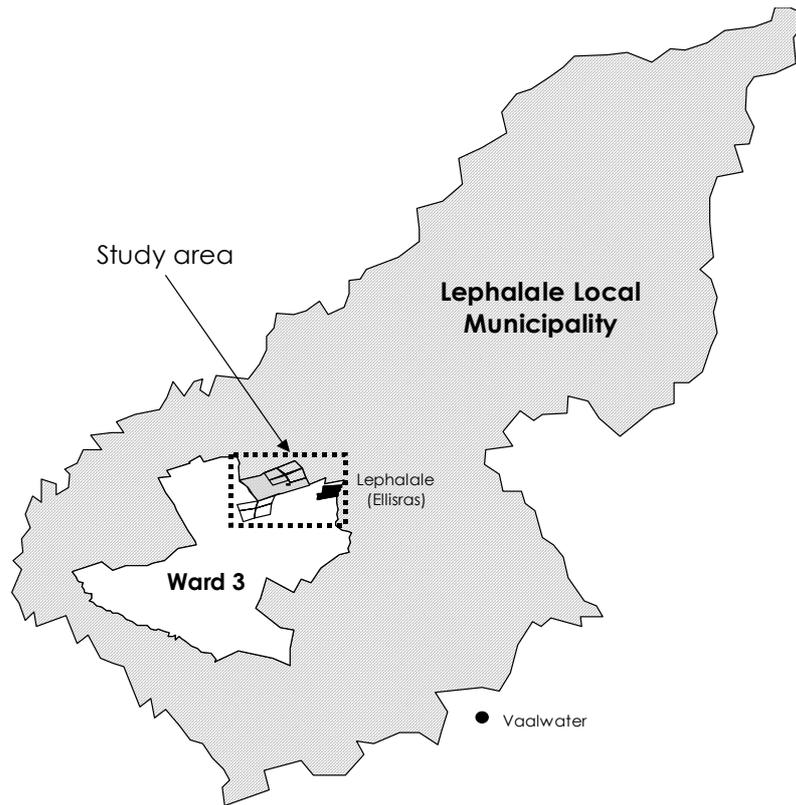
## **16.2. Preliminary Baseline Profile**

The proposed project fall 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:

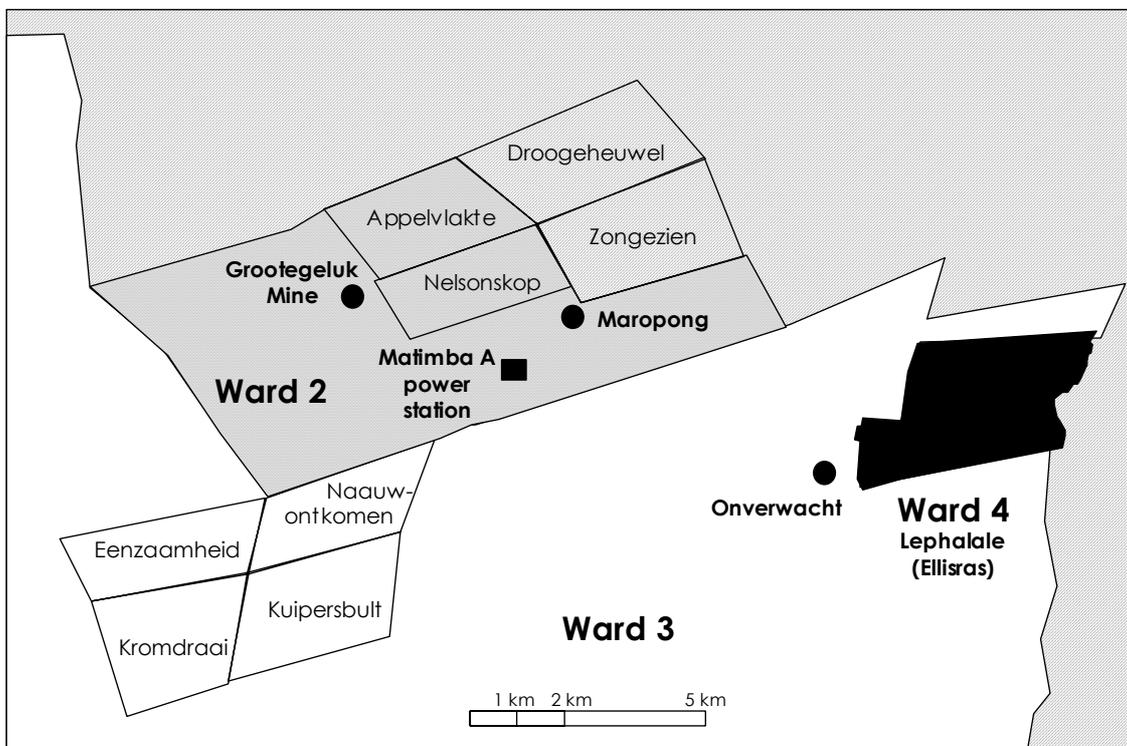
- Ward 2, which has an area of 77 km<sup>2</sup>, and includes Grootegeluk Mine and the township of Marapong;
- Ward 3, a much larger ward directly to the south of Ward 2, with an area of 2 047 km<sup>2</sup>. Onverwacht, a residential area to the west of the town of Lephalale, lies in Ward 3; and
-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

Figure 16.1 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 16.2. This figure shows the location and names of the farms constituting the alternative sites.

A preliminary social profile of these wards was compiled based on data obtained from Statistic South Africa and the Municipal Demarcation Board. This profile is briefly summarised in Sections 16.2.1 to 16.2.2.



**Figure 16.1:** Regional context of the study area



**Figure 16.2:** Outline of the study area

### **16.2.1. 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 6000, accounts for 6% of the total population of the municipal area, 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.

- *Employment*

- \* 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.

- *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).

- *Services*

- \* 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 and sanitation

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.

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.

- *Land use surrounding the site*

Principle land uses in the area surrounding the site include:

- \* Agricultural land devoted mainly to game and cattle farming;
- \* Residential and industrial areas – i.e. Onverwacht, the town of Lephalale, 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 Lephalale and Polokwane); and
  - \* Sewage works on the farms Zongezien and Nelsonskop.
- *Existing ambient air quality*  
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.
  - *Profiles of surrounding farms*  
Table 16.2 summarises the details of the proposed sites, as well as some of the farms surrounding the potential sites. These details include the location of each farm, its owner and his or her main concerns regarding the proposed project.

