ENVIRONMENTAL IMPACT ASSESSMENT FOR ESKOM'S NORTHERN KWAZULU-NATAL STRENGTHENING PROJECT

SPECIALIST REPORT: SOCIAL IMPACT ASSESSMENT

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DEA REF: 14/12/16/3/3/2/1036, 1037 and 1038

March 2018

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DECLARATION OF CONSULTANTS' INDEPENDENCE

Dr Ilse Aucamp and Ms San-Marié Aucamp who are social scientists from Equispectives Research & Consulting Services are independent consultants to NAKO ILISO (consultants for ESKOM Holdings SOC Ltd), i.e. they have no business, financial, personal or other interest in the activity, application or appeal in respect of which they were appointed other than fair remuneration for work performed in connection with the activity, application or appeal. There are no circumstances that compromise the objectivity of these specialists performing such work.

Signature of Social Impact Assessment Specialist: Dr Ilse Aucamp

17 April 2018

Date:

ESKOM'S NORTHERN KWAZULU-NATAL STRENGTHENING PROJECT

ENVIRONMENTAL IMPACT ASSESSMENT

APPENDIX D: SOCIAL IMPACT ASSESSMENT

Title:	Social Impact Assessment for Eskom's Northern Kwazulu-Natal Strengthening Project Environmental Impact Assessment
Specialists:	Dr I Aucamp and Ms S Aucamp
Project Name:	Eskom's Northern Kwazulu-Natal Strengthening Project: Environmental Impact Assessment
Status of report:	Draft
NAKO ILISO Project Number:	1600048
Date:	March 2018

SPECIALIST

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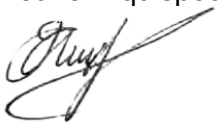


17 April 2018

Dr Ilse Aucamp — Date

Study Leader

ENVIRONMENTAL ASSESSMENT PRACTIONER

Approved for NAKO ILISO (Pty) Ltd by**:**

Terry Calmeyer — Date

Project Leader

Executive summary

The purpose of this document is to provide and assessment of potential social impacts for the proposed Northern KwaZulu-Natal strengthening projects.

ESKOM Holdings SOC Ltd (Eskom) has commissioned a project to strengthening the supply of electricity in northern KwaZulu-Natal (KZN). The northern KZN network is currently fed at 132 kV by Normandie substation and Impala substation (BID, August 2016). High voltage drops are experienced in the 132 kV network and the voltages are approaching unacceptable levels as the demand increases. Contingencies on the main 132 kV supplies also lead to thermal overloading of the remaining network.

In order to alleviate current and future network constraints in northern KZN, Eskom proposes that Iphiva 400/132 kV substation be introduced in the area, which will de-load the main sub-transmission network and improve the voltage regulation in the area.

The proposed project consists of the new Iphiva 400/132 kV substation near the town of Mkuze in KwaZulu-Natal, which will be integrated into the 400 kV network by two 400 kV lines, namely:

- *the 400 kV powerline from the Iphiva Substation to the Normandie Substation, and*
- *the 400 kV powerline from the Iphiva Substation to the Duma Substation.*

In addition, 165 km of 132 kV distribution power lines will be link into the Iphiva substation. The size of the substation is 24 Ha.

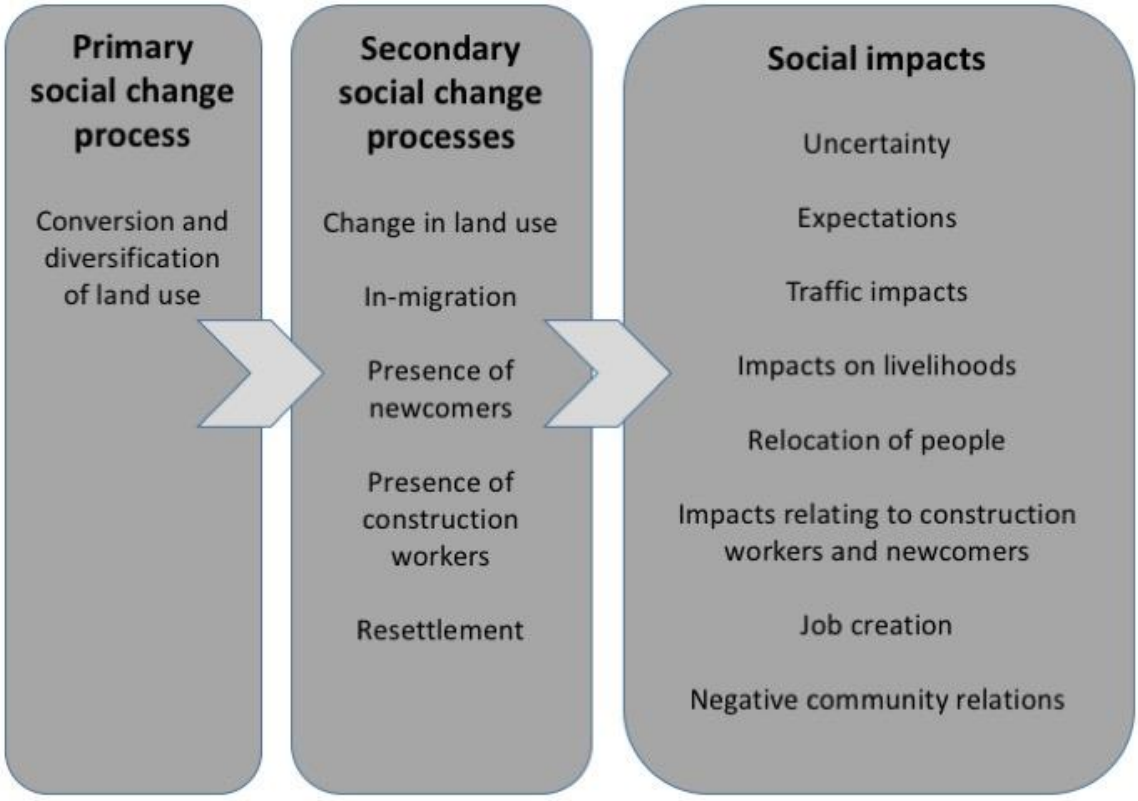
The following key stakeholder groups were identified:

- *Communities under traditional authority;*
- *Commercial farming:*
- *Tourism establishments; and*
- *Surrounding urban areas.*

The proposed project activities set into motion certain social change processes, and these change processes can lead to the experience of social impacts. Social impacts are context

specific and may be experienced differently by different groups in the area. It must further be considered that the social environment is very dynamic and is constantly changing.

The following change processes and impacts have been identified for the proposed project:



The following mitigation and management measures are suggested:

- *Appoint a Community Liaison Officer;*
- *Compile and implement a community relations strategy;*
- *Compile and implement a communication strategy;*
- *Compile and implement a grievance mechanism;*
- *Compile and implement an employment policy;*
- *Compile and implement a CSI strategy;*
- *Compile and implement a road use policy;*

- *Construction camps should be established in accordance with international best practice;*
- *Compile and implement a policy for conduct of employees and contractors;*
- *Compile and implement an access control policy specifically for protected and game reserve areas;*
- *Join local fire protection agencies and have and implement a fire fighting strategy;*
- *Have and implement a strategy for community safety and security,*
- *Have and implement a HIV and life skills strategy;*
- *Compile and implement a relocation and compensation policy in accordance with international best practice;*
- *Appoint a relocation specialist should relocation be required.*

The following alternatives are preferred from a social perspective:

- *Iphiva Substation – Site 6*
- *Normandie-Iphiva 400 kV Powerline – N-I 2 option (indifferent to deviation)*
- *Iphiva-Duma 400 kV Powerline – West Option (indifferent to deviation)*
- *132 kV Distribution Powerline – Route alternative (West) for the Iphiva-Makhathini/Iphiva-Mbazwane double circuit powerline, all above ground.*

The project will make an important contribution to the supply of electricity in northern KZN and will be of service to many previously disadvantaged communities. The project as a whole should proceed, but in the process attempt to minimise negative social impacts to the immediate environment, keeping in mind the current economic climate and broader societal picture in terms of expenditure.

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ACRONYMS

AIDS	Acquired Immunodeficiency Syndrome
BID	Basic Information Document
CSI	Corporate Social Investment
DM	District Municipality
EIA	Environmental Impact Assessment
EMPr	Environmental Management Programme
ESOMAR	European Society for Opinion and Marketing Research
GDP	Gross Domestic Product
GVA	Gross Value Added
HDSA	Historically Disadvantaged South African
HIV	Human Immunodeficiency Virus
IDP	Integrated Development Plan
KZN	KwaZulu-Natal
LED	Local Economic Development
LM	Local Municipality
NEMA	National Environmental Management Act
NGO	Non Government Organisation
SAMRA	Southern African Marketing Research Association
SETA	Sector Education and Training Authorities
SIA	Social Impact Assessment
UNEP	United Nations Environmental Programme

ABBREVIATIONS

km	Kilometres
kV	kilo Volts
Ha	Hectares

GLOSSARY OF TERMS

Corridor:	A corridor, approximately 2 km wide that is feasible for the routing of the proposed Transmission Powerline which will be authorised by DEA. Within this approved corridor a final servitude will be negotiated by Eskom with individual landowners.
No-go area:	An area in which the substation or powerline cannot be constructed due to resulting significant environmental, technical and social impacts.
Sense of place:	Defining oneself in terms of a given piece of land. It is the manner in which humans relate or feel about the environments in which they live.
Social impact:	Something that is experienced or felt by humans. It can be positive or negative. Social impacts can be experienced in a physical or perceptual sense.
Social change process:	A discreet, observable and describable process that changes the characteristics of a society, taking place regardless of the societal context (that is, independent of specific groups, religions etc.) These processes may, in certain circumstances and depending on the context, lead to the experience of social impacts.
Social Impact Assessment:	The processes of analysing, monitoring and managing the intended and unintended social consequences, both positive and negative, of planned interventions (policies, programs, plans, projects) and any social change processes invoked by these interventions. Its primary purpose is to bring about a more sustainable and equitable biophysical and human environment.
Social license to operate:	The acceptance and belief by society, and specifically local communities, in the value creation of activities.
Social risk:	Risk resulting from a social or socio-economic source. Social risk comprises both the objective threat of harm and the subjective perception of risk for harm.
Study area:	The area that has been covered by the EIA process within which possible study corridors have been investigated.

1. STUDY INTRODUCTION

1.1 Background to Project

ESKOM Holdings SOC Ltd (Eskom) has commissioned a project to strengthen the supply of electricity in northern KwaZulu-Natal (KZN). The northern KZN network is currently fed at 132 kV by Normandie Substation and Impala Substation. The major load centres are Pongola and Makhatini Flats. Normandie Substation is situated approximately 80 km north-west of Pongola and Impala Substation is situated approximately 180 km south of Makhatini Flats. High voltage drops are experienced in the 132 kV network and the voltages are approaching unacceptable levels as the demand increases. Contingencies on the main 132 kV supplies also lead to thermal overloading of the remaining network.

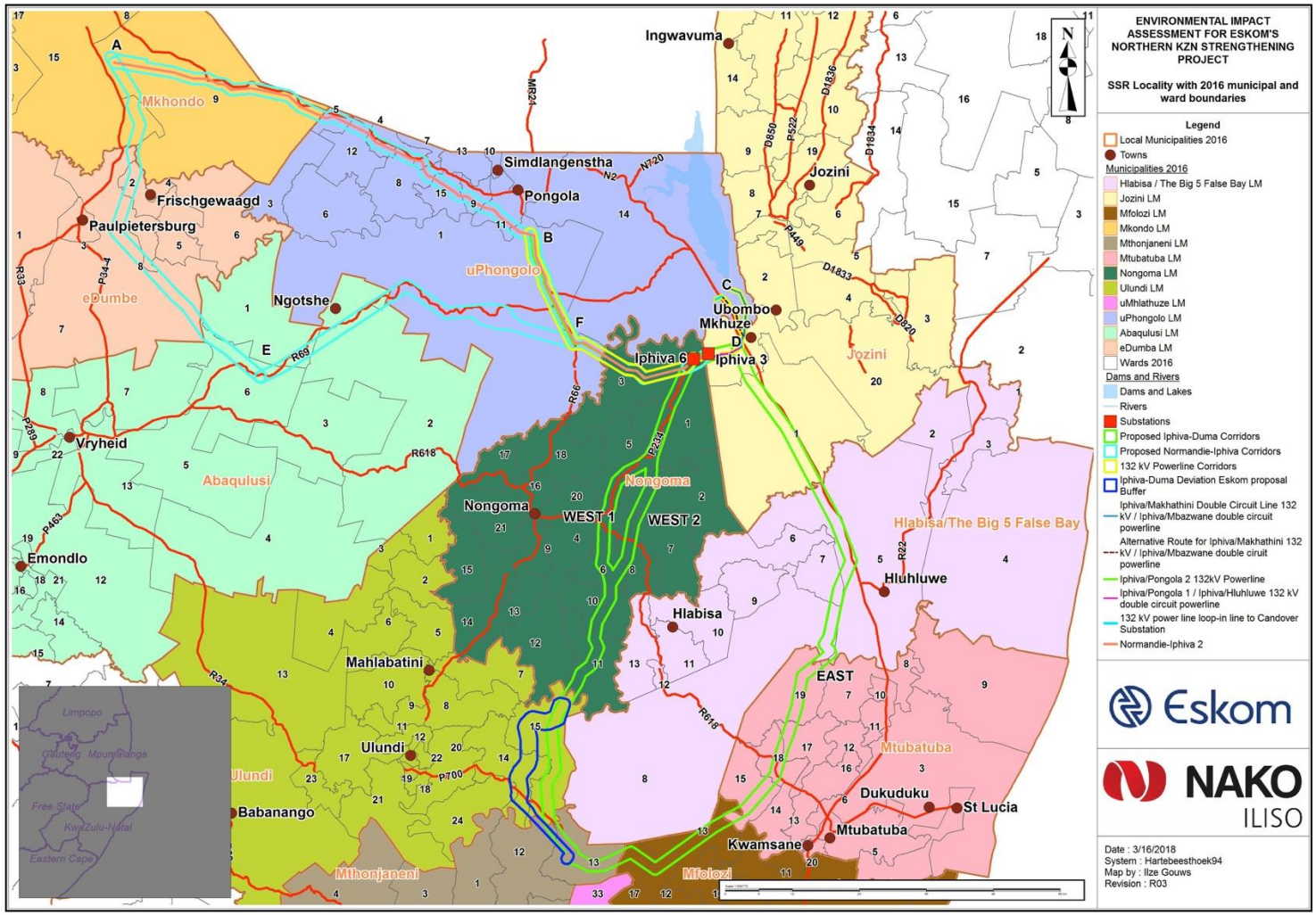
In order to alleviate current and future network constraints in northern KZN, it is proposed that the Iphiva 400/132 kV Substation be introduced in the area, which will de-load the main sub-transmission network and improve the voltage regulation in the area.

The proposed project triggers several activities listed in the National Environmental Management Act (Act 36 of 1998) (NEMA) as requiring environmental authorisation before they can commence. The purpose of this study is to undertake an Environmental Impact Assessment (EIA) process, with associated Public Participation Process (PPP) and specialist studies, to enable the competent authority to decide whether the project should go ahead or not, and if so, then on what conditions. Four application forms will be submitted, one each for the following **(Figure 1**):

1. The Iphiva Substation;
2. The 400 kV powerline from the Iphiva Substation to the Normandie Substation;
3. The 400 kV powerline from the Iphiva Substation to the Duma Substation, and
4. 165 km of 132 kV distribution lines.

A detailed project description is included in the Scoping Report and not repeated here.

Figure 1: KZN strengthening project (2016 municipal and ward boundaries)



NAKO ILISO has appointed Equispectives Research & Consulting Services to undertake the Social Impact Assessment as part of the EIA.

1.2 Structure of this Report

This specialist study will be undertaken in compliance with Appendix 6 of GN 982 of 4 December 2014, as amended by Appendix 6 of GN 326 of 7 April 2017. **Table 1** indicates how Appendix 6 has been fulfilled in this report.