**Table 16.2:** Details of some of the farms surrounding the potential sites (refer to Figure 16.3 for farm location)

Farm	Location	Comments
<b>Potential sites for power station or ancillary services:</b>		
Eenzaamheid	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.
Naauwontkomen	South west of Matimba A	Owned by Kumba Resources Pty Ltd
Nelsonskop	Directly north of Matimba A	Owned by Kumba Resources Pty Ltd. There is a wastewater treatment works situated on the farm.
Appelvlakte	Directly north of Nelsonskop	Owned by Kumba Resources Pty Ltd

<b>Farm</b>	<b>Location</b>	<b>Comments</b>
<b>Potential sites for ancillary services:</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 air pollution if power station is located on Naauwontkomen.
Kuipersbult	Directly south of Naauwontkomen	Owned by Mr. JJ Thuynsma, who also owns the farm Eenzaamheid.
Zongezien, Portion 1	Directly east of Nelsonskop	Owned by Mr MF Loots, who lives on the farm. Frequently receives hunters, and is building a lodge on the farm. (Implies potential loss of income from hunting if ancillary services located on this farm). Is concerned about the risk posed by hunting to workers at power station.
Zongezien, other portions	Directly east of Nelsonskop	Owned by Eskom, sub-leased to Mr. O'Brien. He lives on the farm. No workers living on the farm. There is a wastewater treatment works situated on the farm.
Droogeheuvel	Directly east of Appelvlakte	Owned by Mr Allan Malherbe, who been living there for a short time. He also owns businesses in Johannesburg. There are lodges on the farm, and 5 permanent workers (implies potential job losses and loss of income from lodges if ancillary services located on this farm)
<b>Farms surrounding potential sites:</b>		
Hangklip	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 (Implies potential loss of income from hunting if ancillary services located next to this farm.) Concerned about housing for construction workers.
Peerboom	Directly south of Zongezien	Owned by Eskom, sub-leased to Mr. Crous. He farms with cattle, but does not stay on the property. There is a gravesite on the farm.
Eendracht	South of Peerboom	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
Ganzeapan	Directly north of Droogeheuvel	Owned by Mr. & Mrs S.M. Gouws, previously owned by her family. They are building a new house on the property, close to potential site. Frequently has hunters on the farm. (Implies potential loss of income from hunting if ancillary services located next to this farm.) Concerned about effect of power station on property value.

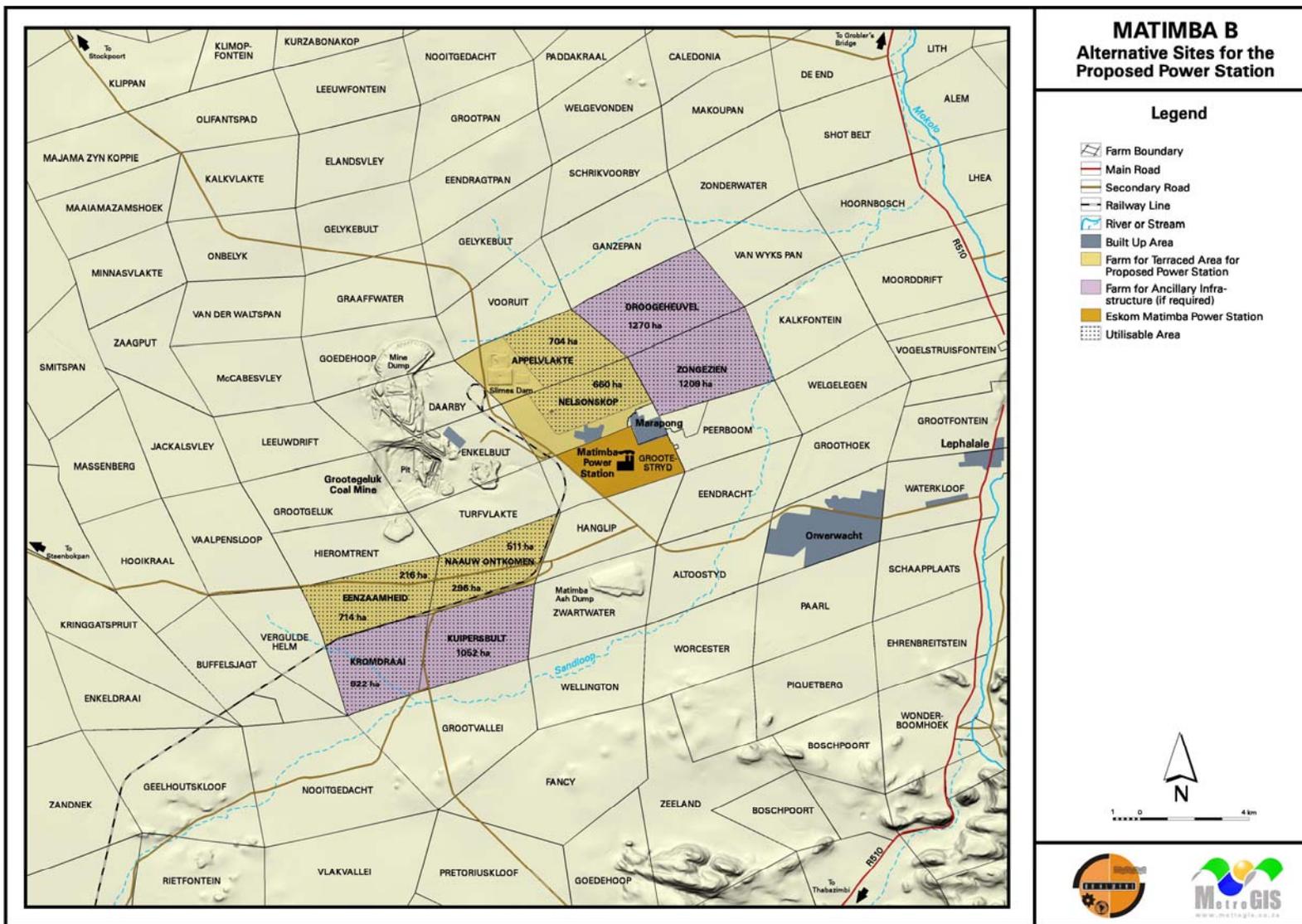
<b>Farm</b>	<b>Location</b>	<b>Comments</b>
Schrikvoorby	Directly north of Ganzepan	Owned by Mr T Nel, who also owns Makoupan, directly to the east. Frequently receives hunters. Is concerned about influx of workers and job seekers.
Welgevonden	Directly north of Schrikvoorby	Owned by Dr. A Moolman, who also owns a portion of the farm Schrikvoorby. He farms with game and frequently receives hunters from overseas. Experiences problems with poaching.
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 air pollution if power station is located on Eenzaamheid.
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, they would be negatively affected by air pollution if power station is located on Eenzaamheid.
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 effect of power station on sense of place and property value

### **16.2.2. Summary**

The social profile of the study area may be summarised as follows. The proposed site is surrounded by rural areas, of which Ward 3 of Lephalale Local Municipality is representative. This Ward has a low population density, with Africans slightly outnumbering the White population. The unemployment rate is low (10%); most households live in formal dwellings and have high access to services such as water and sanitation. Game farming and agriculture are important economic activities in the area.

The profile of the adjoining Ward 2 is somewhat different. Most of these differences can be accounted for by the presence of Marapong Township within its borders. Ward 2 has a population of 6000 people and a fairly high population density. Virtually its entire population is African. It is characterised by higher unemployment, greater poverty and a larger proportion of informal dwellings than the surrounding rural areas. Mining is an important source of employment.

The Town of Lephalale (formerly Ellisras) is located approximately 20 km to the east of the proposed site. It has a population of 3 000 people and a fairly high population density. It is similar to the surrounding rural areas in that its population consists of slightly more Africans than Whites, and in that it is characterised by low unemployment, mostly formal dwellings and high access to services.



**Figure 16.3:** A map indicating the location of the eight potential sites as well as the farms surrounding the potential sites.

### **16.3. Estimation of Social Impacts**

This chapter provides an evaluation of potential social impacts of the proposed Matimba B Power Station. These impacts, as well as the probable causal relationships among them, are illustrated in Figure 16.5.

#### **16.3.1. Impacts originating prior to construction phase**

- *Public concerns*

The following section summarises the concerns most frequently raised by stakeholders during the public participation process. This is followed by an analysis of factors that may contribute toward the formation of public perceptions regarding the risks associated with the proposed power station.

- \* Concerns raised by stakeholders during public participation process

Several of the inhabitants 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.<sup>4</sup>

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

- The effect of acid rain as a result of air pollution. Several farmers claimed that air pollution from the current power stations greatly accelerates the rate at which metal (such as the wire of boundary fences) rusts.
- 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. Several landowners have lodges on their farms to house hunters, and these constitute a substantial source of income for their owners.
- The possibility that the aforementioned factors might have a negative effect on property values.

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<sup>4</sup> Interview with Councillor T. Moya, conducted as part of the public participation process.

\* Public perception of risk

Given the issues raised in the previous paragraph, it is possible that the proposed project would be viewed by the public as a source of risk. The effects of exposure to such risk (whether real or perceived) are among the most significant potential social impacts of the project. Apart from psychological effects, such as increased stress and psychosomatic symptoms, it may lead to social opposition and mobilisation against the project.

In view of this fact, a preliminary desktop study was conducted to identify factors influencing public perception of risk. The study confirmed that public perceptions of risk sometimes differ significantly from objective risk assessments conducted by technical experts. Whereas technical assessments of risk takes into account only the probability and magnitude of events, subjective assessment of risk by the general public depends on a number of additional factors. An understanding of these factors is essential for any attempt to explain people's extreme prejudice to some risks, their indifference to others and the discrepancies between these two reactions.

A large body of literature indicates that people generally overestimate the risk associated with events that have the following characteristics:

- Involuntary risks. These may evoke fierce resistance because of a lack of choice.
- Unfair risks. A community that is trapped with the risk and receives little direct benefit from it will feel coerced, making the risk more serious.
- Dreaded risks (like nuclear power) are perceived as having catastrophic potential, fatal consequences and the uneven distribution of risks and benefits.
- Undetectable risks (like chemical waste) which effects take years to be revealed are feared more than immediate risks.
- Exotic risks are perceived as more risky than familiar risks.
- Memorable events (such as the nuclear accident at Chernobyl) are considered more risky.

The possible health risks associated with the impact of the power station on air quality meet several of these criteria. Firstly, it is an involuntary risk. Secondly, members of surrounding communities may regard it as unfair that they are being exposed to the risk, while others will reap the benefits of the power station. Thirdly, the health impacts of air pollution would not be immediately detectable. Hence, it is likely that the degree of

risk attributed to the power station by the public will be greater than what is indicated by technical risk assessments.

In the light of these considerations, the impact of the proposed project on the formation of public attitude is likely to be regional (i.e. extending beyond a 10 km radius of the proposed site), with high intensity, medium-term duration, high probability and high overall significance.

It is recommended that further studies be conducted to determine *public perceptions* and to assess the *potential for social mobilisation* against the proposed project.

- *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*. The magnitude of this impact will depend on a number of factors, such as the accessibility of the site and the severity of unemployment in surrounding areas.

As was mentioned in Section 16.2.1, the fact that males outnumber females in the 35-64 age group indicate that a large number of migrant workers are already present. A further influx of job seekers could create social problems such as a disruption of social values and the spread of sexually transmitted diseases.

It is not considered likely that the magnitude of this impact will depend on which of the alternative sites is selected. Although the extent of this impact will be localised, its intensity (if it occurs) is likely to be high. It is expected to be of intermediate duration, beginning before construction activities commence and possibly lasting into the operational phase of the project. Hence, the probable significance of this impact is high.

### **16.3.2. Impacts originating during construction phase**

- *Creation of temporary employment opportunities*

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.

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; and
- \* Possible indirect employment creation in the informal sector, for instance food stalls for the convenience of construction workers.

It is not considered likely that the magnitude of this impact will depend on which of the alternative sites is selected. If labour for construction and rehabilitation of the buffer zone is sourced from surrounding communities, the extent of this impact will be localised or possibly regional. Because these employment opportunities will be limited to unskilled labour, the intensity of this impact is likely to be moderate. Its duration will be short-term (in the order of 1 year), and its probable significance is moderate.

- *Social problems arising from contact 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. Such an influx of newcomers 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 the spread of sexually transmitted diseases in the local population. If construction workers are housed in hostels, social problems could also arise after completion of the construction phase. If vacated hostels are not properly managed, they could become transformed into informal settlements. Such problems have been experienced in Marapong in the past, where people took up residence in vacated hostels that were no longer supplied with services.<sup>5</sup>

The intensity and probability of these impacts will depend on the distance between the construction camp and existing settlements, such as Marapong. Consequently, this impact is likely to be less severe if the power station is located on Eenzaamheid or Naauwontkome than if it is situated on Nelsonskop or Appelvlakte. This impact will be localised in extent; its intensity is likely to be moderate and its duration medium-term. The *probability* of this impact occurring is judged to be moderate. It has been given a moderate overall significance rating.

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<sup>5</sup> Minutes of public meeting held as part of the public participation process, 28 June 2005.

- *Impacts on the local municipality*

The impacts of the project on Lephalale Local Municipality can be grouped into two categories: impacts arising from changes in local infrastructure requirements, and impacts on development plans.

- \* Changes in local infrastructure

The proposed development will have a number of significant impacts on the local municipality<sup>6</sup>:

- If construction workers are housed on-site, this may necessitate the development of infrastructure for the provision of services such as water, sanitation, etc. for the construction camp.
- In the longer-term, the local population is expected to increase as a result of an influx of workers and job seekers. This influx will increase the demand for services such as water, sanitation, roads, bridges, housing, health care facilities, schools etc.
- The local municipality would also need to extend existing infrastructure (including water and electricity) to service the new power station.
- The municipality's IDP planning process would be required to be adapted to take into account the population increase.

Meeting these demands will imply significant capital expenditure (the costs of which would be required to be calculated). In view of the fact that the municipality already suffers from a lack of funds, it would be essential for Eskom to consider the provision of financial assistance for infrastructure layout as a result of the proposed project.

Given that the cost of extending infrastructure will be proportional to the distance between the site and existing infrastructure for Matimba A and Grootegeluk mine, this impact will be greatest if the proposed power station is located on Eenzaamheid or Naauwontkomen. This impact will be localised in extent; its intensity is likely to be high and its duration medium-term. The *probability* of this impact occurring is judged to be high. It has been given a *high* overall significance rating.

- \* Impact on development plans

As was mentioned in Section 16.2.1, plans are underway to expand the township of Marapong to house permanent Eskom personnel. If the proposed power station is built on the farms of Nelsonskop or Appelvlakke, this will place the power station in the immediate vicinity of this planned extension. Consequently, the attractiveness of implementing these plans may be considerably reduced.