Table 1: Indication of compliance with Appendix 6 of GN 326 of 7 April 2017 in this report

Regulatory Requirements	Section of Report
(a) The person who prepared the report; and the expertise of that person to carry out the specialist study or specialised process, including a curriculum vitae;	Chapter 2
(b) a declaration that the person is independent	Page i
(c) an indication of the scope of, and the purpose for which, the report was prepared	Chapter 3
(cA) an indication of the quality and age of base data used for the specialist report	Chapter 4
(cB) a description of existing impacts on the site, cumulative impacts of the proposed development and levels of acceptable change	Chapter 6
(d) the duration, date and season of the site investigation and the relevance of the season to the outcome of the assessment	Chapter 3
(e) a description of the methodology adopted in preparing the report or carrying out the specialised process inclusive of equipment and modelling used	Chapter 4
(f) details of an assessment of the specific identified sensitivity of the site related to the proposed activity or activities and its associated structures and infrastructure, inclusive of a site plan identifying site alternatives	Chapter 7
(g) an identification of any areas to be avoided, including buffers	Chapter 7
(h) a map superimposing the activity including the associated structures and infrastructure on the environmental sensitivities of the site including areas to be avoided, including buffers	Chapter 7
(i) a description of any assumptions made and any uncertainties or gaps in knowledge	Chapter 5
(j) a description of the findings and potential implications of such findings on the impact of the proposed activity or activities	Chapter 7
(k) any mitigation measures for inclusion in the EMPr	Chapter 8
(l) any conditions for inclusion in the environmental authorisation	Chapter 8

Regulatory Requirements	Section of Report
(m) any monitoring requirements for inclusion in the EMPr or environmental authorisation	Chapter 8
(n) a reasoned opinion— (i) whether the proposed activity, activities or portions thereof should be authorised; (iA) regarding the acceptability of the proposed activity or activities; and (ii) if the opinion is that the proposed activity, activities or portions thereof should be authorised, any avoidance, management and mitigation measures that should be included in the EMPr, and where applicable, the closure plan	Chapter 12
(o) a description of any consultation process that was undertaken during the course of preparing the specialist report	Chapter 9
(p) a summary and copies of any comments received during any consultation process and where applicable all responses thereto	Chapter 10
(q) any other information requested by the competent authority	Chapter 11

2. PROJECT TEAM

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

Ilse Aucamp holds a D Phil degree in Social Work obtained from the University of Pretoria in 2015. She also has Masters degree in Environmental Management (Cum Laude) from the Potchefstroom University for Christian Higher Education which she obtained in 2004. Prior to that she completed a BA degree in Social Work at the University of Pretoria. She is frequently a guest lecturer in pre- as well as post-graduate programmes at various tertiary institutions. Her expertise includes social impact assessments, social management plans, social and labour plans, social auditing, training as well as public participation. She is the past international chairperson of the Social Impact Assessment section of the International Association of Impact Assessment (IAIA) as well as a past member of the National Executive Council of IAIA South Africa. She advises the Centre for Environmental Rights on social issues, and is also on the advisory panel of the SIAhub, an international website aimed at SIA practitioners. She is a co-author of the *Social Impact Assessment: Guidance for assessing and managing the social impacts of projects* document published by the International Association for Impact Assessment.

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

See Appendix 1 for detailed CV's.

3. PURPOSE OF REPORT AND SCOPE OF WORK

> Environmental Impact Assessment Regulations, 2014, published under Government Notice No. 982 in Gazette No. 3822 of 4 December 2014, in terms of sections 24(5) and 44 of the National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended by Appendix 6 of GN 326 of 7 April 2017:
>
> 1. (1) A specialist report prepared in terms of these Regulations must contain—
>
> (c) an indication of the scope of, and the purpose for which, the report was prepared;

The EIA level assessment included the following:

- Update of Baseline Information as determined post Scoping Phase;
- A detailed social impact assessment based on the proposed activities and the alternatives identified during the Scoping phase;
- Identification and description of sensitivities and constraints from a social perspective;
- Contribution to the preparation of an EMPr relating to the specific field of expertise and impacts identified;
- Providing detailed mitigation / management measures for the management of the identified impacts for inclusion in the EMPr. The mitigation / management measures are presented in a tabulated format for each phase of the project and includes;
    - Detailed description of mitigation measures or management options;
    - Roles and Responsibilities for Implementation;
    - Timeframes for implementation;
    - Means of measuring successful implementation (Targets & Performance Indicators).

A participatory approach was adopted. The World Bank Social Standards, Equator Principles, International Principles for SIA and the SIA Guidance document published by the IAIA were applied in the study. International standards and principles have been adapted to ensure that it can be applied in the local social context. The methodology proposed focused on involving

the affected public in the research and planning where it was realistically possible and executable. Different methodologies were utilised to ensure the affected communities were consulted in the way that was most appropriate to the community.

The following activities will form part of the process:

- Fieldwork was conducted to obtain additional information and communicate with key stakeholders. Key stakeholders included:
    - Authorities: local municipalities that fall in the project area.
    - Affected parties: communities that will be affected by the project, farm labourers and farmers.
    - Interested parties: local business in the area, community-based organisations and non-governmental organisations within the affected communities, trade unions, and political groups.
- Methodologies included in-depth interviews, participatory rural appraisal, in-the-moment discussion groups, focus groups and immersions. Field notes were kept of all interviews and focus groups. The information gathered by the public participation team informed the study.
- An interview schedule was used instead of formal questionnaires. An interview schedule consists of a list of topics to be covered, but it is not as structured as an interview. It provides respondents with more freedom to elaborate on their views.
- The final report focuses on current conditions, providing baseline data. Each category discusses the current state of affairs, but also investigates the possible impacts that might occur in future. The impacts identified in the scoping report were revisited and rated accordingly. New impacts that have not been identified have been added to the report. Recommendations for mitigation are made at the end of the report.
- The SIA process has a participatory focus. This implies that the SIA process focuses strongly on including the local community and key stakeholders.
- Impacts were rated according to significance (severity), probability, duration, spatial extent and stakeholder sensitivity.

Information obtained through the public processes informed the writing of the final SIA and associated documents.

4. METHODOLOGY

> Environmental Impact Assessment Regulations, 2014, published under Government Notice No. 982 in Gazette No. 3822 of 4 December 2014, in terms of sections 24(5) and 44 of the National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended by Appendix 6 of GN 326 of 7 April 2017:
>
> 1. (1) A specialist report prepared in terms of these Regulations must contain—
>
> (cA) an indication of the quality and age of base data used for the specialist report;
>
> (d) the duration, date and season of the site investigation and the relevance of the season to the outcome of the assessment;
>
> (e) a description of the methodology adopted in preparing the report or carrying out the specialised process inclusive of equipment and modelling used;

4.1 Information base

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

- A literature review (see list provided in the References);
- Data from Statistics South Africa;
- The public participation records provided by NAKO ILISO;
- Professional judgement based on experience gained with similar projects; and
- Consultation with affected stakeholders in November 2017.

4.2 Methodology

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

4.3 Defining of concepts

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

Social change processes are set in motion by project activities or policies. A social change process is a discreet, observable and describable process that changes the characteristics of

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

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

- Demographic processes;
- Economic processes;
- Geographic processes;
- Institutional and legal processes;
- Emancipatory and empowerment processes;
- Socio-cultural processes; and
- Other relevant processes.

The *International Association for Impact Assessment* (2003) states that Social Impact Assessment includes the processes of analysing, monitoring and managing the intended and unintended social consequences, both positive and negative, of planned interventions (policies, programs, plans, projects) and any social change processes invoked by these interventions. Its primary purpose is to bring about a more sustainable and equitable biophysical and human environment.

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

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

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

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

- Health and social well-being;
- Quality of the living environment;
- Economic impacts and material well-being;
- Cultural impacts;
- Family and community impacts;

- Institutional, legal, political and equity impacts; and
- Gender impacts.

Relevant criteria for selecting significant social impacts included the following:

- Probability of the event occurring;
- Number of people that will be affected;
- Duration of the impact;
- Value of the benefits or costs to the impacted group;
- Extent to which identified social impacts are reversible or can be mitigated;
- Likelihood that an identified impact will lead to secondary or cumulative impacts;
- Relevance for present and future policy decisions;
- Uncertainty over possible effects; and
- Presence or absence of controversy over the issue.

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

4.4 Literature study

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

4.5 Research approach

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

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

4.6 Ethical issues

The fact that human beings are the objects of study in the social sciences brings unique ethical problems to the fore. Every individual has a right to privacy which is the individual's right to decide when, where, to whom, and to what extent his or her attitude, beliefs and behaviour will be revealed (Strydom, 2002). Every person interviewed for the purposes of this report has been ensured that although the information disclosed will be used, their names will not be disclosed without their permission, even the people who had no objection if their names were disclosed. Therefore, to protect those consulted and to maintain confidentiality, the people interviewed for this report will not be named in the report. Records of the interviews have been kept. Where participants requested, the records pertaining to them have been shared with them. This is in line with international as well as national research practice such as the World Association for Market, Social and Opinion Researchers (ESOMAR) and Southern African Marketing Research Association (SAMRA) codes of conduct.

4.7 Impact assessment methodology

The key issues identified during the Scoping Phase informed the terms of reference of the specialist studies. Each issue consists of components that on their own or in combination with each other give rise to potential impacts, either positive or negative, from the project onto the environment or from the environment onto the project. In the EIA the significance of the potential impacts will be considered before and after identified mitigation is implemented, for direct, indirect, and cumulative impacts, in the short and long term.

A description of the nature of the impact, any specific legal requirements and the stage (construction / decommissioning or operation) will be given. Impacts are considered to be the same during construction and decommissioning.

The following criteria will be used to evaluate significance:

- **Nature:** This is an appraisal of the type of effect the activity is likely to have on the affected environment. The description includes what is being affected and how. The nature of the impact will be classified as positive or negative, and direct or indirect.

- **Extent:** This indicates the spatial area that may be affected (**Table 2**).

Table 2: Geographical extent of impact

Rating	Extent	Description
1	Site	Impacted area is only at the site – the actual extent of the activity.
2	Local	Impacted area is limited to the site and its immediate surrounding area
3	Regional	Impacted area extends to the surrounding area, the immediate and the neighbouring properties.
4	Provincial	Impact considered of provincial importance
5	National	Impact considered of national importance – will affect entire country.

- **Duration:** This measures the lifetime of the impact (**Table 3**).

Table 3: Duration of Impact

Rating	Duration	Description
1	Short term	0 – 3 years, or length of construction period
2	Medium term	3 – 10 years
3	Long term	> 10 years, or entire operational life of project.
4	Permanent – mitigated	Mitigation measures of natural process will reduce impact – impact will remain after operational life of project.
5	Permanent – no mitigation	No mitigation measures of natural process will reduce impact after implementation – impact will remain after operational life of project.

- **Intensity / severity:** This is the degree to which the project affects or changes the environment; it includes a measure of the reversibility of impacts (**Table 4**).

Table 4: Intensity of Impact

Rating	Intensity	Description
1	Negligible	Change is slight, often not noticeable, natural functioning of environment not affected.
2	Low	Natural functioning of environment is minimally affected. Natural, cultural and social functions and processes can be reversed to their original state.
3	Medium	Environment remarkably altered, still functions, if in modified way. Negative impacts cannot be fully reversed.
4	High	Cultural and social functions and processes disturbed – potentially ceasing to function temporarily.
5	Very high	Natural, cultural and social functions and processes permanently cease, and valued, important, sensitive or vulnerable systems or communities are substantially affected. Negative impacts cannot be reversed.

- **Potential for irreplaceable loss of resources:** This is the degree to which the project will cause loss of resources that are irreplaceable (**Table 5**).

Table 5: Potential for irreplaceable loss of resources

Rating	Potential for irreplaceable loss of resources	Description
1	Low	No irreplaceable resources will be impacted.
3	Medium	Resources can be replaced, with effort.
5	High	There is no potential for replacing a particular vulnerable resource that will be impacted.

- **Probability:** This is the likelihood or the chances that the impact will occur (**Table 6**).

Table 6: Probability of Impact

Rating	Probability	Description
1	Improbable	Under normal conditions, no impacts expected.
2	Low	The probability of the impact to occur is low due to its design or historic experience.
3	Medium	There is a distinct probability of the impact occurring.
4	High	It is most likely that the impact will occur

5	Definite	The impact will occur regardless of any prevention measures.

- **Confidence:** This is the level of knowledge or information available, the environmental impact practitioner or a specialist had in his/her judgement (**Table 7**).

Table 7: Confidence in level of knowledge or information

Rating	Confidence	Description
1	Low	Judgement based on intuition, not knowledge/ information.
2	Medium	Common sense and general knowledge informs decision.
3	High	Scientific / proven information informs decision.

- **Consequence:** This is calculated as extent + duration + intensity + potential impact on irreplaceable resources.

- **Significance:** The significance will be rated by combining the consequence of the impact and the probability of occurrence (i.e. consequence x probability = significance). The maximum value which can be obtained is 100 significance points (**Table 8**).

Table 8: Significance of issues (based on parameters)

Rating	Significance	Description
1-14	Very low	No action required.
15-29	Low	Impacts are within the acceptable range.
30-44	Medium-low	Impacts are within the acceptable range but should be mitigated to lower significance levels wherever possible.
	Medium-high	Impacts are important and require attention; mitigation is required to reduce the negative impacts to acceptable levels.
	High	Impacts are of great importance, mitigation is crucial.
81-100	Very high	Impacts are unacceptable.

- **Cumulative Impacts:** This refers to the combined, incremental effects of the impact, taking other past, present and future developments in the same area into account. The possible cumulative impacts will also be considered.

- **Mitigation:** Mitigation for significant issues will be incorporated into the EMPr.

5. ASSUMPTIONS, UNCERTAINTIES AND GAPS IN KNOWLEDGE

> Environmental Impact Assessment Regulations, 2014, published under Government Notice No. 982 in Gazette No. 3822 of 4 December 2014, in terms of sections 24(5) and 44 of the National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended by Appendix 6 of GN 326 of 7 April 2017:
>
> 1. (1) A specialist report prepared in terms of these Regulations must contain—
>
> (i) a description of any assumptions made and any uncertainties or gaps in knowledge

The following assumptions and limitations were relevant:

1. Not every individual in the community could be interviewed therefore only key people in the community were approached for discussion. Due to the size of the study area and limitations in terms of budget, not all key people could be interviewed, but rather a representative sample of key people. These key people include directly affected landowners and traditional authorities. Additional information was obtained using existing data.
2. The social environment constantly changes and adapts to change, and external factors outside the scope of the project can offset social changes, for example changes in local political leadership, droughts or economic conditions. It is therefore difficult to predict all impacts to a high level of accuracy, although care has been taken to identify and address the most likely impacts in the most appropriate way for the current local context within the limitations. In addition, it is also important to manage social impacts for the life of the project, especially in the light of the changing social environment.
3. Social impacts can be felt on an actual or perceptual level, and therefore it is not always straightforward to measure the impacts in a quantitative manner.
4. Social impacts commence when the project enters the public domain. Some of these impacts will occur irrespective of whether the project continues or not, and other impacts have already started. These impacts are difficult to mitigate and some would require immediate action to minimise the risk.
5. There are different groups with different interests in the community, and what one group may experience as a positive social impact, another group may experience as a negative impact. This duality will be pointed out in the impact assessment phase of the report.
6. Social impacts are not site-specific, but take place in the communities surrounding the proposed development.
7. Given that the routes are placed within a two kilometre corridor, it is not possible to identify affected individuals more specifically, especially in terms of possible relocation. These aspects can only be finalised once there is a specific route. As such the recommendations are generalised, but would need to be revisited.

8. It is assumed that Eskom would appoint a relocation specialist, or has an in-house relocation specialist that will manage this process if required.
9. The impact tables and ratings are designed for the natural environmental sciences and it must be noted that it is not always possible to compartmentalise the social impacts. For the sake of consistency this has been attempted, but it is not innate to social sciences. Allowance for the changing and adaptive nature of social impacts should be made when interpreting the impact tables. Another consideration is that the management and mitigation of some social impacts require input from a number of agencies, as these can only be addressed within the greater societal context. Proper mitigation and management would also take a number of years – this period would go far beyond the construction phase of the project. The focus of this report will therefore be on project-specific mitigation.
10. Due to changes to routes at a late stage and resulting time constraints, it was not possible to consult with stakeholders again. These areas were assessed on a desk top level as well as using input from other specialist reports.

6. EXISTING ENVIRONMENT

Environmental Impact Assessment Regulations, 2014, published under Government Notice No. 982 in Gazette No. 3822 of 4 December 2014, in terms of sections 24(5) and 44 of the National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended by Appendix 6 of GN 326 of 7 April 2017:

1. (1) A specialist report prepared in terms of these Regulations must contain—
(cB) a description of existing impacts on the site, cumulative impacts of the proposed development and levels of acceptable change;

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

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

national, and international social and economic processes and power relations."

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

6.1 Description of the area

The Transmission lines will be located in the provinces of Mpumalanga and KwaZulu-Natal and will run through a number of local and district municipalities (**Table 9**), depending on the alternatives selected. For the baseline description of the area, data from Census 2011, Community Survey 2016, municipal IDPs and websites were used. It must be noted that some of the municipalities amalgamated or were incorporated in other municipalities on 3 August 2016. As the most of the data is based on the 2011 demarcation boundaries, these will be used for a description of the area.

Table 9: Project area in municipal context (2011 demarcation boundaries).