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<sup>6</sup> Interview with HODs of Local Municipality, conducted as part of the public participation process.

This impact will be localised and of medium intensity. Its consequences will be long-term. Since the other two potential sites (Naauwontkomen and Eenzaamheid) will not affect the planned expansion of Marapong, the probability of this impact occurring is judged to be moderate. Hence, it has been given a moderate overall significance rating.

- *Relocation of populations*

Table 16.3 and figure 16.4 list the owners and residents of the farms that are potential sites for the proposed power station and ancillary services. Among the property owners, the person that would be most severely affected by relocation is Mr Steyn (owner of the farm Kromdraai), as he has been residing on the property for the longest period of time, and due to life circumstances, a move could be traumatic for the family. Such relocation would be necessitated if the ancillary services were to be located on Kromdraai.

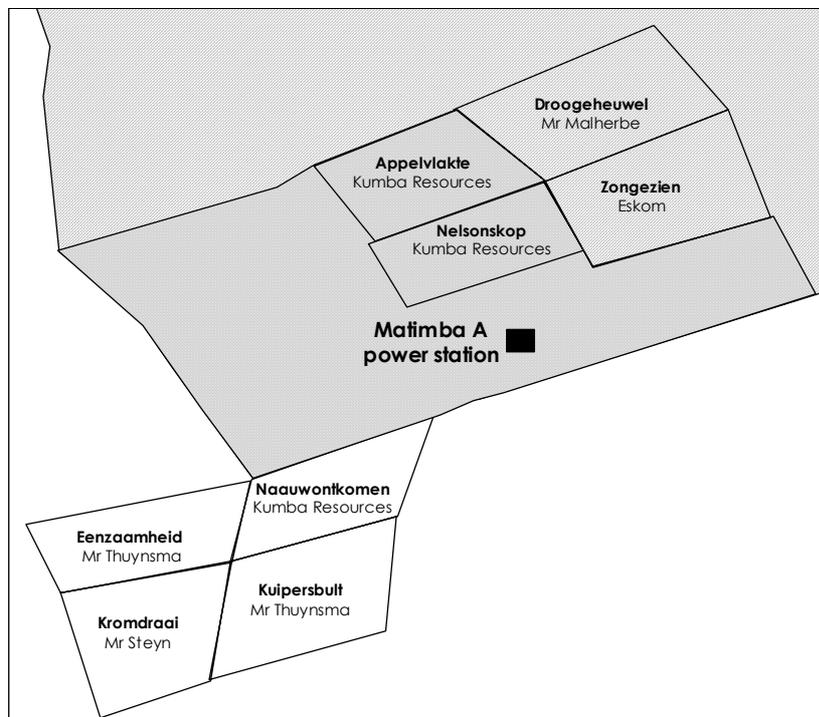
In terms of the need to relocate farm workers, however, the impact of the power station is likely to be greatest if the ancillary services are located on the farm Droogeheuvel (which is owned by Mr Malherbe, and houses five farm workers). Closure of the game lodges on his farm could also result in a loss of revenue and employment opportunities.

The impact of relocation will be localised in extent; its intensity (if it occurs) is likely to be high and its duration long-term. The probability of this impact occurring is judged to be moderate, as it depends on which site is chosen. It has been given a high overall significance rating.

**Table 16.3:** Current owners and inhabitants of potential sites

Farm	Owner and residents	Farm	Owner and residents
<b>Potential sites for power station:</b>		<b>Potential sites for ancillary services:</b>	
Appelvlakte	Owned by Kumba Resources Pty Ltd	Droogeheuvel	Owned by Mr Allan Malherbe, who been living there for a short time. There are 5 permanent workers on the farm.
Nelsonskop	Owned by Kumba Resources Pty Ltd	Zongezien, Portion 1	Owned by Mr MF Loots. He lives on the farm.
		Zongezien, other portions	Owned by Eskom, sub-leased to Mr. O'Brien. He lives on the farm. No workers living on the farm.

Farm	Owner and residents	Farm	Owner and residents
<b>Potential sites for power station:</b>		<b>Potential sites for ancillary services:</b>	
Eenzaamheid	Mr. JJ Thuynsma, who also owns the farm Kuipersbult. He lives in town. Has one full-time worker, who has been living on the farm for 1 year.	Kuipersbult	Owned by Mr. JJ Thuynsma, who also owns the farm Eenzaamheid
Naauwontkomen	Owned by Kumba Resources Pty Ltd	Kromdraai	Owned by Mr. Leon Steyn. His family living on the property for 45 yrs.



**Figure 16.4:** Current owners of potential sites

- Safety and daily movement patterns*

The construction and operation of the power station is likely to result in an increase in traffic volumes. This could lead to damage of local roads and increased speeding through town<sup>7</sup>, thereby impacting on the safety and daily movement patterns of residents in surrounding communities. The magnitude of this impact will depend on the site that is selected and on access routes to be used. It will also depend on current traffic volumes, traffic volumes that will be associated with construction and operation activities.

<sup>7</sup> Interview with HODs of Local Municipality, conducted as part of the public participation process.

It is likely that the severity of this impact will depend on which site is chosen for the power station. However, it will not be possible to determine which of the alternative sites will lead to the most severe impacts until information is obtained from the proponent regarding possible access routes and plans to upgrade or construct new roads.

Because this impact may be felt along access routes, and not only within communities adjoining the site, its extent has been rated as regional. Its *intensity* is likely to be moderate, and its duration *long-term*, as it will extend into the operational phase of the project. The *probability* of this impact occurring is judged to be moderate. Hence, it has been given a *moderate* overall significance rating.

### **16.3.3. Impacts originating during operational phase**

- *Creation of employment opportunities*

The operational phase of the power station will result in the creation of between 250 and 500 employment opportunities. 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.

It is likely that Kumba Resources would expand their current operations in order to supply coal to the proposed power station<sup>8</sup>. It is expected that these mining operations will create a similar number of additional employment opportunities.

It is not considered likely that the magnitude of this impact will depend on which of the alternative sites is selected. This impact will be *localised* or possibly *regional* in extent, and *high* in intensity. It has a *high probability* of having a *long-term* effect, and it is judged to be of high significance.

- *Social investment*

Because the power station will not offer a large number of employment opportunities during its operational phase, its long-term socio-economic benefits will be limited. These benefits may, however, be augmented by social investment activities initiated by Eskom. A community needs analysis is to be conducted in order to identify the most appropriate social investment activities.

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<sup>8</sup> Interview with Mr E. Geldehuys, Project Engineer: Environmental Management, Grootegeluk Mine, Kumba Resources

It is not considered likely that the magnitude of this impact will depend on which of the alternative sites is selected. The effects of such social investment activities will be regional, their intensity moderate, but their duration will be long-term and their probability of occurring high. Hence, this impact has been given a moderate overall significance rating.