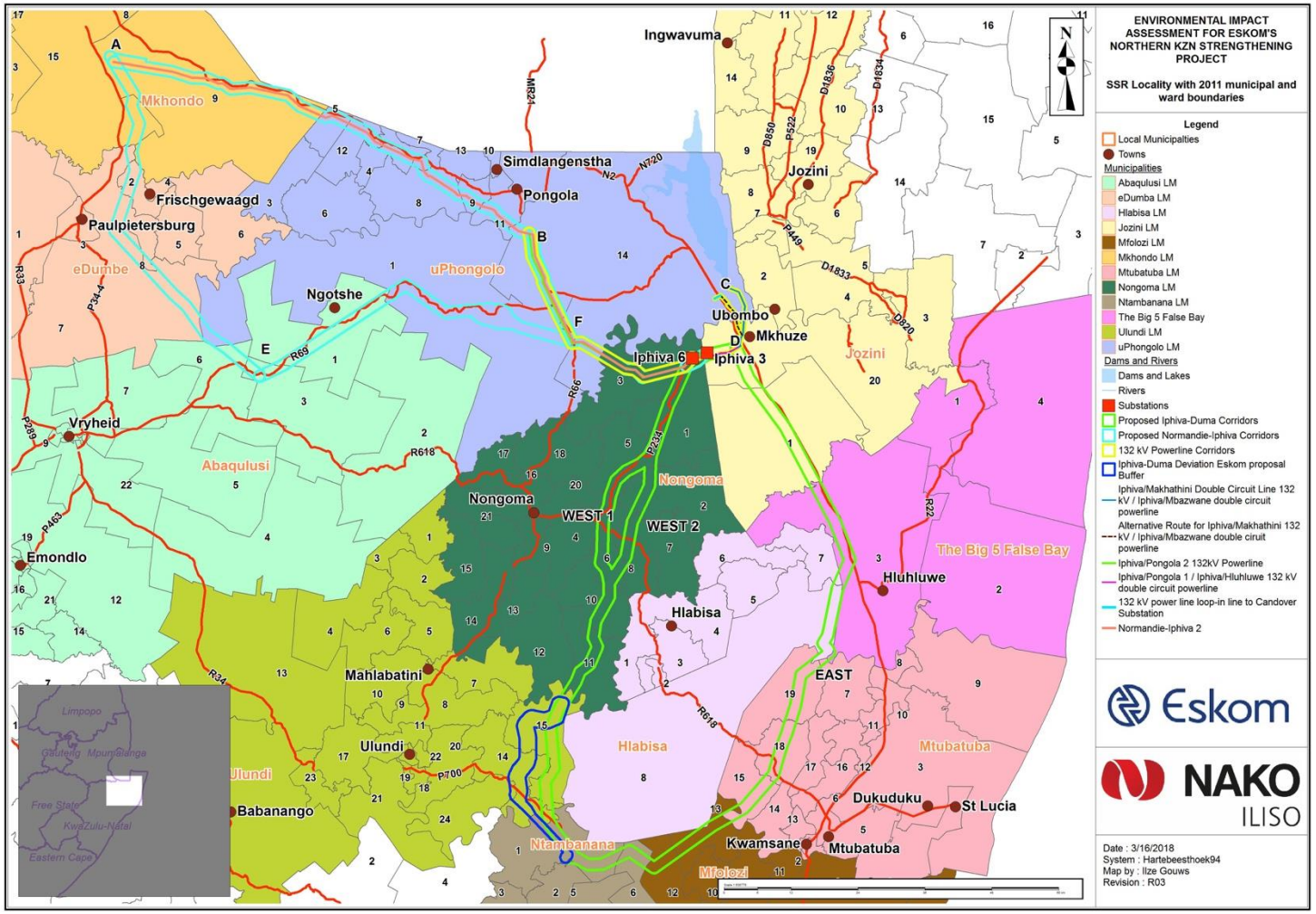
Province	District Municipality	Local Municipality	Wards
Mpumalanga	Gert Sibande	Mkhondo	9, 15
KwaZulu-Natal	Zululand	eDumbe	2, 4, 5, 6, 7, 8
		Uphongolo	1, 2, 3, 4, 5, 6 ,7, 8, 9, 10, 11, 12, 13, 14
		Abaqulusi	1, 2, 3, 4, 5, 6, 7
		Nongoma	1, 2, 3, 4, 5, 6, 7, 8, 10, 11, 12, 17, 18, 19, 20
		Ulundi	14, 15
	Umkhanyakude	Jozini	1, 2, 4, 20
		Mtubatuba	7, 15, 18, 19
		Big 5 False Bay*	3
		Hlabisa*	1, 2, 3, 4, 5, 6, 7, 8
	Uthungulu**	Mfolozi	10, 12, 13
		Ntambanana***	1, 2, 5, 6

* The Hlabisa and Big 5 False Bay Local Municipalities have merged into the Big 5 Hlabisa Local Municipality on 3 August 2016)

** The Uthungulu District Municipality was renamed the King Cetshwayo District Municipality

*** The Ntambanana Local Municipality was disestablished on 3 August 2016 and merged with the uMhlatuze, Mthonjaneni and Mfolozi Local Municipalities

Figure 2: Locality of the proposed KZN strengthening project (2011 municipal and ward boundaries).



The Mpumalanga Province is located in the north eastern part of South Africa and consists of three district municipalities, namely Gert Sibande, Nkangala and Ehlanzeni. Only one local municipality in the study area falls in the Mpumalanga Province, namely the Mkhondo Local Municipality.

The remainder of the municipalities in the study area falls in the KwaZulu-Natal Province that is located in the south eastern part of South Africa. KwaZulu-Natal (KZN) consists of one metropolitan municipality (eThekwini Municipality Metropolitan) as well as ten district municipalities, namely Amajuba, Zululand, Umkhanyakude, King Cetshwayo (previously uThungulu), Umzinyathi, Uthukela, uMgungundlovu, iLembe, Ugu and Harry Gwala.

The main towns and settlements in the area are summarised in **Table 10**. Settlement patterns are scattered. In each municipality part of the land are under traditional authority. All the land that was owned or belonged to the KwaZulu Natal Government is held by the Ingonyama Trust (www.ingonyamatrust.co.za) since 1994. The mandate of the trust is to hold the land for "the benefit, material welfare and social well-being of the members of the tribes and communities" living on the land. The Zulu King is the sole trustee of the land. The Ingonyama Trust Board administers the affairs of the Trust and the Trust land. Most, if not all, the land in KZN that is under traditional authority belongs to the Ingonyama Trust.

Table 10: Main towns, settlements and traditional authorities (sources: IDP's, www.municipalities.co.za)

Area	Main towns and settlements	Traditional Authorities
Mpumalanga	**Mbombela (previously Nelspruit), eMalahleni (previously Witbank), Standerton, eMkhondo (previously Piet Retief), Malalane, Ermelo, Barberton and Sabie**	**See relevant municipality**
Gert Sibande DM	**Amersfoort, Amsterdam, Balfour, Bethal, Breyten, Carolina, Charl Cilliers, Chrissiesmeer, Davel, Ekulindeni, Embalenhle, Empuluzi, Ermelo, Evander, Greylingstad, Grootvlei, Kinross, Leandra, Lothair, Morgenzon, Perdekop, Secunda, Standerton, Trichardt, Volksrust, Wakkerstroom, eManzana, eMkhondo (previously Piet Retief)**	**See relevant municipality**
Mkhondo LM	eMkhondo (previously Piet Retief), Amsterdam, eThandakukhanya, kwaThandeka, Driefontein, kwaNgema,	Yende Traditional Authority

	Mahamba, Dirkiesdorp, Iswepe, Stafford, eNtombe, Commondale	
KwaZulu-Natal	**Durban, Richards Bay, Port Shepstone, Newcastle, Estcourt, Ladysmith and Richmond**	**See relevant municipality**
Zululand DM	**Louwsburg, Nongoma, Paulpietersburg, Pongola, Ulundi, Vryheid**	**See relevant municipality**
eDumbe LM	Paulpietersburg/Dumbe, Bilanyoni, Mangosuthu Village	Dlamini and Mthethwa Traditional Authorities
Uphongolo LM	Pongola, Ncotshane, Belgrade, Magudu, Golela	Msibi, Sibiya, Ntshangase and Simelane Traditional Authorities
Abaqulusi LM	Vryheid, eMondlo, Hlobane/Corronation, Louwsburg	Hlahlindlela, Khambi and Khambi Ext Traditional Authorities
Nongoma LM	Nongoma, KwaPhenyane, Maphophoma, Mahashini, Ngxongwane	Seat of Zulu monarch Mandlakazi, Usuthu and Matheni Tribal Authorities
Ulundi LM	Ulundi, Nqulwane, Babanango, Denny Dalton/Mpungamhlophe, Ceza	Ntombela, Mbatha, Bhutelezi, Ndebele, Mpungose, Ximba and Zungu Traditional Authorities
Umkhanyakude DM	**Hlabisa, Hluhluwe, Ingwavuma, Jozini, Mbazwana, Mkuze, Mtubatuba, St Lucia**	**See relevant municipality**
Jozini LM	Jozini, Mkuze, Ingwavuma, Ubombo, Bhambanana, Ndumo	Mathenjwa, Ngomezulu, Nyawo, Myeni-Ntsinde, Jobe, Myeni-Ngwenya and Siqakatha (Gumede) Traditional Authorities
Mtubatuba LM	Mtubatuba, St Lucia, Somkhele, Mfekayi, Zamimpilo, Khula Vilage, Dukuduku Forest	Mpukunyoni Traditional Authority
Big 5 False Bay LM	Hluhluwe, Makhasa, Mnqobokazi, Nibela	Makhasa, Mnqobokasi and Nibela Traditional Authorities
Hlabisa LM	Hlabisa, Mpembeni, Ezibayeni	Hlabisa, Mpembeni and Mdletsheni Traditional Authorities
Uthungulu DM	**Empangeni, Eshowe, KwaGingindlovu, KwaMbonambi, Melmoth, Mtunzini, Nkandla, Ntambanana, Richards Bay**	**See relevant municipality**

Mfolozi LM	KwaBonambi, Dondotha, Hlaweni, Mabhuyeni, Nzalabantu	Ingoyama Trust Land, Mhlana, Sokhulu and Mbonambi Traditional Authorities
Ntambanana LM	Buchanana, Heatonville, Mambuka, Luwamba	Obuka, Obizo, Mambuka and Somopho Traditional Authorities

Census 2011 shows the proportions of households living in urban areas, areas under traditional authority and on farms in each municipal area (**Table 11**). The Mkhondo LM has the smallest proportion of households living in areas under traditional authority, while areas like the Ntambanana, Nongoma and Hlabisa LMs have more than 90% of households living in areas under traditional authority.

Table 11: Geotypes (source: Census 2011, households)

Area	Urban	Tribal/Traditional	Farm
Mpumalanga	46.2%	45.7%	8.2%
Gert Sibande DM	71.1%	16.9%	12.1%
Mkhondo LM	50.3%	16.2%	33.5%
KwaZulu-Natal	55.5%	37.5%	7.1%
Zululand DM	25.4%	59.6%	15.0%
eDumbe LM	34.0%	40.5%	25.4%
Uphongolo LM	18.2%	56.2%	25.6%
Abaqulusi LM	46.1%	30.3%	23.6%
Nongoma LM	6.6%	93.4%	0.0%
Ulundi LM	20.3%	73.9%	5.7%
Umkhanyakude DM	9.1%	87.4%	3.4%
Jozini LM	10.7%	88.8%	0.5%
Mtubatuba LM	15.5%	78.7%	5.8%
Big 5 False Bay LM	17.5%	62.7%	19.7%
Hlabisa LM	6.1%	90.6%	3.4%
Uthungulu DM	24.8%	71.0%	4.2%
Mfolozi LM	5.1%	87.9%	7.0%
Ntambanana LM	0.0%	96.8%	3.2%

Table 12 gives an indication of the prevalence of social infrastructure such as libraries, schools, clinics, hospitals, community halls, sports facilities and police stations in the area. In some districts there are discrepancies between the figures provided by the District Municipality's IDP and the Local Municipality's IDP for a specific area. The figures should thus be interpreted as indicative. Some of the IDPs have indicated that the unavailability of records at the municipality is a challenge. Although there is social infrastructure in the area, the municipalities have all describe the available facilities as inadequate to meet the needs of the community. More facilities are required.

Table 12: Social infrastructure (source: Municipal IDPs)

Area	Libraries	Schools	Clinics (fixed) and hospitals	Community halls	Sports facilities	Police stations
Mpumalanga						
Gert Sibande DM						
Mkhondo LM	Not known	79 primary 29 secondary 1 independent	10 clinics 2 hospitals	Not known	Not known	4
KwaZulu-Natal						
Zululand DM						
eDumbe LM	2	71 primary 27 secondary (LM IDP indicates total of 80 schools)	7 clinics 1 hospital	8	2	2
Uphongolo LM	3	76 primary 41 secondary	8 clinics 1 hospital	Not known	Not known	2
Abaqulusi LM	4	104 primary 45 secondary (LM IDP indicates total of 133 schools)	12 clinics 1 hospital	10	4	6
Nongoma LM	1	98 primary 29 secondary	18 clinics 2 hospitals	21 + 3 under construction (2 Zululand IDP)	Not known	1
Ulundi LM	1	109 primary 51 secondary 8 combined	19 clinics 2 hospitals	5	Not known	5
Umkhanyakude DM						
Jozini LM	1	168 schools (unspecified)	18 clinics 2 hospitals	35	13	Not known
Mtubatuba LM	Not known	Not known	Not known	Not known	Not known	Not known
Big 5 False Bay LM	Not known	21 primary 5 secondary	3 clinics 0 hospitals	7	3	1
Hlabisa LM	Not known	Not known	2 clinics 1 hospital	Not known	Not known	2
Uthungulu DM						

Mfolozi LM	0	61 primary 27 secondary	8 clinics 0 hospitals	0	0	1
Ntambanana LM	0	36 primary 18 secondary	3 clinics 0 hospitals		0	1

Most of the municipalities have indicated that the quality and maintenance of infrastructure as well as delivery of basic services such as water, sanitation and electricity are some of their key challenges. This is exacerbated by scattered settlement patterns, particularly in the areas under traditional leadership. Other challenges include poverty, unemployment, illiteracy and skills levels, crime and poor road infrastructure. In some areas there is a need for better relationships between the municipality and traditional leadership. The population profile, which includes a very young population with more females than males due to migrant work, creates some further challenges for the municipality. The key challenges per municipality is summarised in **Table 13** below.

Table 13: Key municipal challenges (source: Municipal IDPs)

Area	Key challenges
Mpumalanga	
Gert Sibande DM	
Mkhondo LM	Poverty and unemployment; Retention of municipal employees with necessary qualifications and experience; Illiteracy and low levels of education; Poor infrastructure; Regular social unrest, crime and violence; Forest and veld fires/ natural disaster; Air pollution from industries; Water contamination – especially from poor sanitation and mining activities; Increase in land evasions and informal/unplanned settlements; HIV and AIDS; Unequal access to economic opportunities (especially for youth); Lack of formalised public transport system; Spatially not connected to economic hubs
KwaZulu-Natal	
Zululand DM	
eDumbe LM	Lack of social and economic services within the rural areas Spatial development pattern - most rural settlements small with about 65% of population living in rural areas

	Population characterised by significantly more women than men, resulting in a large number of female-headed households. Women more disadvantaged in terms of resources. Almost half the population are children, placing pressure on need for educational and social facilities Low income levels Majority of population relies on public transport facilities - quality and efficiency of public transport sector needs attention Many people can't afford to use electricity - municipality must adopt policy embracing use of alternative energy sources
Uphongolo LM	Population characterised by significantly more women than men, resulting in a large number of female-headed households. Women more disadvantaged in terms of resources. Almost half of the population are children, placing pressure on the need for educational and social facilities Low income levels and most rural areas poverty stricken High levels of unemployment Quality and efficiency of public transport needs attention Access to clean water in rural communities Sanitation systems in rural areas such as septic tanks, pit latrines or no system at all place strain on environment Access to electricity in rural areas Retention of municipal employees with necessary qualifications and experience
Abaqulusi LM	Apartheid spatial planning Declining economic sectors Lack of skills and high rate of functional literacy Poor access to social facilities Service backlog Housing HIV and AIDS
Nongoma LM	Poor provision of free basic services Inadequate resources for upgrading existing infrastructure Stealing because of unemployment, e.g. copper wire Interference by traditional leaders hinders process of housing delivery Lack of trust from the community and unrealistic expectations Illegal electricity connections and culture of non-payment of electricity Limited industrial base Poor access to social facilities and services Roads in bad condition

	Uncontrolled street trading Skills shortage and illiteracy Land invasion and illegal development
Ulundi LM	High rate of unemployment coupled with low skills levels Decreasing population size and increasing number of households (households getting smaller) Influx of illegal foreign nationals Small rates base Culture of non-payment still prevalent Need for better relationships between municipality and traditional leadership Scattered, low density settlement pattern complicates service provision Roads in poor state and poor accessibility Lack of recreational and community facilities Urban sprawl, especially in Ulundi town
Umkhanyakude DM	
Jozini LM	Backlog on basic infrastructure (housing, water, electricity, sanitation, roads) Backlog on infrastructure maintenance in towns High unemployment and poverty Poor access to social development services (rural communities) Community development for sustainable environments High grant dependency ratio Land ownership and land rights
Mtubatuba LM	Lack of coherent spatial structure and lack of structured engagement between the municipality and traditional leadership in dealing with issues of spatial planning and land allocation. Lack of specialised (4X4) vehicles suitable for rural terrain for disaster management Poor infrastructure in rural areas Water shortages Maintenance of existing infrastructure Road linkages Lack of access roads and causeways/bridges Weak service levels Stealing of copper wires (electricity cables) Lack of employment opportunities, poverty and underdevelopment Primary source of income - government grants
Big 5 False Bay LM	Limited access to basic services and community facilities and power outages

	High rates of unemployment and inability to attract and retain investment and tourism in the area High levels of poverty Low skills level development, literacy, inability to attract and retain scarce skill Inadequate energy and water supply Unsustainable development practices High levels of crime and risk Poor waste management Increased incidents of HIV/AIDS and communicable diseases Infrastructure degradation & backlogs Climate change
Hlabisa LM	Prevalence of poverty, high rate of unemployment and dependence on social grants No well-established economic core Extremely high prevalence of HIV/AIDS Lack of proper educational facilities Inadequate and limited recreational facilities High crime rate that hampers tourism
Uthungulu DM	
Mfolozi LM	Ensuring that arable land is used productively Roads in a poor condition - entire road infrastructure needs an upgrade Lack of potable water for rural communities Challenge attracting skilled people and lack of capacity at municipality Social infrastructure poorly maintained due to budgetary constraints. Focus was on developing facilities such as community halls, playgrounds and crèches, with the result that facilities like clinics, ICT centres etc were excluded. Very young population - youth skills development and women empowerment need to be a priority Spatial distortion and inequalities Increasing population and low delivery of services, especially in coastal areas No tourism development plan or strategy to enable municipality to develop tourism sector
Ntambanana LM	Limited employment opportunities and low education and skills levels Limited economic development High backlogs in basic service delivery

	Spatial profile: most of study area is sparsely populated making service delivery costly Lack of business support facilities The municipality has a small income base Land ownership Lack of basic infrastructure e.g. water and road Ensuring food security High crime rate Attraction and retention of skilled personnel e.g. engineers Attraction of investors because of poor infrastructure Prevalence of natural disasters especially, veld fires

6.2 Description of the population

The baseline description of the population will take place on three levels, namely provincial, district and local. Impacts can only truly be comprehended by understanding the differences and similarities between the different levels. The baseline description will focus on the municipalities in the study area, as these are the areas that will be most affected by the proposed project. Where practical, the data will be reviewed on a ward level. The data used for the socio-economic description was sourced from Census 2011. Census 2011 was a de facto census (a census in which people are enumerated according to where they stay on census night) where the reference night was 9-10 October 2011. The results should be viewed as indicative of the population characteristics in the area and should not be interpreted as absolute.