- *Infrastructural improvements*

In order to compensate for some negative impacts of the proposed power station on surrounding settlements, the proponent may invest in upgrading and improving existing infrastructure such as roads. Such upgrades may be regarded as a particular form of social investment (see the preceding subsection). An assessment will have to be conducted of existing infrastructure and of its adequacy in terms of meeting current and projected future demand. Such an assessment will form the basis of strategic decision-making regarding the most appropriate type and extent of infrastructural improvement.

It is not considered likely that the magnitude of this impact will depend on which of the alternative sites is selected. The effects of this impact will be regional, its intensity moderate, its duration long-term and their probability of occurring moderate. Hence, this impact has been given a moderate overall significance rating.

- *Impacts on surrounding farm owners and farm residents*

Given the fact that the development of the new power station may be associated with the construction of new infrastructure, an influx of workers, changes in income, etc., it may lead to the disruption of an established way of life in surrounding farming communities. The impact of this disruption on people's quality of life may be exacerbated by changes in air quality and concerns regarding the power station's possible health impacts.

Light pollution is an additional factor that might influence affected communities' way of life. 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. It is likely that farm owners in the proximity of the proposed Matimba B Power Station will have similar complaints.

Several farmers have game on their property, and many of them receive local and foreign hunters. As was mentioned in Section 16.2.1, some landowners have built lodges on their farms to house guests during hunting expeditions. The negative impact of the power station on the sense of place of surrounding farms might affect their property values, and might also make them less

attractive as hunting destinations. This could result in a loss of revenue from hunting activities.

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 relationship between the cumulative nature of impacts and the psychological intensity of those impacts. Research on the psychological experience of sense of place suggests that people rapidly discount a landscape as soon as the first scar occurs, rather like a stain ruining a favourite garment.<sup>9</sup> Thereafter, any additional impacts on the landscape have a correspondingly smaller effect.

Since people living on farms surrounding Nelsonskop and Appelvlakte already live in the vicinity of the existing power station, locating the proposed power station on one of these two farms will imply adding a cumulative impact to the current factors affecting their sense of place. By contrast, Naauwontkomen and especially Eenzaamheid are relatively remote from major infrastructure developments. Hence, locating the power station on one of these two farms could potentially have a *greater* psychological impact.

Table 16.4 below lists the eight farms that have been identified as potential sites for the power station and/or ancillary services. The table also lists the farm owners and *farm* residents on and around each site. The last column rates the significance of impacts that these farms owners and *farm* residents are likely to experience if the power station or ancillary services were to be located on the farm in question. These significance ratings take into account the number of farm owners and *farm* residents that will be impacted, as well as their proximity to the potential site.

These significance ratings were then summed to determine which site will have the greatest impact on farm owners and *farm* residents. The eight potential sites are listed below in descending order of significance ratings:

- \* Zongezien (7)
- \* Eenzaamheid (5)
- \* Kromdraai (3)
- \* Kuipersbult (3)
- \* Droogeheuvel (3)
- \* Naauwontkomen (1)
- \* Nelsonskop (0)
- \* Appelvlakte (0)

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<sup>9</sup> Petrich, C.H. (1993). Science and the inherently subjective: The evolution of aesthetic assessment since NEPA. In Hildebrand, S.G. & Cannon, J.B. (Eds.). Environmental Analysis: The NEPA Experience (pp. 249-273).

Note that this rating is only based on the expected impacts of the power station and ancillary services on farm owners and farm residents. It does not take into account the possible effects of the development on the inhabitants of Marapong. These impacts are discussed in the following section.

It may therefore be concluded that locating the power station and ancillary services on Nelsonskop and Appelvlakte would have the least impact on property owners and *farm* residents. The extent of this impact has been rated as localised. Its intensity (if it occurs) is likely to be high, and its duration long-term. Hence, although its probability of occurring is moderate, its overall significance high.

**Table 16.4:** The eight farms that have been identified as potential sites for the power station and/or ancillary services

Impacts if power station/ ancillary services located on farm:	Description of impacts on farm owners/ farm residents	Significance of negative impact (0=low, 2=moderate, 3=high)
Appelvlakte	No directly affected farm owners/ farm residents Total significance:	0
Nelsonskop	No directly affected farm owners/ farm residents Total significance:	0
Naauwontkomen	Impact on the farm Hangklip (directly east of Naauwontkomen). Owned by Mr H Pieterse. Farms with cattle, lives on the farm. Sometimes receives hunters. Total significance:	1 1
Eenzaamheid	Impact on livelihood of Mr. JJ Thuynsma, owner of Eenzaamheid and Kuipersbult. He lives in town, farms with cattle. Has one full-time worker, living on Eenzaamheid for 1 year. Impact on Mr H. Hills, who owns Vergulde Helm and Buffelsjagt (directly west of Eenzaamheid). Because of prevailing wind direction, the farm may be negatively affected by air pollution if power station is located on Eenzaamheid. Impact on farm Hooikraal (directly north of Buffelsjagt). Owned by Mr van Tonder for 20 years. Impact on farm Massenberg (directly north of Hooikraal). Owned by Mr Grobler, frequently houses overseas hunters. Total significance:	3 2 0 0 5

Impacts if power station/ ancillary services located on farm:	Description of impacts on farm owners/ farm residents	Significance of negative impact (0=low, 2=moderate, 3=high)
Droogeheuvel	Impact on farm owner (Mr Allan Malherbe), who has been living there for a short time. He also owns businesses in Johannesburg. There are lodges on the farm, and 5 permanent workers (implies potential job losses and loss of income from lodges)	
	Impact on farm Ganzepan (directly north of Droogeheuvel). Owned by Mr. & Mrs S.M. Gouws, previously owned by her family. They are building a new house on the property, close to potential site. Frequently house hunters on farm. (Implies potential job losses and loss of income from hunting)	
	Impact on farm Schrikvoorby (directly north of Ganzepan). Owned by Mr T Nel, who also owns Makoupan, directly to the east. Frequently receives hunters.	
	Impact on farm Welgevonden (directly north of Schrikvoorby). Owned by Dr. A Moolman. Frequently receives hunters.	
	Total significance:	
Zongezien	Impact on owner (Mr MF Loots), who lives on the farm. Frequently receives hunters, and is building lodges on the farm. (Implies potential loss of income from hunting)	3
	Impact on Mr. O'Brien, who leases portions of Zongezien and lives on the farm	2
	Impact on farm 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 (Implies potential loss of income from hunting).	1
	Impact on livelihood of Mr. Crous, who leases farm Peerboom (directly south of Zongezien). He farms with cattle, but does not stay on the property. There is a gravesite on the farm.	1
	Impact on farm Eendracht (south of Peerboom). Owned by Mr JJ Lambrecht, who also owns the farm Fancy (south of Grootvallei).	0
	Total significance:	7

Impacts if power station/ ancillary services located on farm:	Description of impacts on farm owners/ farm residents	Significance of negative impact (0=low, 2=moderate, 3=high)
Kuipersbult	Impact on livelihood of Mr. JJ Thuynsma, owner of Eenzaamheid and Kuipersbult. He lives in town, farms with cattle.	3
	Total significance:	3
Kromdraai	Impact on Mr L. Steyn, owner of Kromdraai and Grootvallei (directly south of Kromdraai and Kuipersbult). He and his wife have been living on Kromdraai for 45 yrs. Because of prevailing wind direction, they would be negatively affected by air pollution if power station is located on Naauwontkomen.	3
	Total significance:	3

- *Impacts on the inhabitants of Marapong*

The results of the Air Quality Impact Study indicate that, if the proposed power station were to be located close to the existing Matimba Power Station (i.e. on Nelsonskop), the cumulative effect of the two stations would have significant impacts on air quality. As a consequence of these impacts, the quality of life, and possibly also the health, of people living in Marapong could suffer severe negative effects.