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

- Comparisons of the results of labour market indicators in the post-apartheid population censuses over time have been a cause for concern. Improvements to key questions over the years mean that the labour market outcomes based on the post-apartheid censuses have to be analysed with caution. The differences in the results over the years may be partly attributable to improvements in the questionnaire since 1996 rather than to actual developments in the labour market. The numbers published for the 1996, 2001, and 2011 censuses are therefore not comparable over time and are higher from those published by Statistics South Africa in the surveys designed specifically for capturing official labour market results.
- For purposes of comparison over the period 1996–2011, certain categories of answers to questions in the censuses of 1996, 2001 and 2011, have either been merged or separated.
- The tenure status question for 1996 has been dropped since the question asked was totally unrelated to that asked thereafter. Comparisons for 2001 and 2011 do however remain.

- All household variables are controlled for housing units only and hence exclude all collective living arrangements as well as transient populations.
- When making comparisons of any indicator it must be taken into account that the time period between the first two censuses is of five years and that between the second and third census is of ten years. Although Census captures information at one given point in time, the period available for an indicator to change is different.

6.2.1 Population and household sizes

According to the Community Survey 2016, the population of South Africa is approximately 55,7 million and has shown an increase of about 7.5% since 2011. The household density for the country is estimated on approximately 3.29 people per household, indicating an average household size of 3-4 people (leaning towards 3) for most households, which is down from the 2011 average household size of 3.58 people per household. Smaller household sizes are in general associated with higher levels of urbanisation.

In the study area the Mtubatuba LM (15.25%) and the Abaqulusi LM (14.28%) showed the greatest increase in population since 2011 (**Table 14**), much greater than on a national level. The population in the Ntambanana LM (0.61%) showed virtually no increase.

Population density refers to the number of people per square kilometre. In all the areas in the study area the population density has increased since 2011. The Mfolozi LM has the highest population density with 114.7 people per km^2, followed by the Mtubatuba LM with 102.63 people per km^2. The Big 5 False Bay LM has the lowest population density (15.83).

Table 14: Population density and growth estimates (sources: Census 2011, Community Survey 2016)

Area	Size in km^2	Population 2011	Population 2016	Population density 2011	Population density 2016	Growth in population (%)
Mpumalanga	**76,495**	**4,039,939**	**4,335,964**	**52.81**	**56.68**	**7.33**
Gert Sibande DM	**31,841**	**1,043,194**	**1,135,409**	**32.76**	**35.66**	**8.84**
Mkhondo LM	4,882	171,982	189,036	35.23	38.72	9.92
KwaZulu-Natal	**94,361**	**10,267,300**	**11,065,240**	**108.81**	**117.26**	**7.77**
Zululand DM	**14,799**	**803,575**	**892,310**	**54.30**	**60.30**	**11.04**
eDumbe LM	1,943	82,053	89,614	42.23	46.12	9.21
Uphongolo LM	3,239	127,238	143,845	39.28	44.41	13.05
Abaqulusi LM	4,185	211,060	241,196	50.43	57.63	14.28
Nongoma LM	2,182	194,908	211,892	89.33	97.11	8.71

Ulundi LM	3,250	188,317	205,762	57.94	63.31	9.26
Umkhanyakude DM	**13,855**	**625,846**	**689,090**	**45.17**	**49.74**	**10.11**
Jozini LM	3,442	186,502	198,215	54.18	57.59	6.28
Mtubatuba LM	1,970	175,425	202,176	89.05	102.63	15.25
Big 5 False Bay LM	2,487	35,258	39,357	14.18	15.83	11.63
Hlabisa LM	1,555	71,925	77,265	46.25	49.69	7.42
Uthungulu DM	**8,213**	**907,519**	**971,135**	**110.50**	**118.24**	**7.01**
Mfolozi LM	1,208	122,889	138,561	101.73	114.70	12.75
Ntambanana LM	1,083	74,336	74,792	68.64	69.06	0.61

The number of households in the study area has increased in all the local municipalities, except in the Ntambanana LM where the number of households decreased with about 6.42% (**Table 15**). The average household sizes have decreased in all the areas except for the eDumbe LM, the Nongoma LM and the Ntambana LM where household sizes have increased.

Table 15: Household sizes and growth estimates (sources: Census 2011, Community Survey 2016)

Area	Households 2011	Households 2016	Average household size 2011	Average household size 2016	Growth in households (%)
Mpumalanga	**1,075,488**	**1,238,861**	**3.76**	**3.50**	**15.19**
Gert Sibande DM	**273,490**	**333,815**	**3.81**	**3.40**	**22.06**
Mkhondo LM	37,433	45,595	4.59	4.15	21.80
KwaZulu-Natal	**2,539,429**	**2,875,843**	**4.04**	**3.85**	**13.25**
Zululand DM	**157,748**	**178,516**	**5.09**	**5.00**	**13.17**
eDumbe LM	16,138	17,415	5.08	5.15	7.91
Uphongolo LM	28,772	34,667	4.42	4.15	20.49
Abaqulusi LM	43,299	51,472	4.87	4.69	18.88
Nongoma LM	34,341	36,409	5.68	5.82	6.02
Ulundi LM	35,198	38,553	5.35	5.34	9.53
Umkhanyakude DM	**128,195**	**151,245**	**4.88**	**4.56**	**17.98**
Jozini LM	38,849	44,584	4.80	4.45	14.76
Mtubatuba LM	34,905	41,792	5.03	4.84	19.73
Big 5 False Bay LM	7,998	11,336	4.41	3.47	41.74

Hlabisa LM	12,586	13,919	5.71	5.55	10.59
Uthungulu DM	**202,976**	**225,797**	**4.47**	**4.30**	**11.24**
Mfolozi LM	25,584	29,439	4.80	4.71	15.07
Ntambanana LM	12,826	12,003	5.80	6.23	-6.42

The total dependency ratio is used to measure the pressure on the productive population and refer to the proportion of dependents per 100 working-age population. As the ratio increases, there may be an increased burden on the productive part of the population to maintain the upbringing and pensions of the economically dependent. A high dependency ratio can cause serious problems for a country as the largest proportion of a government's expenditure is on health, social grants and education that are most used by the old and young population.

The Nongoma LM has the highest total (88.0), youth (78.96) and employed (93.41) dependency ratios and the second highest aged dependency ratio (9.04) (**Table 16**). Employed dependency ratio refers to the proportion of people dependent on the people who are employed, and not only those of working age. The Mtubatuba LM has the second highest total (85.8), youth (76.85) and employed (2.5) dependency ratios, while the eDumbe LM has the highest aged dependency (9.06) ratio. The Ntambanana LM has the lowest total (56.47), aged (7.06) and employed (75.16) dependency ratios, while the Mfolozi LM has the lowest youth (48.68) dependency ratio.

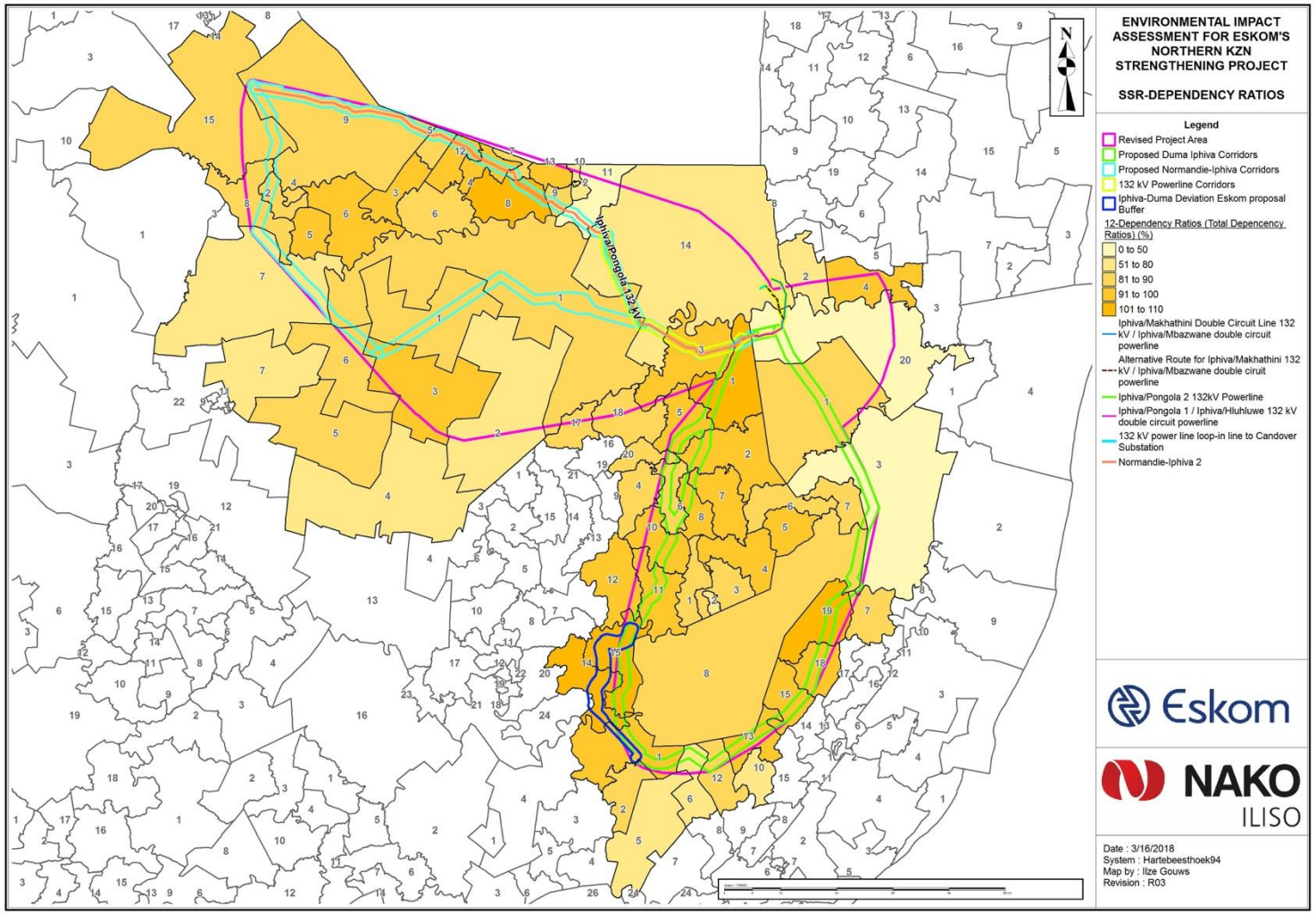
Table 16: Dependency ratios (source: Census 2011).

Area	Total dependency	Youth dependency	Aged dependency	Employed dependency
Mpumalanga	**56.01**	**48.68**	**7.33**	**76.00**
Gert Sibande DM	**56.47**	**49.41**	**7.06**	**75.16**
Mkhondo LM	68.97	61.82	7.15	82.26
KwaZulu-Natal	**58.45**	**50.61**	**7.84**	**80.12**
Zululand DM	**79.24**	**70.86**	**8.37**	**89.63**
eDumbe LM	81.72	72.66	9.06	88.31
Uphongolo LM	77.33	69.72	7.61	85.69
Abaqulusi LM	70.52	62.53	7.99	86.93
Nongoma LM	88.00	78.96	9.04	93.41
Ulundi LM	80.95	72.84	8.11	90.58
Umkhanyakude DM	**77.98**	**70.07**	**7.91**	**88.48**
Jozini LM	72.01	64.53	7.48	84.83
Mtubatuba LM	85.80	76.85	8.95	92.50
Big 5 False Bay LM	64.74	57.29	7.45	83.66

Hlabisa LM	68.16	60.69	7.47	86.58
Uthungulu DM	**79.27**	**70.36**	**8.91**	**91.06**
Mfolozi LM	56.01	48.68	7.33	76.00
Ntambanana LM	56.47	49.41	7.06	75.16

On a ward level the differences between wards in the same municipality in terms of dependency ratio can be quite big (**Figure 3**), for example in the Uphongolo LM Ward 11 has a total dependency ratio of 44.25 while the total dependency ratio of Ward 8 is 100.82. This can be explained by the presence of employment opportunities in Ward 11 as the town of Pongola is located in this ward. In the areas with higher dependency ratios there are most likely less opportunities to make a livelihood.

Figure 3: Total dependency ratios on ward level (source: Census 2011).



Poverty is a complex issue that manifests itself on economic, social and political ways and to define poverty by a unidimensional measure such as income or expenditure would be an oversimplification of the matter. Poor people themselves describe their experience of poverty as multidimensional. The South African Multidimensional Poverty Index (SAMPI) (Statistics South Africa, 2014) assess poverty on the dimensions of health, education, standard of living and economic activity using the indicators child mortality, years of schooling, school attendance, fuel for heating, lighting and cooking, water access, sanitation, dwelling type, asset ownership and unemployment.

The poverty headcount refers to the proportion of households that can be defined as multidimensionally poor by using the SAMPI's poverty cut-offs (Statistics South Africa, 2014). The poverty headcount has decreased for all the areas since 2011 except the Abaqulusi LM that showed a small increase (**Table 17**). The Jozini LM (16.4%) and the Big 5 False Bay LM (16.2%) have the highest proportion of households that are multidimensionally poor.

The intensity of poverty experienced refers to the average proportion of indicators in which poor households are deprived (Statistics South Africa, 2014). The intensity of poverty has increased in all the areas except for the Abaqulusi LM where it remained the same and the Mtubatuba LM where it showed a very slight decrease. The intensity of poverty and the poverty headcount is used to calculate the SAMPI score. A higher score indicates a very poor community that is deprived on many indicators. The Jozini LM (0.7) and the Mtubatuba LM (0.7) have the highest SAMPI scores and thus represent the poorest, most deprived communities in the study area.

Table 17: Poverty and SAMPI scores (sources: Census 2011 and Community Survey 2016).

Area	Poverty headcount 2011 (%)	Poverty intensity 2011 (%)	SAMPI 2011	Poverty headcount 2016 (%)	Poverty intensity 2016 (%)	SAMPI 2016
Mpumalanga	7.90	41.80	0.03	7.80	42.7	0.03
Gert Sibande DM	8.4	41.6	0.03	7.2	43.1	0.03
Mkhondo LM	15.8	41.5	0.07	11.9	43.7	0.05
KwaZulu-Natal	10.9	42	0.05	7.7	42.5	0.03
Zululand DM	12.9	41.6	0.05	10.4	42.8	0.04
eDumbe LM	13.4	41.2	0.06	9.3	43.3	0.04
Uphongolo LM	12.5	41.4	0.05	10.6	41.9	0.04
Abaqulusi LM	11.2	41.9	0.05	11.4	41.9	0.05
Nongoma LM	15.3	41.7	0.06	9.2	43.4	0.04
Ulundi LM	12.4	41.7	0.05	10.4	42.3	0.04

Umkhanyakude DM	11.1	42.4	0.05	7.7	44.1	0.03
Jozini LM	22.2	42.6	0.09	16.4	43.8	0.07
Mtubatuba LM	11.7	41.5	0.05	10	41.4	0.04
Big 5 False Bay LM	17.6	42.1	0.07	16.2	43.8	0.07
Hlabisa LM	16.2	41.8	0.07	10.3	41.7	0.04
Uthungulu DM	11.1	41	0.05	7.7	43.1	0.03
Mfolozi LM	10	41.5	0.04	7.2	42.7	0.03
Ntambanana LM	16.9	41.3	0.07	15	41.9	0.06

6.2.2 Population composition, age, gender and home language

More than 90% of the population in the study area belong to the Black population group. In some wards, especially in the urban areas, the proportions differ and larger proportions of people belonging to other population groups are found.

The average age in all the municipal areas are below 27 years (**Table 18**), with the lowest average age (22.91) in the Nongoma LM. More than half of the population in the Nongoma LM are younger than 20 years of age. Such a young population place a lot of pressure on resources and infrastructure of the area, and a great demand for future infrastructure and creation of livelihoods can be expected.

In all the municipalities in the study area, there are more females than males. Females are usually regarded as more disadvantaged in terms of resources, especially in areas under traditional leadership, and are therefore a very vulnerable group. Many males of economically active age have migrated to the cities and other urban areas in search of employment.

Table 18: Age and gender distribution (source: Census 2011).

Area	Average Age	Population younger than 20 years (%)	Females (%)
Mpumalanga	26.79	41.71	51.14
Gert Sibande DM	26.81	41.98	50.69
Mkhondo LM	24.75	48.17	52.17
KwaZulu-Natal	26.57	42.85	52.48
Zululand DM	23.85	52.26	53.68
eDumbe LM	24.05	51.87	53.14
Uphongolo LM	23.46	51.78	53.06
Abaqulusi LM	24.98	48.65	52.40
Nongoma LM	22.91	55.89	54.60
Ulundi LM	23.28	53.22	53.88

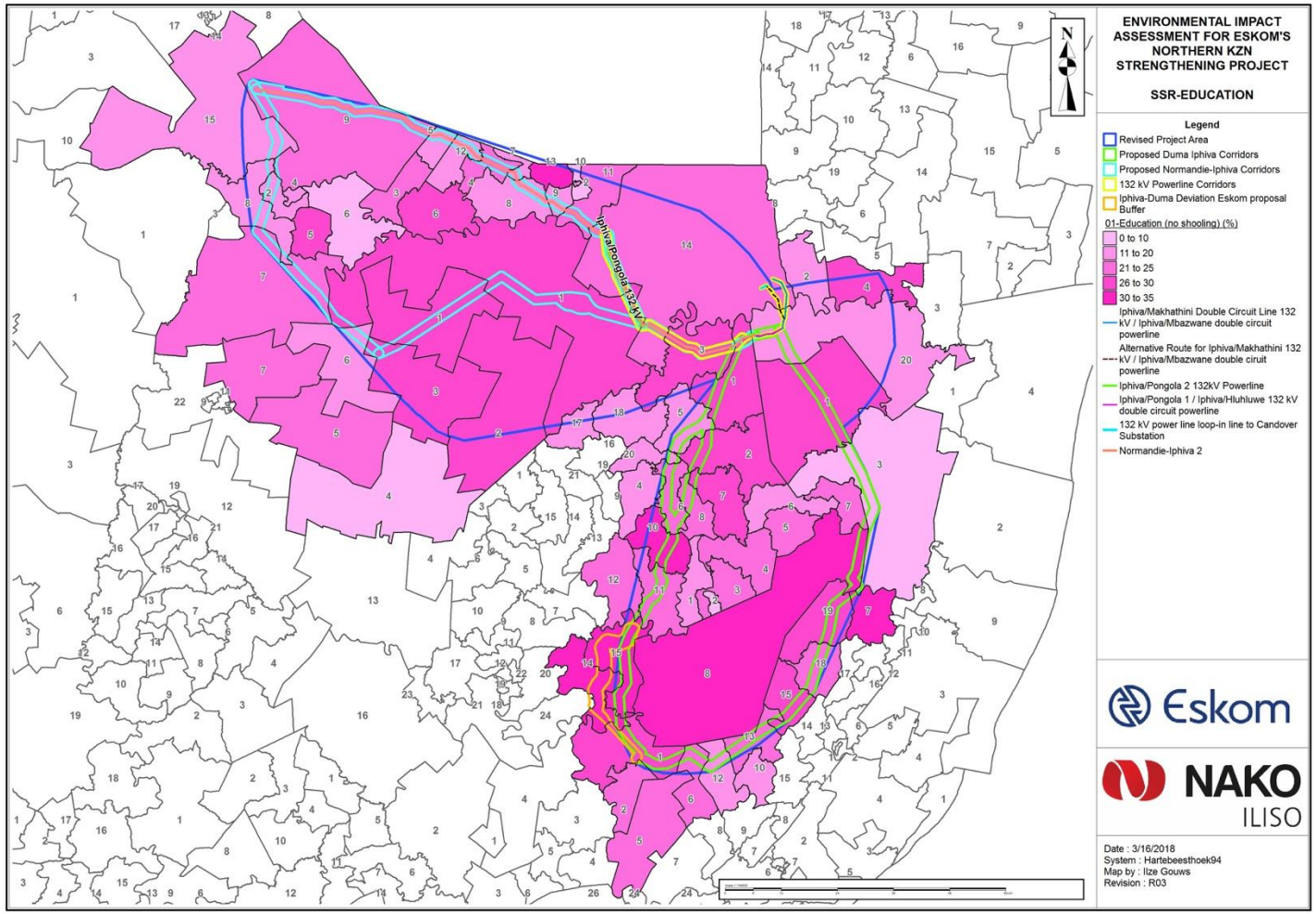
Umkhanyakude DM	22.57	54.59	53.83
Jozini LM	23.51	51.93	53.65
Mtubatuba LM	24.12	49.78	53.19
Big 5 False Bay LM	23.15	55.07	54.20
Hlabisa LM	25.21	46.61	52.90
Uthungulu DM	24.60	47.76	51.97
Mfolozi LM	23.96	52.60	53.89
Ntambanana LM	26.79	41.71	51.14

IsiZulu is the home language of more than 90% of the residents of the area (Census 2011), except in the Mkhondo LM, where only 89.06% of people have isiZulu as home language.

6.2.3 Education

The highest proportion of people with no schooling who are aged 20 years or older are in the Jozini LM (27.37%) and the Big 5 False Bay LM (26.05%) (Census 2011). There proportions vary on a ward level within the municipal areas (**Figure 4**) and in some wards more than 30% of the population older than 20 years have received no schooling. These high levels of illiteracy should be taken into consideration when consulting with these communities on the project.

Figure 4: Education – no schooling on ward level (those aged 20 years or older, shown in percentage, source: Census 2011).



6.2.4 Employment, livelihoods and economic activities

The area is characterised by scattered settlement patterns with only a few towns. Levels of employment vary, with the highest proportion of employed people in the Mkhondo LM (29.98%) (Census 2011) in Mpumalanga. The proportion of employed people vary on a ward level within the local municipalities (**Figure 5**). The wards with the highest levels of employment are not the wards where the towns are located and it can be assumed that commercial farms, forestry and/or tourism attractions are located in these wards.

The Mkhondo LM in Mpumalanga has a well diversified economy with the main activities being forestry, commercial agriculture, some coal mining and a few tourism attractions. There is industry in the area that supports forestry. In the remaining local municipalities (Table 19) the economy is not well diversified and the economic activities are mostly limited to agriculture and tourism in the form of game farms, private and public game reserves. In terms of agriculture two main types of agricultural activities can be identified, namely commercial agriculture and then small-scale and subsistence farming. The communities in the areas under traditional leadership rely heavily on small-scale and subsistence farming for their livelihoods. Informal trading is another important livelihood strategy in the study area and some municipalities are trying to regulate or manage informal trading, acknowledging the importance of this strategy for the communities. There is very little industry that supports commercial agricultural activities in most of the municipal areas.

Figure 5: Labour status – employed on ward level (those aged between 15 - 65 years, shown in percentage, source: Census 2011)

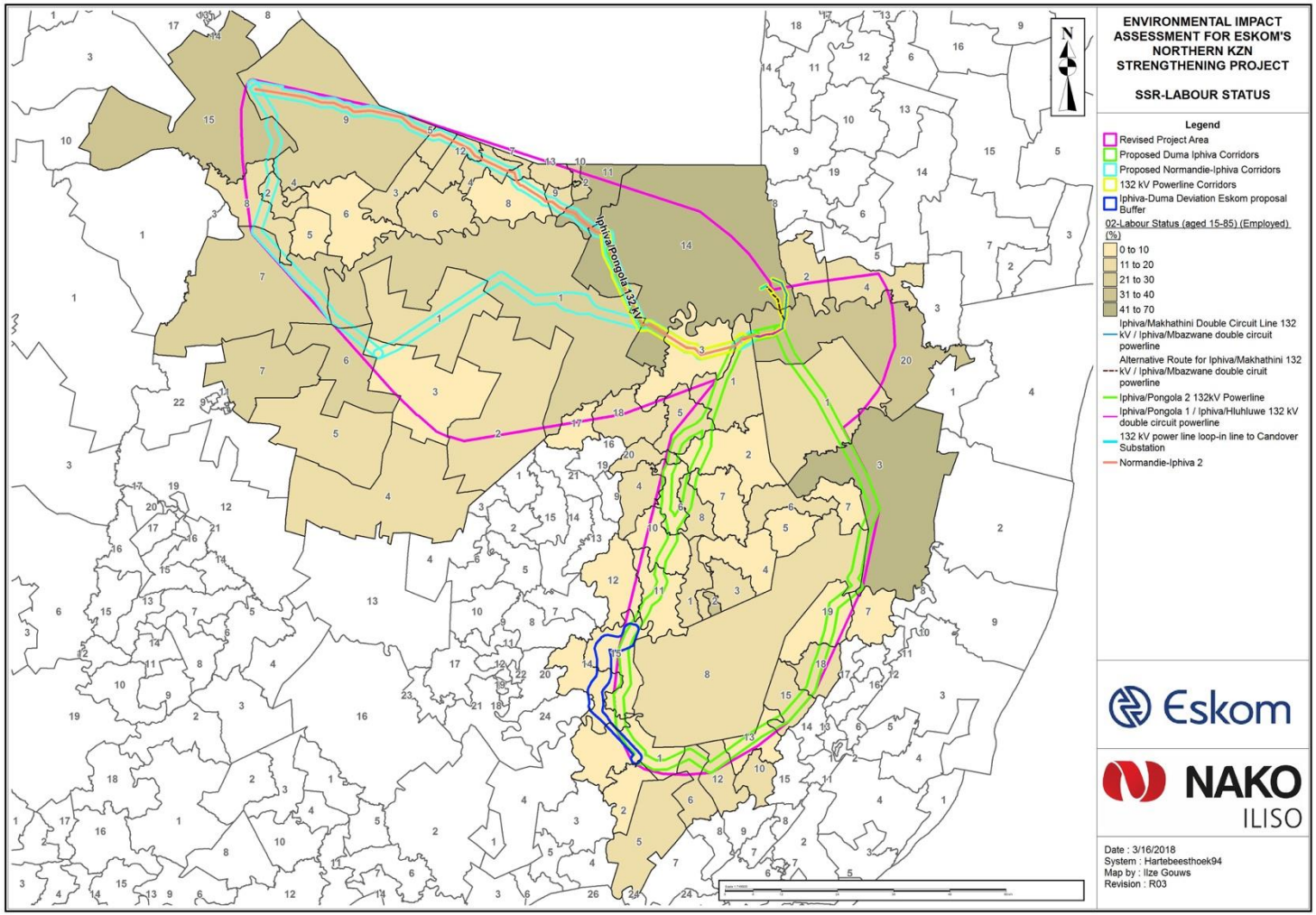


Table 19: Economic activities and livelihoods (source: Municipal IDPs).

Area	Economic activities and livelihoods
Mpumalanga	
Gert Sibande DM	
Mkhondo LM	The economy is well diversified and the dominant land use is forestry. Agricultural activities: forestry and timber, stock grazing, limited crops. Main tourism attractions: Athole Nature Reserve, Entomber Battlefield, Rooikraal, Confidence, Kalkoenlaagte, Heyshope Dam, Witbad Nature Reserve, a number of private nature reserves and conservancies. Several scattered pockets of coal mining.
KwaZulu-Natal	
Zululand DM	
eDumbe LM	Agriculture well established and quite diverse. Greatest portion of economic activity. Agricultural activities: timber, crops (maize, sugarcane), livestock, game and bird farming. Community gardens popular way of reducing poverty and organising women. Main tourism attractions: Ithala Game Reserve, Pongola Bush Nature Reserve, Natal Spa Hot Spring and Leisure Resort, Battlefields Route, Engodini Crater, fishing, eco-tourism and game resorts, Zulu cultural experience. Mining activities has decreased since mid 1990's. Five existing mines, but all closed down. Number of mines in the process of opening. Manufacturing: Valpre still water bottling plant, manufacturing of coffins, ignite coal manufacturing plant. Manufacturing made minimal contribution to GDP. Many residents travel to Vryheid to do their shopping. Informal sector, especially on retail side grown a lot of past few years.
Uphongolo LM	Agriculture employs more people than any other sector. Agricultural activities: sugarcane, vegetables, citrus fruit and game. Subsistence farming practised by communities in traditional areas. Main tourism attractions: Phongolo Game Reserve, Phongolapoort Nature Reserve. Mining provides limited employment opportunities. Manufacturing activity very low. Sugar mill in area. Informal sector contributes significantly to economy.

Abaqulusi LM	Although agriculture is the dominant land use in the area, most agricultural land is not high potential due to poor soils, irregular rainfall and significant areas of degradation. Agricultural activities: timber, field crops (maize, groundnuts, soya beans, sunflowers, fruits and sorghum), livestock (cattle, game). Small-scale farming in traditional areas. Main tourism attractions: Ithala Game Reserve, Ngome Forests, Private game farms Coal mining - a number of mines ceased operation over the past 15 years. Impacted negatively on regional economy. Manufacturing: Food and beverages, clothing and textiles, leather products, paper and paper products, printing and publishing, metal products, machinery and equipment. Low impact on local economy. Services: Financial, administration, government to manufacturing and retail. Town of Vryheid primary service centre. Informal trade.
Nongoma LM	Agriculture is an important sector, but little detailed information available. Small-scale agricultural activities - crop farming and livestock (cattle and goats). Main tourism attractions: Imfolozi Game Reserve, religious and traditional tourists (traditional), Route 66, Zulu King palace, Royal Reed dance festival, Ntendeka Wilderness. Manufacturing: small scale brick manufacturing. Informal trade (in most other areas).
Ulundi LM	Agriculture is a major sector within municipality. Agricultural activities consist of small-scale farming and community gardens. Commercial farming in western part. Main tourism attractions: Odini Museum, Amafa Akwazulu Heritage Site, Ondini Battlefields, Ulundi Multi Media Centre (uMgungundlovu), Spirit of eMakhosini, Ceza Cave,Kwafqokli Hill, Opathe Game Park, Cengeni Gate to the Umfolosi Game Reserve. Virtually no mining in area. Minimal manufacturing or industrial activity.
Umkhanyakude DM	
Jozini LM	Agriculture, tourism, formal and informal business are the main economic driving sectors in the area. Agricultural activities: cattle, sheep, goat, dairy, poultry, game, aquaculture, vermiculture, apiculture, alternative animal production systems. Crops include cotton, sugarcane, fruit and vegetables, fruit trees (avocado, papaya, banana, citrus and mango), cassava, forestry.