Given the prevailing wind direction, locating the ancillary infrastructure on either Nelsonskop or Zongezien would also impact negatively on the inhabitants of Marapong. This impact would arise from the fact that, if the wind blows from a north-easterly or northerly direction, dust from the ash dumps would be carried over the township.

If the possible impact on the health of the residents of Marapong is considered, Nelsonskop is therefore ruled out as a possible site for the power station. In addition, both Nelsonskop and Zongezien are ruled out as potential sites for the ancillary infrastructure. The extent of this impact has been rated as localised. Its intensity (if it occurs) is likely to be high, and its duration long-term. The probability of the impact is moderate, as it would not occur if the power station were to be located on Eenzaamheid or Naauwontkomen. The overall significance of this impact is rated as being high.

#### **16.3.4. Relationships among impacts**

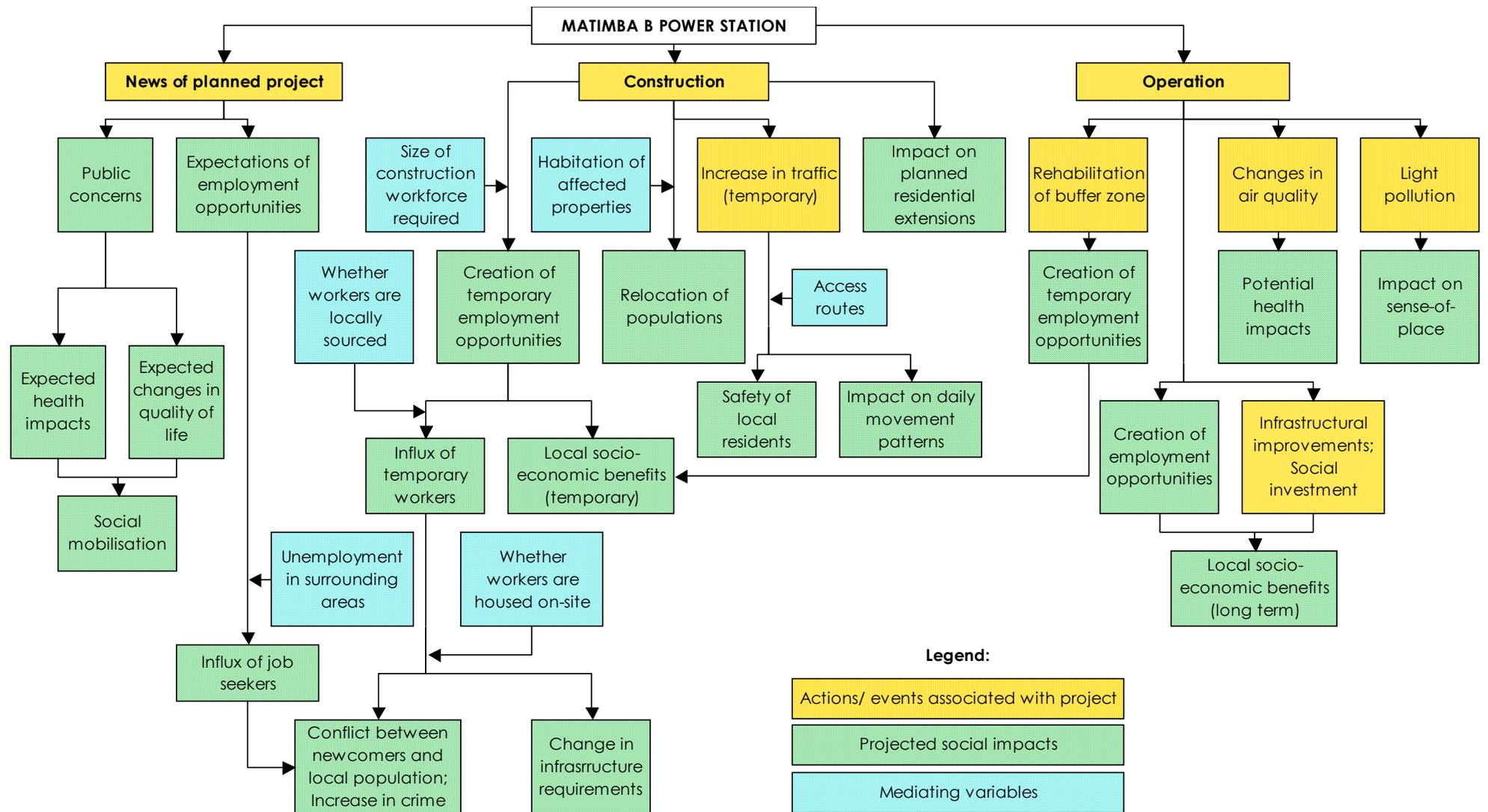
Figure 16.5 depicts the causal relationships among some of the predicted social impacts discussed in this chapter. In this figure, project-related activities that are expected to give rise to social impacts are shaded with a horizontal dash (yellow), anticipated social impacts with an upward dash (green) and mediating variables (factors that are expected to influence the probability that a given social impact will materialise) with a downward dash (blue).

#### **16.3.5. Synthesis**

As the foregoing discussion shows, each alternative site has its own advantages and disadvantages:

- In terms of the need to minimise the possibility of social problems arising from contact between existing communities and newcomers, as well as impacts on the residents of Marapong and on planned residential developments, it will be preferable to locate the power station as far away as possible from existing residential areas. Hence, these considerations dictate that the proposed power station should be located on Eenzaamheid or Naauwontkomen.
- On the other hand, the need to minimise the cost of infrastructure extension (and hence the distance between the site and existing infrastructure) and minimise the psychological impact of the power station by locating it close to the existing power station dictate that the power station should be located on Nelsonskop or Appelvlakte.

If it is assumed that each predicted social impact carries equal weight, Naauwontkomen emerges as the most preferred site for the power station, with Appelvlakte as second preference. If the power station is to be located on Naauwontkomen, Kuipersbult emerges as the most appropriate site for the ancillary services.



**Figure 16.5:** The causal relationships among some of the predicted social impacts

## 16.4. Conclusions

In the Section 16.3, a preliminary assessment was made of the potential social impacts of the proposed Matimba B Power Station. Differences were also identified among the four potential sites (the farms Eenzaamheid, Naauwontkomen, Nelsonskop and Appelvlakte) in terms of the magnitude of predicted impacts. This section summarises the ranking of these four alternative sites. It also presents a summary of potential social impacts in terms of their probable extent, intensity, duration, likelihood of occurring and overall significance.

### 16.4.1. Summary of potential social impacts

Table 16.6 presents a summary of all potential social impacts that were identified during the scoping study. The ratings presented in Table 16.6 do not distinguish among the four potential sites, but proceed from the assumption that the power station will be located on the most preferred site. Table 16.6 also summarises the additional studies that are proposed to investigate these impacts in greater detail.

The symbols used in Table 16.6 are explained and detailed in Table 16.5.

**Table 16.5:** Symbols used in Table 16.6

Variable	Ratings					
<b>Extent</b>	<b>L:</b> Local (site specific)		<b>R:</b> Regional (> 10 km radius)		<b>P:</b> Provincial	
<b>Intensity</b>	<b>L:</b> Low		<b>M:</b> Medium		<b>H:</b> High	
<b>Duration</b>	<b>S:</b> Short-term		<b>M:</b> Medium-term		<b>L:</b> Long-term	
<b>Probability</b>	<b>L:</b> Low		<b>M:</b> Medium		<b>H:</b> High	
<b>Significance</b>	<b>L+:</b> Low, positive	<b>L-:</b> Low, negative	<b>M+:</b> Medium, positive	<b>M-:</b> Medium, negative	<b>H+:</b> High, positive	<b>H-:</b> High, negative

**Table 16.6:** Summary of potential impacts and additional studies

Social Impact	Extent	Intensity	Duration	Probability	Significance	Planned additional studies during EIA phase
<b>PRIOR TO CONSTRUCTION</b>						
Public concerns re project	R	H	M	H	H-	Consultation with stakeholders Media survey to gauge opposition to the project
Influx of job seekers	L	H	M	M	H-	Post hoc data on influx caused by similar projects elsewhere
<b>DURING CONSTRUCTION</b>						
Creation of temporary employment opportunities	L/ R	M	S	H	M+	Obtain data on required skills and numbers of workers from proponent Obtain data from Kumba Resources on required skills and numbers of workers for additional mining operations Assess available skills from baseline profile Obtain data on labour requirements for rehabilitation of buffer zone
Social problems arising from contact between local residents and newcomers	L	M	M	M	M-	Obtain data from proponent on where workers will be sourced from and housed
Change in local infrastructure requirements	L	H	M	H	H-	Obtain data from proponent on where workers will be housed Obtain data from proponent on labour requirements during operational phase
Impact on planned developments	L	M	L	M	M-	To be assessed on basis of feedback from local municipality
Relocation of populations	L	H	L	M	H-	No additional information required
Safety and daily movement patterns	R	M	L	M	M-	To be assessed from results of traffic impact assessment
<b>DURING OPERATION</b>						
Creation of employment opportunities	L/ R	H	L	H	H+	Obtain data from proponent on whether workers will be sourced from local communities
Social investment	R	M	L	H	M+	Community needs analysis
Infrastructural improvements	R	M	L	M	M+	Community needs analysis
Impacts on surrounding farm owners and farm residents	L	H	L	M	H-	To be assessed from results of Visual Impact Assessment, etc.
Impacts on the inhabitants of Marapong	L	H	L	M	H-	To be assessed from results of Visual Impact Assessment, etc.

#### 16.4.2. Rating of alternative sites

Table 16.7 below lists those social impacts that are expected to *differ* with regard to alternative sites for the power station and ancillary services. For each impact, a rating is provided for each of the eight alternative sites in terms of the predicted significance of impacts.

Table 16.7 indicates that Naauwontkomen and Kuipersbult emerge as the most preferred sites for the power station and/or ancillary services, with Appelvlakte as second preference. This implies that, from a social impact point of view, the most defensible decision would be to place the power station on *Naauwontkomen* and the ancillary services on *Kuipersbult*. This conclusion is premised on the assumption that all social impact listed in the table carry equal weight.

**Table 16.7:** Summarised ranking of alternative sites

Impact variable	Ranking of sites (1 = not suitable, 5 = ideal)							
	Eenzaamheid	Naauwontkomen	Kromdraai	Kuipersbult	Nelsonskop	Appelvlakte	Zongezien	Droogeheuvel
Social problems arising from contact between local residents and newcomers (conflict and sexually transmitted diseases)	4	4	4	4	2	3	2	3
Change in local infrastructure requirements (to supply construction camp and power station)	1	2	1	2	5	4	5	4
Impact on development plans	5	5	5	5	2	3	1	2
Relocation of populations	2	5	1	5	5	5	2	1
Impacts on surrounding farm owners and farm residents	1	3	2	2	5	5	1	2
Impacts on the inhabitants of Marapong	5	4	5	5	1	2	1	3
<b>TOTAL:</b>	<b>18</b>	<b>23</b>	<b>18</b>	<b>23</b>	<b>20</b>	<b>22</b>	<b>12</b>	<b>15</b>

Table 16.6 and 16.9 give the site preference rating for the power station and ancillary infrastructure sites respectively.

**Table 16.7:** The Site Preference Rating of the alternative Sites for the power station with regards to social impacts

Farm name	Site Preference Rating
Farm Appelvlakte 448 LQ	3 (acceptable)
Farm Nelsonskop 464 LQ	3 (acceptable)
Farm Naauwontkomen 509 LQ	4 (preferred)
Farm Eenzaamheid 687 LQ	3 (acceptable)

**Table 16.8:** The Site Preference Rating of the alternative sites for the ancillary infrastructure with regards to social impacts

<b>Farm name</b>	<b>Site Preference Rating</b>
Farm Naauwontkomen 509 LQ	4 (preferred)
Farm Kuipersbult 511 LQ	4 (preferred)
Farm Appelvlakte 448 LQ	3 (acceptable)
Farm Droogeheuvel 447 LQ	3 (acceptable)
Farm Kromdraai 513 LQ	3 (acceptable)
Farm Nelsonskop 464 LQ	3 (acceptable)
Farm Eenzaamheid 687 LQ	3 (acceptable)
Farm Zongezien 467 LQ	2 (not preferred)

## **16.5. Recommendations**

### **16.5.1. Methodology to be followed during the Environmental Impact Assessment phase**

The overall methodology to be employed during the remainder of the social impact assessment, which will be conducted as part of the main EIA phase of the project, is described below. The activities described below will not necessarily be implemented in strict chronological order, as there may be overlap between them and the need may arise to revisit certain issues during later stages of the process. The subsequent section focuses on the specific issues to be investigated and on the procedures to be employed in each case.

- *Assessment of stakeholder views*

This phase involves the collection of information on the perceptions, concerns and priorities of potentially affected publics. The primary vehicle for obtaining such information will be the *stakeholder engagement process* conducted by Bohlweki Environmental. Information received from this process will be supplemented by issue-based consultation between the SIA team and selected stakeholders.

As far as possible, the views of representatives of various interest groups will be taken into consideration for the purpose of the SIA. This will be done in accordance with international standards and guidelines. It is generally accepted<sup>10</sup> that three categories of participants should be involved in the assessment process. These are:

- \* Professionals involved in managing and undertaking the assessment.

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<sup>10</sup> Integrating Development and Environment: Broadening the Tools of EIA to Enhance all Decision Making, UNDP Course Notes (1995).