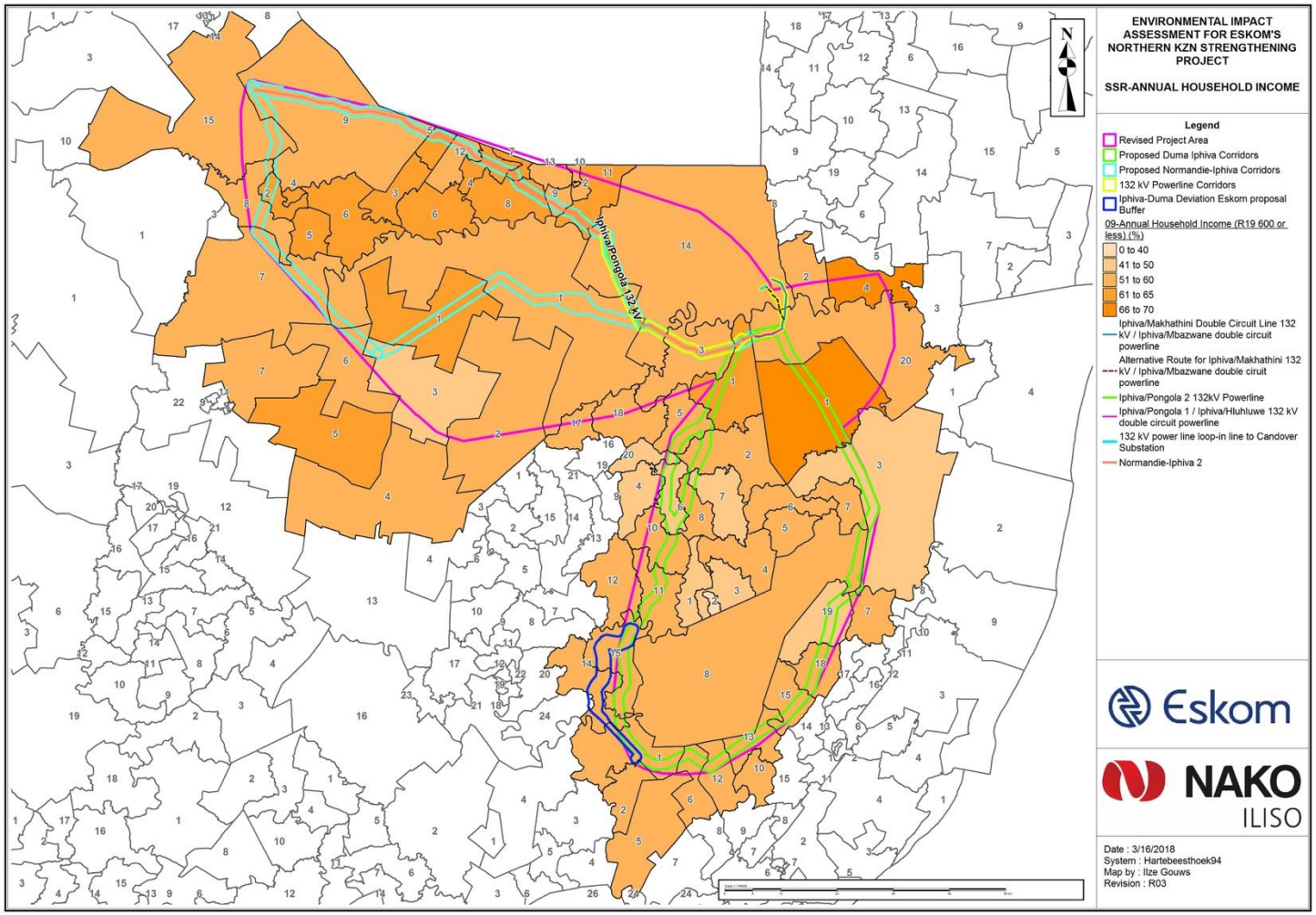
	Subsistence agriculture. Main tourism attractions: Pongolapoort Dam (known as Jozini Dam), Pongolapoort Game Reserve, Mkhuze Game Reserve, Ndumo Game Reserve, Hlathikulu Forest, BorderCage, King Dingaan's Grave, Usuthu Gorge. Manufacturing is third largest contributor to municipality's Gross Value Added. Industrial activity limited due to lack of supporting infrastructure.
Mtubatuba LM	Agriculture is principle economic activity and source of livelihood for majority of people. Commercial agriculture: sugarcane and timber. Small-scale farming and subsistence farming (amadumbe, beans, bananas, potatoes, imbumbe, sugarcane, gumtrees, pawpaws, avocados, peaches, litchi, mango, sweet potatoes, onions and cabbages). Main tourism attractions: Hlluhluwe-Imfolozi Park, Isimangaliso Wetland Park. Coal mining. Isolated informal markets.
Big 5 False Bay LM	Tourism and agriculture are key economic drivers. Agricultural activities: pineapples, sweet potatoes, sugar cane, sugar beans, timber, essential oils. Small-scale fishery in Nibela, community gardens and poultry projects. Main tourism attractions: Isimangaliso Wetland Park, private game reserves. Informal traders. Mining and manufacturing are not major economic drivers. There are some light industrial activities. Hluhluwe is the main service centre with services such as medical, education, Home Affairs, safety and security.
Hlabisa LM	Subsistence agriculture is the most significant land use and agriculture is one of the main economic activities. No commercial farming takes place, just small-scale farming. Forestry Tourism plays a minimal role in the economy - Hluhluwe-Infolozi Game Reserve. One mine in area. Informal trading.
Uthungulu DM	
Mfolozi LM	Agricultural sector dominated by forestry.

	Small-scale farming (field crops, subtropical fruits, beef, goat, game). Emerging farmers: sugar cane, forestry. Not currently a tourism destination. Main tourism attractions: Dawsons Rock Development, Lake Eteza Nature Reserve. Mining operations declining and manufacturing sector consists almost exclusively of forestry and wood processing operations of SAPPI and Mondi. Local sewing clubs and cooperatives are active. Informal economy makes important contribution.
Ntambanana LM	Agriculture one of the main economic activities with the production of sugarcane the most important economic activity. Other commercial farming includes Macadamia nuts, maize, vegetables, cattle farming. Small-scale farming. Tourism plays a minimal role in economy. Main tourism attractions: Thula Thula Game Reserve, Nyala Game Ranch, Mfuli Game Ranch, Fundimvelo, Intabayengwe. Informal businesses.

Statistics South Africa (2015) has calculated the Food Poverty Line (FPL) for Kwazulu-Natal as R354 per capita per month and for Mpumalanga as R343 for 2011 where the FPL is the Rand value below which individuals are unable to purchase or consume enough food to supply them with the minimum per-capita-per-day energy requirement for good health. The FPL is one of three poverty lines, the others being the upper bound poverty line (UBPL) and the lower bound poverty line (LBPL). The LBPL and UBPL both include a non-food component. Individuals at the LBPL do not have enough resources to consumer or purchase both adequate food and non-food items and are forced to sacrifice food to obtain essential non-food items, while individuals at the UBPL can purchase both adequate food and non-food items. The LBPL for Kwa-Zulu Natal was R539 per capita per month and for Mpumalanga R517 per month in 2011 and the UBPL R757 (KZN) and R974 (Mpumalanga) per capita per month respectively. More recent poverty lines than the rebased poverty lines for 2011 are not available. Based on this, a household with four members needed an annual household income of approximately R17 000 in 2011 to be just above the FPL. In most municipalities half or more (in some just less than half) of the households are below, or barely above the FPL (with a household income of R19 600 or less, the closest income category in Census 2011). There are distinct differences between wards in the same local municipality (Figure 6). When comparing this with the SAMPI data it seems as if there are more households below the poverty lines in the area than who are multidimensionally poor. This is due to the poverty lines using a financial measure and do not take into consideration payment in kind and livelihood strategies such as

subsistence farming. If there were to be converted into a Rand value, the poverty line picture may have a closer resemblance to the SAMPI data.

Figure 6: Annual household income – R19600 or less, wards (shown in percentage, source: Census 2011).



6.2.5 Housing

Most of the dwellings in the study area are houses or brick/concrete block structures that are on a separate yard, stand or farm (Census 2011), followed by traditional dwellings/huts/structures made of traditional materials. The proportions differ per municipal area as well as per ward in each municipal area (Figure 7). Ntambanana LM is the only area where there are slightly more traditional dwellings (45.58%) than brick structures (45.13%).

The majority of the dwellings in the study area are owned and fully paid off, or occupied rent free (Census 2011). It must be noted that the Ingonyama Trust is the custodian of the land under traditional authority in KZN, and although a household may own their dwelling, they may not own the land the dwelling was built on. The proportion of dwellings owned off and paid in full differ between wards in different local municipalities (Figure 8).

More than 40% of households in the Big 5 False Bay LM (49.14%), Uphongolo LM (44.51%), Mkhondo LM (40.72%) and the Abaqulusi LM (40.5%) have only one or two members (Census 2011). Most of large towns in the study area are located in these municipalities. In the municipalities with a more traditional character such as Nongoma, Hlabisa and Ntambana, the household sizes tend to be larger. There are large differences between the wards in the municipalities (Figure 9), giving an indication of the character of the different wards.

Figure 7: Dwelling types – traditional dwellings, wards (shown in percentage, source: Census 2011)

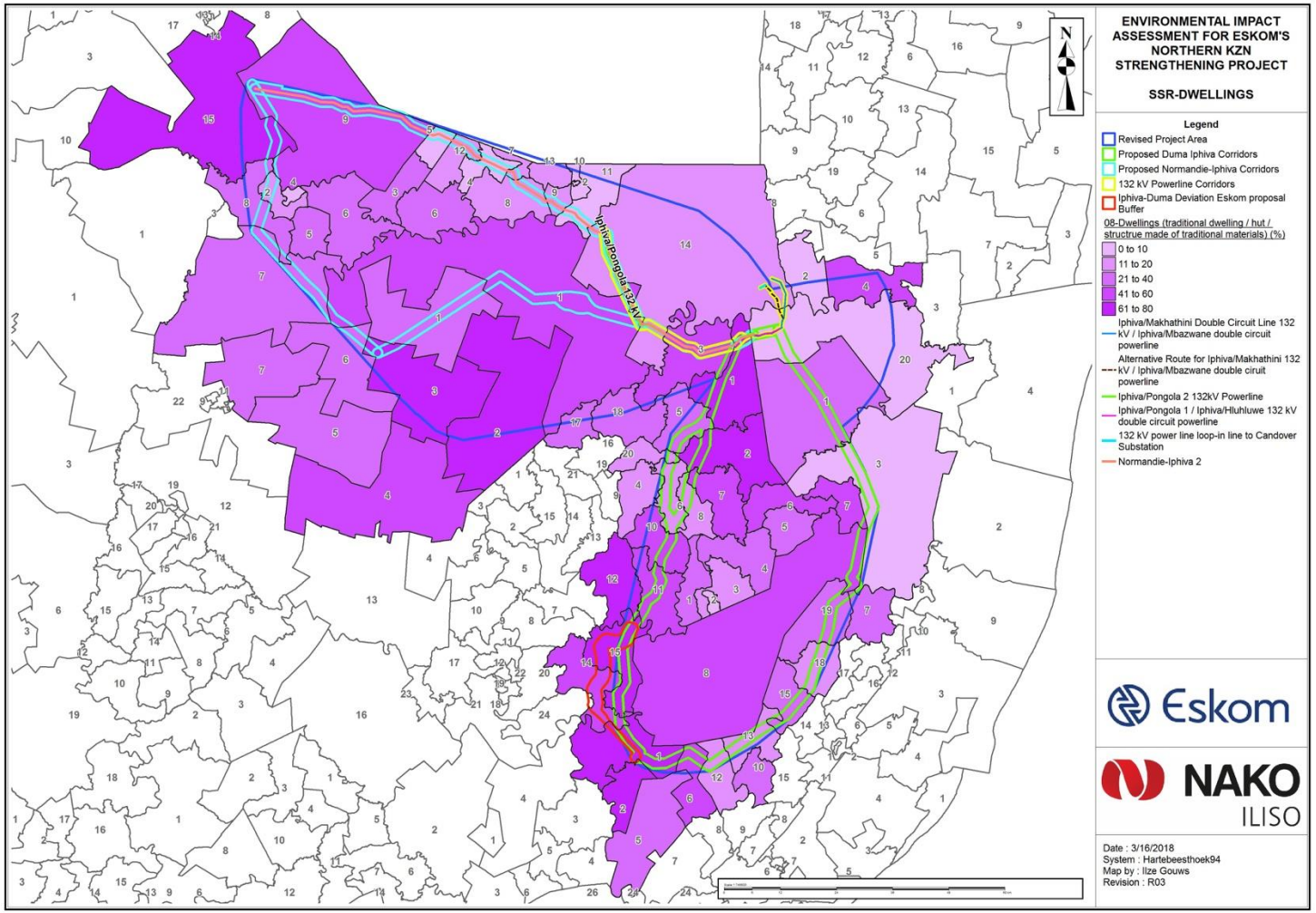


Figure 8: Tenure status (shown in percentage, source: Census 2011)

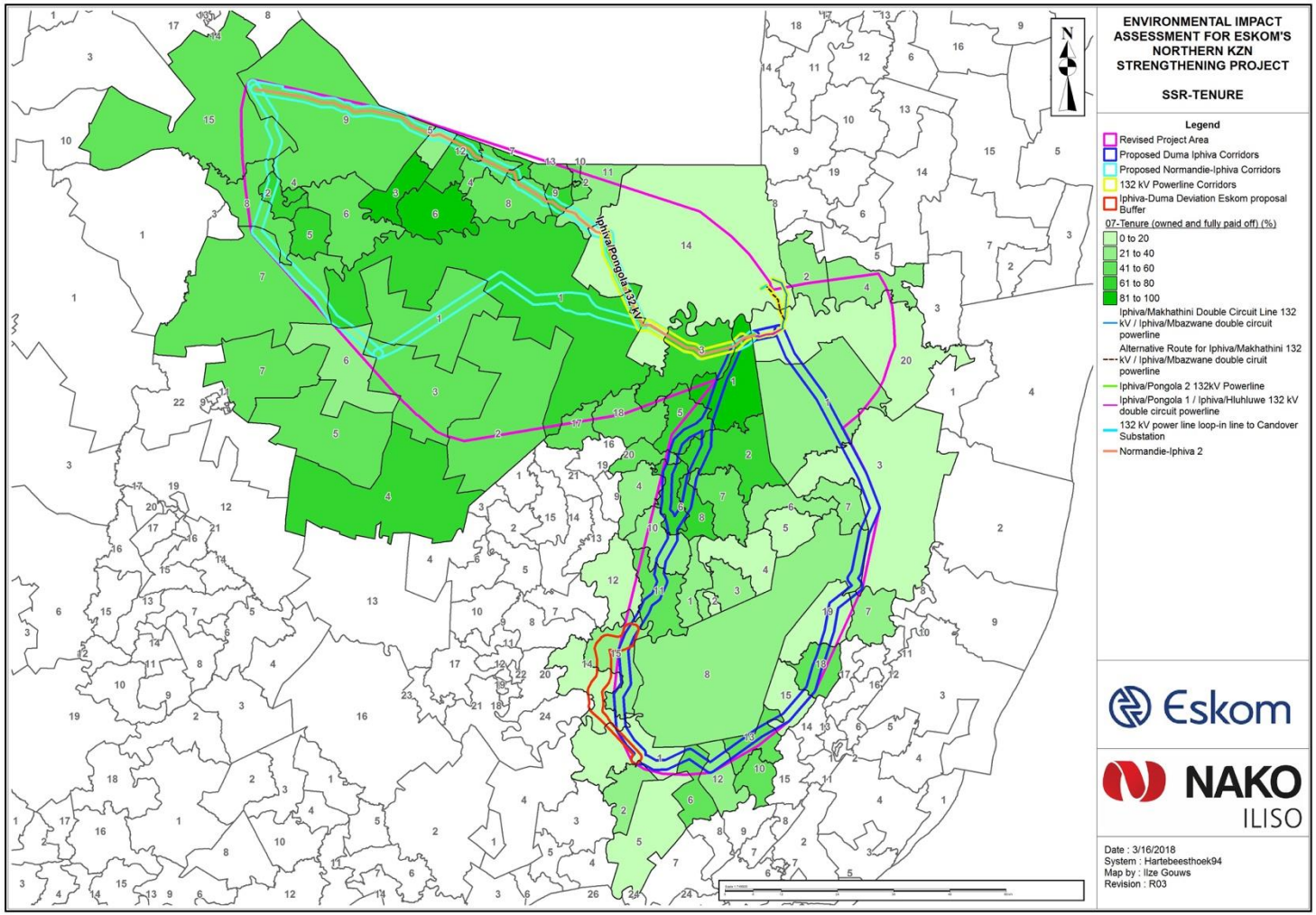
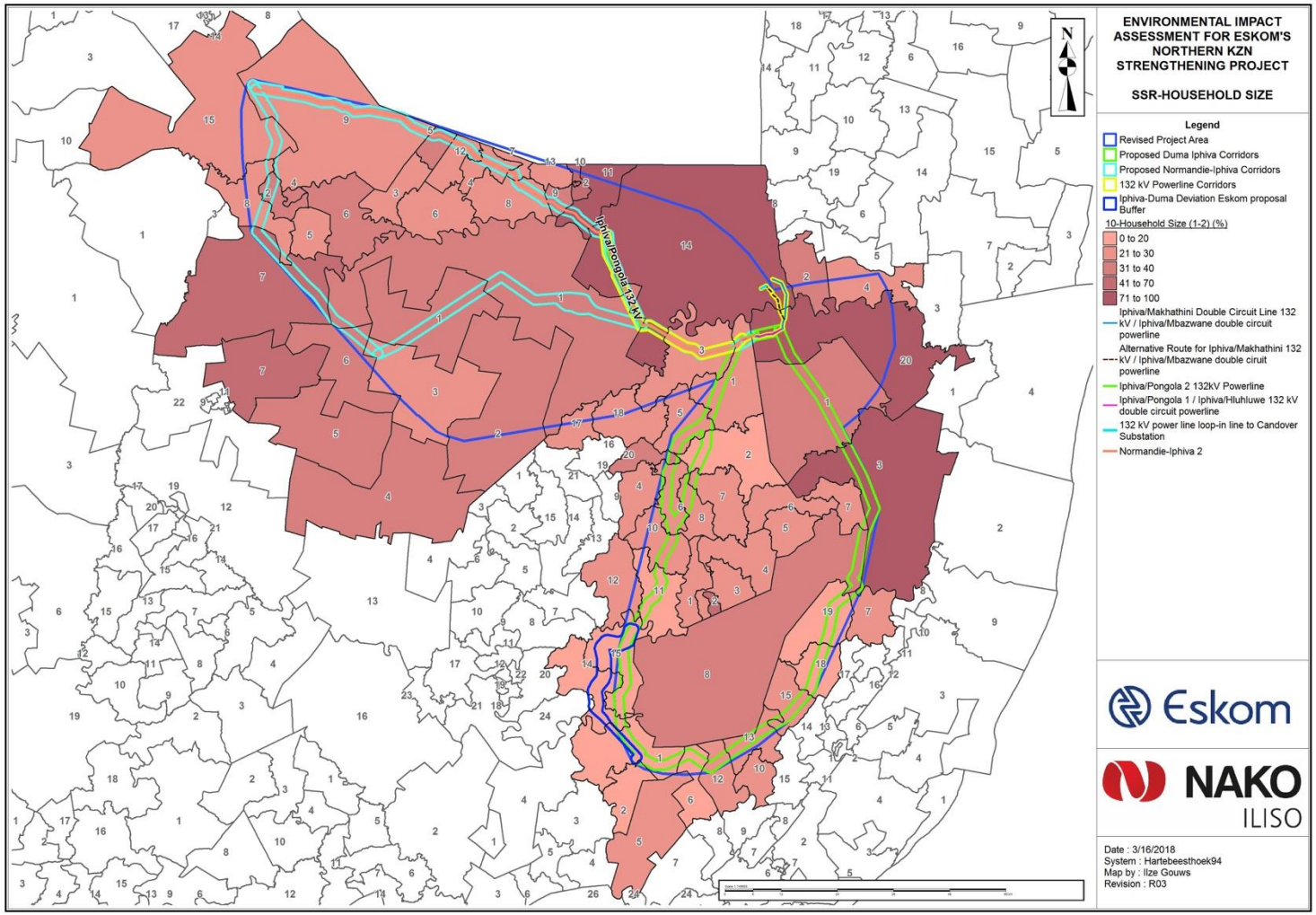


Figure 9: Household size – 1-2 members, wards (shown in percentage, source: Census 2011)



6.2.6 Access to basic services

Access to basic services such as water, sanitation and electricity relate to standard of living according to SAMPI (Statistics South Africa, 2014). Households that use paraffin, candles or nothing for lighting; or fuels such as paraffin, wood, coal, dung or nothing for cooking or heating; have no piped water in the dwelling or on the stand and do not have flush toilets can be described as deprived in terms of these basic services.

The majority of households in all the local municipalities, except for Nongoma and Hlabisa have access to water from a local or regional water scheme (Census 2011). The majority of households in Nongoma or Hlabisa get their water from a river or a stream. In Ntambanana quite a large proportion of households get their water from water tankers. The source of water differ between wards in local municipalities (Figure 10). More than half of the households, except in Big 5 False Bay (43.52%), Hlabisa (34.34%), Jozini (30.33%), Nongoma (27.48%) and Ntambanana (22.28%) have access to piped water inside their dwellings or yards (Census 2011). Figure 11 shows the incidence of piped water inside dwellings or yards on a ward level.

The incidence of flush toilets (connected to sewerage system or septic tank) is relative low in most areas except for Mkhondo (42.11%) and Abaqulusi (43.76%) (Census 2011). The highest incidence of households with no access to toilet services is in Nongoma (29.1%), Uphongolo (27.45%), Ntambanana (24.26%) and Jozini (23.13%). Figure 12 shows the incidence of no toilets on a ward level.

Access to electricity for lighting purposes give an indication of whether a household has access to electricity, as poor households sometimes only use electricity for lighting, but use other sources of energy for heat and cooking. The Jozini LM (29.09%) has the lowest incidence of households with access to electricity for lighting purposes, followed by Big 5 False Bay (42.57%) (Census 2011). This differs on a ward level (Figure 13), and a number of the wards in the study area have a low incidence of access to electricity.

The incidence of refuse removal varies across municipalities and according to wards, and in many areas people have their own refuse dumps (Figure 14). In municipalities like Ntambana (2.19%), Nongoma (4.25%), Hlabisa (5.39%), and Mfolozi (7.18%) the incidence of refuse removal once a week by local authorities or a private company is less than 10%.

Figure 10: Water source – regional/local water scheme, wards (shown in percentage, source: Census 2011)

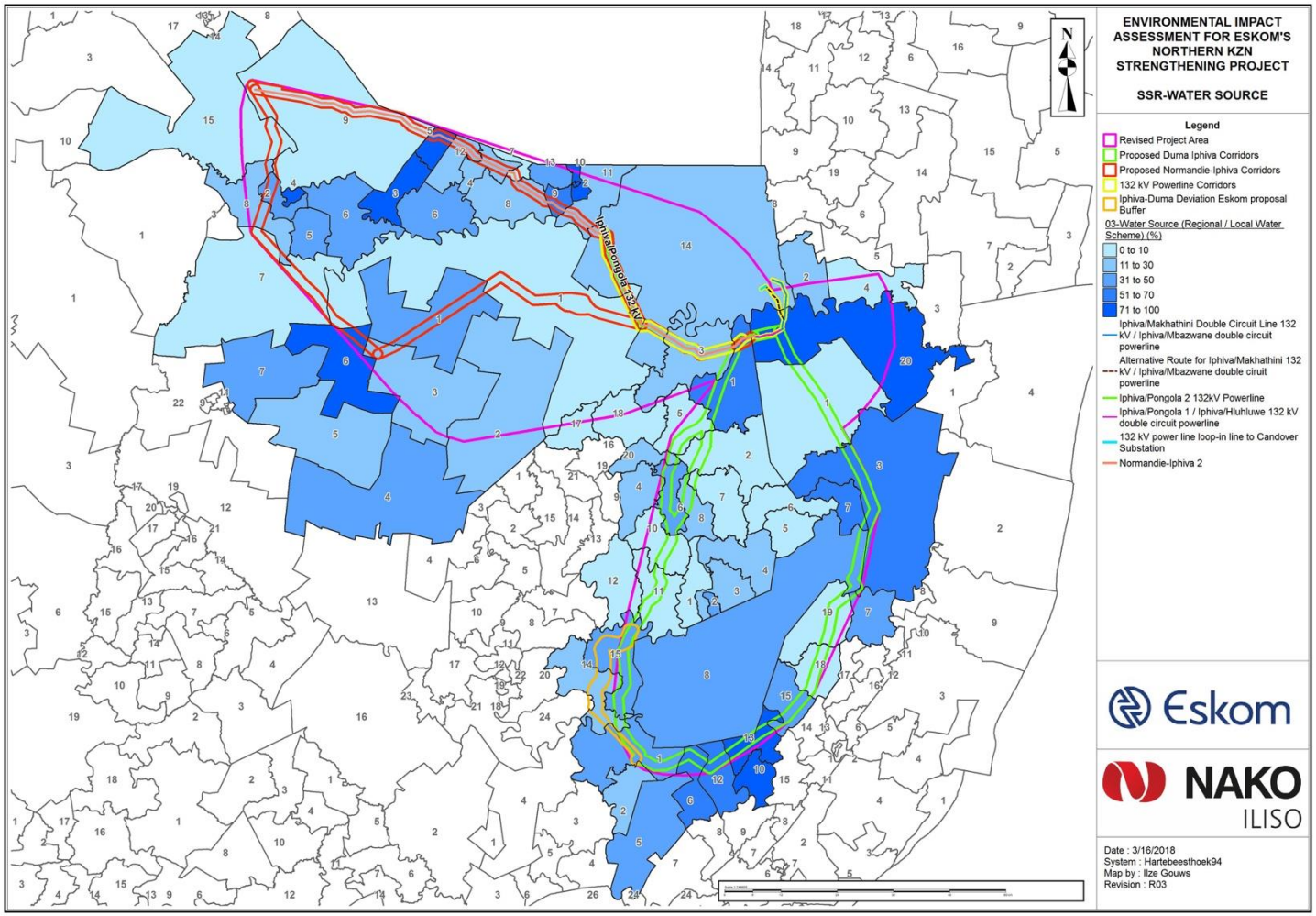


Figure 11: Piped water inside dwelling or yard - wards (shown in percentage, source: Census 2011)

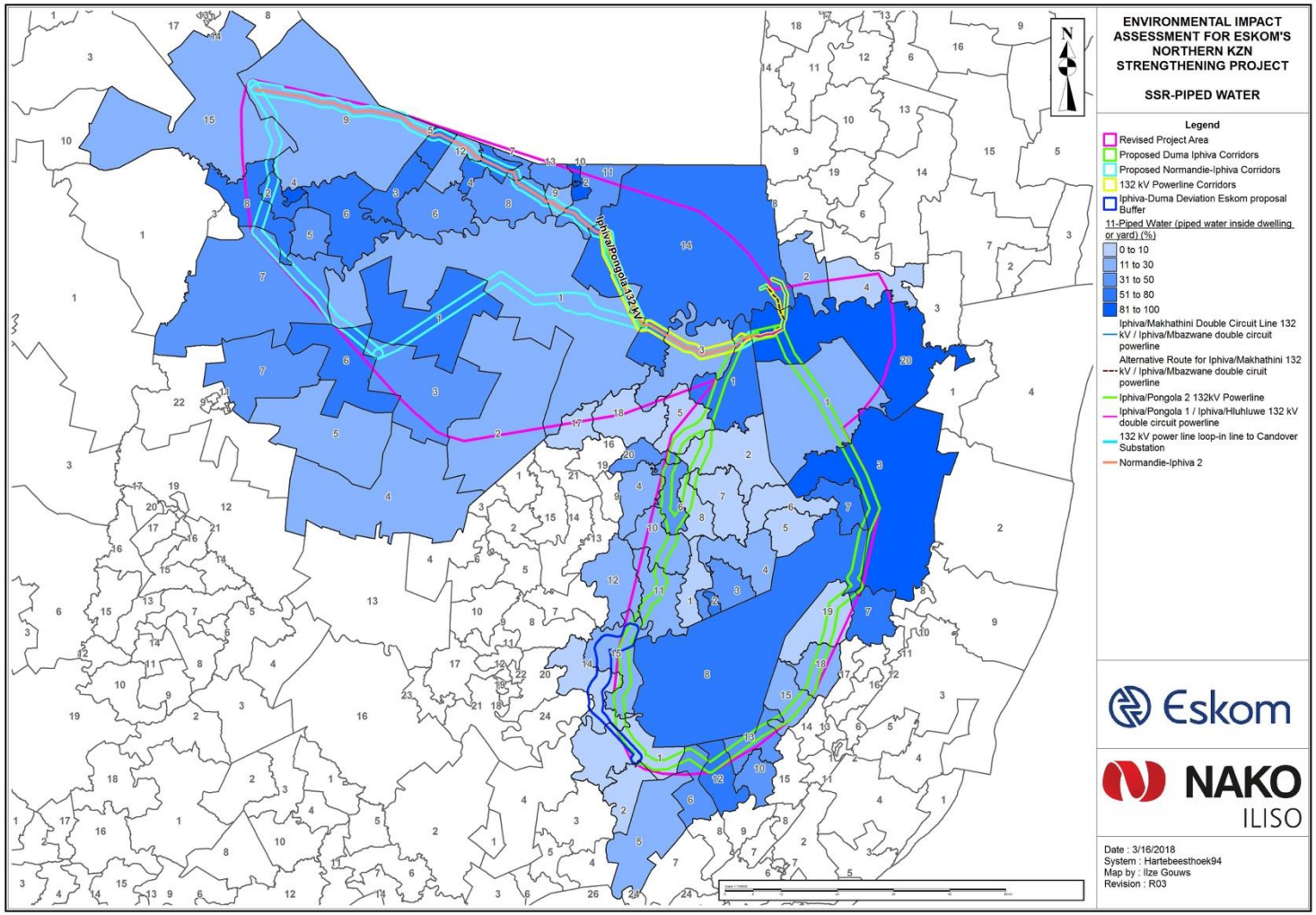


Figure 12: Sanitation – no toilet facilities, wards (shown in percentage, source: Census 2011)

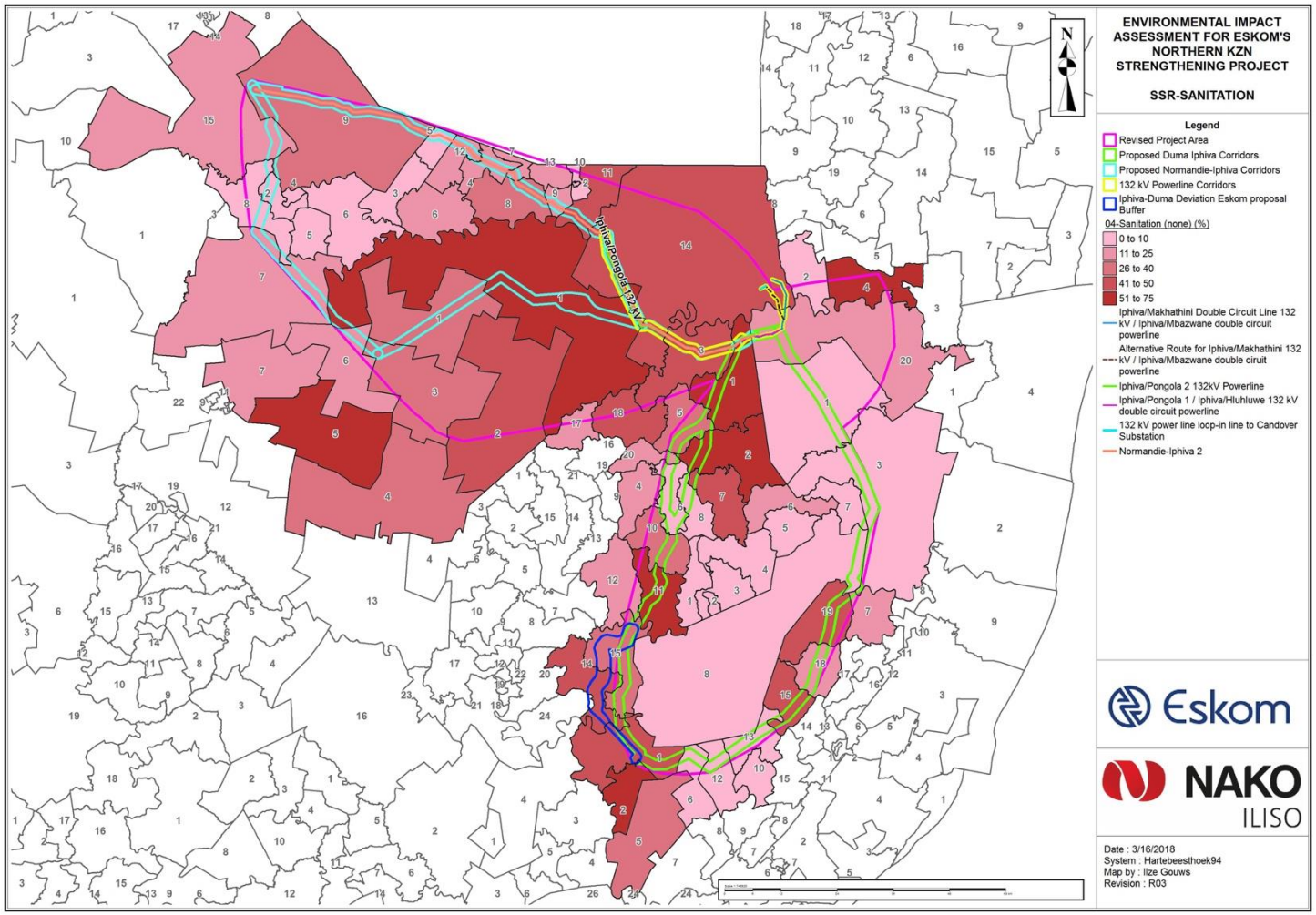


Figure 13: Energy source for lighting – electricity, wards (shown in percentage, source: Census 2011)