- \* Persons who can identify or contribute ideas, concerns and facts relevant to the assessment of the proposed development. These include representatives of I&APs, natural and social scientists, policy makers, economists and engineers.
- \* Decision-makers who have direct authority to grant permits or specify regulations that may control or alter the proposed development. This group would include investors, politicians, national, provincial and local authorities and regulators.
  
- *Identification of alternatives*  
This phase will involve obtaining more detailed information on the proposed development, including land requirements, needs for ancillary facilities (roads, transmission lines, sewer and water lines), the construction schedule, size of the work force (construction and operation), facility size and shape, institutional resources, etc.
  
- *Refined description of baseline conditions*  
During this phase, the profile of social characteristics and history of the study area, which was summarised in this report, will be developed in greater detail. It will be supplemented with profiles of particular stakeholders or stakeholder groupings. The objective of this phase will be to identify specific areas of vulnerability, threat or potential within the affected social area.
  
- *Projection of estimated effects*  
This phase will involve the investigation of all potentially significant social impacts identified during the Scoping Study. Such social impacts will be conceptualised as *differences* between (a) predicted conditions *without* the developments (extrapolated from baseline projection) and (b) predicted conditions *with* the developments. Such projections will be based on the results of the other specialist studies forming part of the EIA, as well as on the development of scenarios modelling the *interaction* between the impact variables in question.
  
- *Predicting responses to impacts*  
This phase will involve determining the *significance* attached to the identified social impacts by potentially affected parties. The importance of this phase stems from the fact that the responses of affected parties can have significant subsequent impacts.
  
- *Indirect and cumulative impacts*  
This phase will involve the estimation of impacts caused by the direct impacts, resulting from the incremental impacts of an action added to other past, present, and reasonably foreseeable future.

- *Changes in alternatives*

This phase will involve recommending new or changed alternatives and estimating their consequences. The probable impacts associated with each new alternative or recommended change will then be assessed separately, using the same methods described above, although on a more modest scale.

- Rating of impacts

A set of dimensions was developed for rating social impacts. These dimensions were based on the criteria contained in the EIA Regulations, published by the Department of Environmental Affairs and Tourism (April 1998) in terms of the Environmental Conservation Act No. 73 of 1989. These dimensions are employed in Section 16.4 of this document to summarise the preliminary assessment of potential social impacts. They will also be used to provide a final rating of social impacts at the conclusion of the SIA. Each dimension is briefly defined below.

- \* Nature of the impact

This includes a description and discussion of the manner (*what* and *how*) in which the construction and subsequent operation of the power station, transmission lines and substation are anticipated to affect the receiving social environment.

- \* Extent of the impact

This category serves to describe the geographical focus of an impact and is based on the demarcation of the study area. Hence, this dimension describes where an impact is most likely to occur, thus informing the concomitant relative emphasis of the analysis and description of the nature and extent of the impact.

- \* Intensity and status

Under this rating criterion, the intensity of the impact and its valence (positive or negative) is described using a rating continuum of *none*, *low*, *moderate*, *high* or *very high*. '*None*' is defined as no influence on the social environment; '*low*' as minor influence on the social environment, requiring some mitigation; '*moderate*' as more marked influence on the social environment, requiring greater emphasis on mitigation and '*high*' as having significant impact, requiring significant mitigation measures. The rating '*potentially high*' has been introduced in cases where impact intensity would be dependent on the realization of other impacts.

- \* Duration of the impact

This serves as an indication whether the lifespan of the impact would be permanent, long-term, short-term or temporary.

- \* Probability of occurrence

This includes a description of the probability of the impact actually occurring, i.e. improbable (low likelihood), probable (distinct possibility),

highly probable (most likely) or definite (impact will occur regardless of any prevention measures).

\* **Significance without mitigation**

Based on a synthesis of the information contained in the previous dimensions, each potential impact was assigned a significance rating. Impacts were rated as "positive" or "negative," in addition to which the degree of significance was defined as follows:

- **No significance:** the impacts do not influence the social environment and/or proposed development in any way.
- **Low significance:** the impacts will have a minor influence on the proposed development and/or environment. These impacts require some attention to modification of the project design where possible, or alternative mitigation.
- **Moderate significance:** the impacts will have a moderate influence on the proposed development and/or environment. The impact can be ameliorated by a modification in the project design or implementation of effective mitigation measures.
- **High significance:** the impacts will have a major influence on the proposed development and/or environment. The impacts could have the "no-go" implication on portions of the development regardless of any mitigation measures that could be implemented.

• **Mitigation**

This phase will involve the development of a mitigation plan. Its purpose will be to identify means of reducing adverse social impacts, either by modifying the planned developments, or else compensating for the impact.

### **16.5.2. Specific Studies to be Conducted**

The *specific studies* to be conducted to investigate potentially significant impacts are described below.

• **Public concerns regarding the project**

Public opposition to the project will be assessed by means of consultation with stakeholders, as well as a survey of relevant articles or letters in the media. This information will be used to assess the probability that the project will stimulate social mobilisation or interest group activity.

• **Influx of job seekers**

In order to assess the probable numbers of job seekers that may flock into the area once news of the project is disseminated, comparative *post hoc* evaluations will be made of the influx that followed similar developments in other areas. In order to ensure that these results can be extrapolated to the

current study, comparative cases will be selected on the basis of similarity of social profiles (including unemployment rates) of surrounding areas.

- *Creation of employment opportunities*

In order to determine the extent to which the power station will create employment opportunities for members of surrounding communities, the following information will be obtained from the proponent:

- \* Labour requirements for construction and operation of the power station;
- \* Skills requirements for workers;
- \* Labour requirements for rehabilitation of the buffer zone surrounding the plant; and
- \* Whether construction workers will be housed on site.

Data on the labour requirements of a mine to supply the proposed power station with fuel will be obtained from Kumba Resources.

The social profile will be used to assess the extent to which the skills required for construction and operation of the power station are available in surrounding communities. This will give an indication of the viability of sourcing required labour from surrounding communities. If labour for construction will *not* be sourced from local communities, the *potential for conflict* between local residents and newcomers will be assessed on the basis of where construction workers will be sourced from and whether they will be housed on-site.

- Impact on the local municipality

As was discussed in the previous chapter, the influx of people as a result of the construction and operation of the power station will place significant demands on the local municipality. For instance, it would have to provide additional housing in a short period of time. However, the increase in municipal income that will accrue as a result of this population expansion is not expected to materialise for several years. This situation may necessitate some form of bridging finance to ease the financial burden on the municipality.

In the light of these considerations, it is considered critical that information on the *labour and infrastructure requirements* of the proposed power station be provided to Lephalale Local Municipality as soon as possible. This would enable the municipality to set in motion the necessary planning processes.

- *Traffic impacts*

Data on predicted increases in *traffic volumes* and *access routes* during construction and operation of the power station will be obtained from the results of a traffic impact assessment. This information will be used to assess

the impact of power station construction and maintenance on the safety and/or daily movement patterns of residents in surrounding communities.

- *Infrastructural improvements and social investment*  
Information will be obtained from the proponent regarding social investment activities that may be conducted in surrounding communities. These activities will be assessed in terms of their potential to meet community needs and to make a sustainable, long-term difference to the lives of local people.