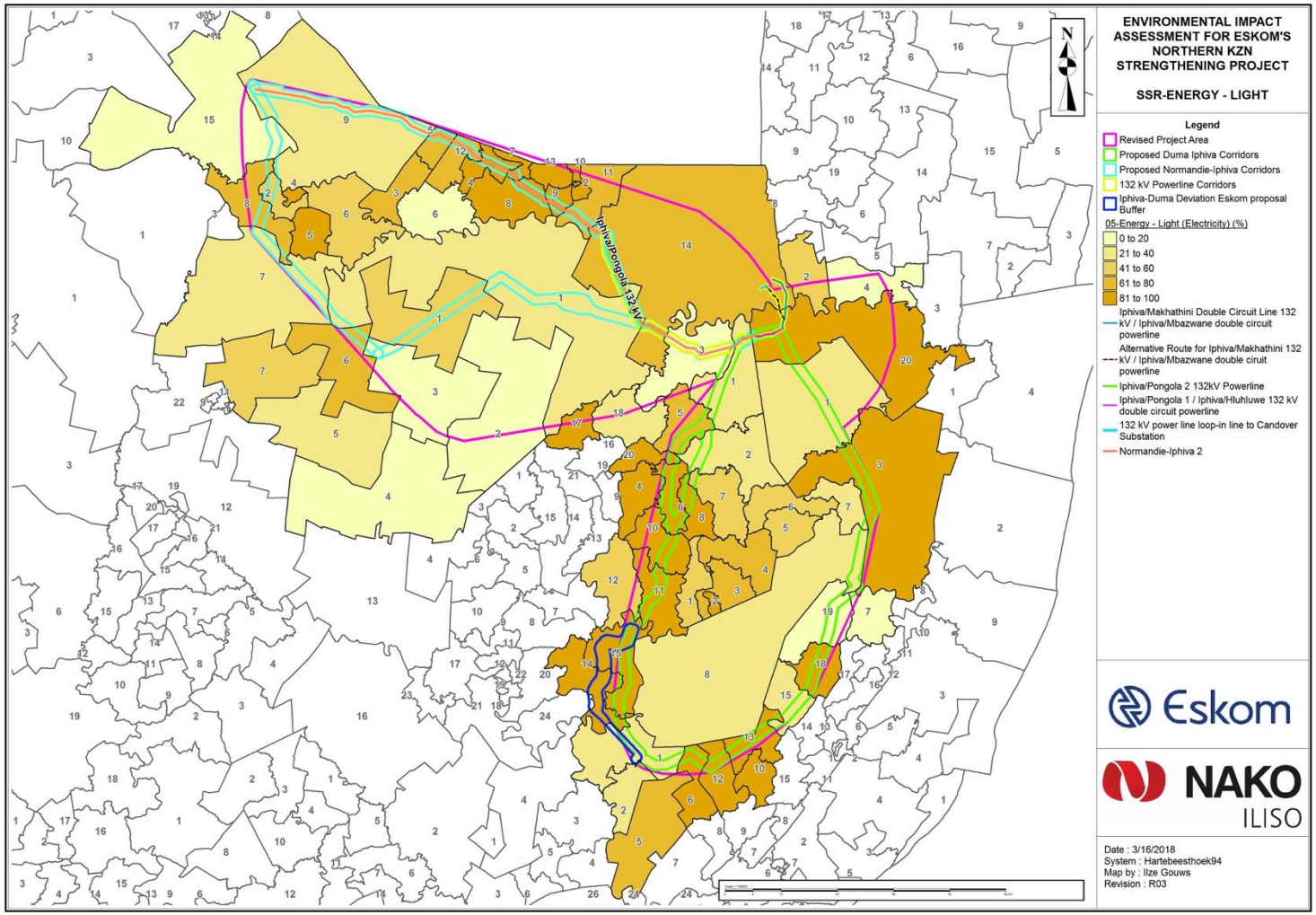
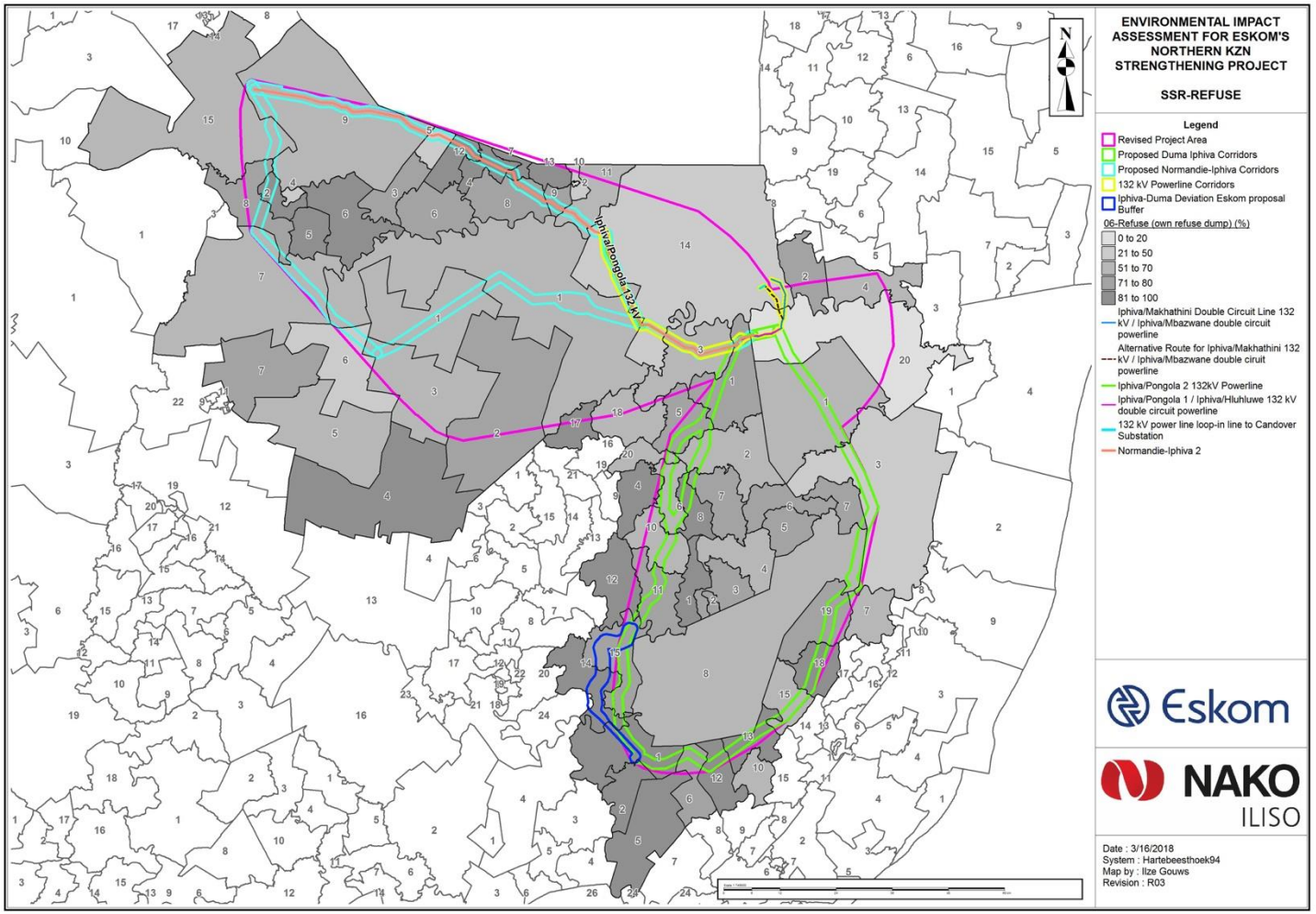


Figure 14: Refuse removal – own refuse dump, wards (shown in percentage, source: Census 2011)



6.3 Discussion of the existing environment

The existing environment for the project is mostly located in the KwaZulu-Natal province, with a small portion located in the Mpumalanga Province. There are only a few large towns in the area. The rest of the area consist of settlements in areas under traditional leadership, commercial farms as well as some game reserves. The land under traditional management belongs to the Ingonyama Trust. Settlement patterns are scattered. Dwellings consist mostly of brick structures or traditional structures. Most people have isiZulu as home language.

Basic and social infrastructure is limited and do not meet the needs of the entire population in the area. Municipalities in the area are faced with challenges that urban municipalities do not have. The settlement patterns make it extremely challenging to provide infrastructure such as piped water and sanitation. Road infrastructure in general need some upgrading and the conditions of the roads make it challenging to reach the communities that need to be served. In some areas relationships with traditional leadership provides an additional challenge. As there are few employment opportunities in these areas, many males have migrated to urban areas in search of employment, resulting in a community that stays behind with more females than males, as well as a very young population group. Other challenges include poverty, unemployment, illiteracy and skills levels and crime.

Most of the municipal areas have shown an increase both in the number of people as well as the number of households. In most areas the household sizes have decreased. This can be due to children leaving their parents' house to stay on their own and start families of their own.

The area is characterised by high levels of poverty as well as deprivation on a number of dimensions which mostly related to access to basic services. Education levels are low and there are very few employment opportunities. In areas under traditional leadership, subsistence farming is a very important livelihood strategy and informal trading plays a much greater role in survival than in urban areas.

In terms of commercial farming, sugar cane and forestry are concerns when it comes to the presence of power lines. Sugar cane need to be burnt, and as such cannot be planted below power lines. Although there are other methods to harvest sugar cane, those are more expensive and labour intensive. Fire is a great risk in terms of forestry, and a spark or a snapped power line could cause extensive damage. Fire is often use as a retribution measure in some areas, and this might also cause damage to power lines.

Game Reserves are also sensitive to the presence of powerlines and some issues have already been experienced, such as veld fires and giraffes being shocked by snapped powerlines. A potential increase in poaching with the presence of strangers such as construction teams and challenges in terms of access control are other concerns. The game reserves are very sensitive to visual disturbances.

6.3.1 Iphiva Substation Site

The Iphiva 3 Substation Site is located in the Jozini LM (Umkhanyakude DM) while the Iphiva 6 Substation Site is located in the Nongoma LM (Zululand DM). The two sites are located close

to one another close to the town of Mkuze. There are no dwellings on the Iphiva 3 Substation Site, while the Iphiva 6 Substation Site is populated. The closest social infrastructure such as clinics and police stations are at Mkuze. The people residing on the Iphiva 6 Substation Site are under traditional leadership.

The Nongoma LM has a very high (88.0) total dependency ratio (proportion of dependents per 100 working-age population). Both the Jozini LM and the Nongoma LM had a high poverty intensity in 2016, indicating people in the area are considered poor on more than one dimension of poverty. The majority of the residents have IsiZulu as home language. Levels of illiteracy is high with low levels of employment especially in the Nongoma LM. As the Iphiva 6 Substation Site is in relative close proximity to a number of private game reserves as well as the town of Mkuze, the levels of employment in the area on and around the site is likely to be slightly higher, but still relatively low.

In Ward 1 of the Nongoma LM where Iphiva 6 Substation Site is located, most households have access to either water from a water scheme, or water from a river or stream. More than 60% of households do not have access to sanitation, those that do, use pit toilets without ventilation or some other system. Most of the households in this ward do not have access to electricity or refuse removal.

6.3.2 Normandie-Iphiva 400 kV Powerline

The Normandie-Iphiva 400 kV Powerline will run from near the town of Piet Retief (Mkhondo LM) in Mpumalanga to just outside the town of Mkuze (Jozini LM) in KwaZulu-Natal. The N-I 2 Option runs parallel with the N2 road to close to the town of Pongola where it will run parallel with the R66 road to a point where it will turn in the direction of the town of Mkuze. The N-I 3 Option runs in the direction of Paulpietersburg more or less parallel with the R33 route. Close to Paulpietersburg it will turn in the direction of the R69 road and then run parallel with the road until it turns in the direction of the town of Mkuze. With both routes most of the powerline will be located in the Zululand District Municipality with a portion in the Gert Sibande and Umkhanyakude District Municipalities respectively.

The N-I 2 Option runs through farm land in Mpumalanga more or less up to the border with KwaZulu-Natal (KZN). From the KZN border up to Pongola, the area is densely populated with areas under traditional leadership of different traditional leaders. From Pongola to Mkuze, the Option runs through farm land and passes private game reserves. It also passes through areas under traditional leadership again, but these areas are not as densely populated as the area adjacent to the N2.

The N-I 3 Option runs through farm land, passes areas under traditional leadership as well as private game reserves.

Although the area next to the N2 road where the N-I 2 Options runs, are densely populated, the Uphongolo LM has the lowest population density in the Zululand DM, but showed the second greatest increase in population size since 2011 and the greatest growth in households. The dependency ratio for the Zululand DM is much higher than for the Mkhondo LM and the Jozini LM, with the lowest dependency ratio on the Mkhondo LM. The poverty intensity is very similar for the different areas that the Powerline will run through.

More than 50% of the population in the KZN area where the line will run through is younger than 20 years of age with more than half of the total population being female. Education levels vary according to ward, but tend to be low in general, as is levels of employment. Access to piped water, sanitation, electricity and refuse removal vary by ward from high to low levels of access.

6.3.3 Iphiva-Duma 400 kV Powerline

The Iphiva-Duma 400 kV Powerline will run from outside the town of Mkhuze in KwaZulu-Natal to the Duma Substation, that is not close to any town. The East Option will run through the Umkhanyakude and the King Cetshwayo (formerly Uthungulu) District Municipalities, while the West 1 and West 2 Options will run through the Zululand and King Cetshwayo District Municipalities. The East Option will run parallel with the N2 road and close to the town of Hluhluwe change direction to the Duma Substation around the Hluhluwe-Imfolozi Game Reserve. The West 1 and West 2 Options will run from close the Mkhuze to the Duma Substation taking a route that appears shorter and more direct than the route for the East Option.

The East Option runs through a number of private game reserves, while the West Option runs past some private game reserves. Both the East and West Options run past the Hluhluwe-iMfolozi Game Reserve and through areas under traditional authority. The majority of households in the areas affected by both options live in areas under traditional authority. The population density for the East Option is the highest when passing through the Mtubatuba (102.63) and Mfolozi (114.7) LMs. For the two West Options, the population density is the highest when passing through the Nongoma (97.11) LM. The dependency ratios are the highest in the Nongoma and Ulundi LMs on the West Options and the lowest in the Mfolozi and formerly Ntambanana LMs on the East Option. The poverty intensity is very similar for the different areas that the powerline will run through and is more than 40% in all areas.

The population in the area is very young, with only the formerly Ntambanana LM and the Hlabisa LM having less than 50% of the population aged 20 years or younger. More than half of the population in all the areas are female. Education levels vary in the different wards, but tend to be low in general, with low levels of employment. Access to piped water, sanitation, electricity and refuse removal vary by ward from high to low levels of access.

6.3.4 132 kV Distribution powerlines

The 132 kV Distribution powerlines will run through the Nongoma LM and the Uphongolo LM (Zululand DM) and the Jozini LM (Umkhanyakude DM). The lines run through areas under traditional authority, past private game reserves and agricultural land. The Nongoma LM has a very high (88.0) total dependency ratio (proportion of dependents per 100 working-age population). Both the Jozini LM and the Nongoma LM had a high poverty intensity (indicating people in the area are considered poor on more than one dimension of poverty) in 2016, with the poverty intensity in the Uphongolo LM a little bit lower. The majority of the residents have IsiZulu as home language. Levels of illiteracy is high with low levels of employment especially in the Nongoma LM.

In Ward 1 of the Nongoma LM where the Distribution lines originate, most households have access to either water from a water scheme, or water from a river or stream. More than 60% of households do not have access to sanitation, those that do, use pit toilets without ventilation or some other system. Most of the households in this ward do not have access to electricity or refuse removal. In Ward 14 of the Uphongolo LM where the Distribution lines end, only about a quarter of households have access to water from a water scheme, while about a quarter get their water from a dam, pool or stagnant water. About two thirds have access to electricity while almost half do not have access to sanitation services.

6.4 Stakeholder Identification and Analysis

Stakeholders include all individuals and groups who are affected by, or can affect, a given operation. Stakeholders consist of individuals, interest groups and organizations (Vanclay, Esteves, Aucamp & Franks, 2015). Stakeholder analysis is a deliberate process of identifying all stakeholders of a project - the individuals and groups that are likely to impact or be impacted by it - and understanding their concerns about the project and/or relationship with it (Vanclay et al, 2015). Stakeholder analysis assists the proponent with understanding the local cultural and political context. It is acknowledged that different stakeholder groups have different interests, and that there are individual differences within stakeholder groups. The purpose of this section of the report is to introduce the stakeholder groups that will be affected by the proposed project.

The proposed project covers a large geographical area and some stakeholders will potentially be affected by more than one of the applications. The purpose of this section is to introduce the stakeholder groups that will be affected by the proposed project and give a snapshot of current conditions. The following key stakeholder groups were identified:

- Communities under traditional authority;
- Commercial farming:
- Tourism establishments; and
- Surrounding urban areas.

6.4.1 Stakeholder groups

6.4.1.1 Communities under traditional authority

Communities under traditional authority in the KZN Province on the surface seem to function the same as traditional authorities in other parts of the country, but the underlying structure is different. The **Ingonyama Trust** was established in 1994 by the then KwaZulu-Natal Government under the KwaZulu Ingonyama Trust Act. The purpose of the trust was to hold all the land that was up to the time owned by the KZN Government, and its mandate was to hold land for 'the benefit, material welfare and social well-being of the members of the tribes and communities' living on the land (www.ingonyamatrust.org.za). The Act was reviewed in 1993 (Amendment Act) to meet all the constitutional requirements both in terms of the Interim and final Constitution of 1996. The land of which the Trust is the nominal owner is mainly administered in terms of Zulu customary law. It is divided according to clans under the leadership of Traditional Leaders (Amakhosi) who are in turn responsible to the King in terms

of customary law. As such the King is the only trustee of the Ingonyama Trust. In 1997 the Act was amended to create a Board separate from the Trust to administer the trust and its assets which include land and the King was for all practical purposes relieved of all hands-on administration, which was left to the Board members, none of which were trustees.

Land is owned communally by a specific clan as a collective. Each member of the clan is entitled through procedures under customary law to have ownership of his/her allotment. While not each and every member of the clan will have a registered title deed in respect of his/her allotment, such ownership is protected by law. The mandate of the trust is not only confined to land ownership. It is furthermore a requirement that the formal consent of the relevant Traditional Council must be obtained before a tenure rights application can be processed. Formal consent is only required where the land of interest falls within a proclaimed Traditional Council area and applicants should confirm this with the Board's Secretariat before approaching the Traditional Council.

As the proposed powerlines will cross large portions of land under traditional leadership, the Ingonyama Trust, its Board and the Traditional Councils are the most important stakeholder groups for the project.

Many community members make a living from subsistence farming growing crops such as maize and beans, or keeping cattle, goats or chickens.

Iphiva Substation Site

Although Site 6 seems to fall in an area that is under the stewardship of the Mandlakazi Traditional Authority, it is privately owned by a commercial farmer while Site 3 is belongs to the Mbulungwane Communal Property Trust. There are people residing on Site 6, but Site 3 is vacant.

Normandie-Iphiva 400 kV Powerline

The area on the N-I 2 option from approximately the border of KZN up to Pongola is densely populated and members from a number of different Traditional Authorities, such as the Dlamini, Simelane, Ntshangase, Ndlangamandla, Sibiya, Msibi and Mavuso Traditional Authorities, will be affected. Although the Dlamini Traditional Authority is located closer to Paulpietersburg/ Dumbe, there is a piece of land on the N-I 2 that they claim ownership of, but that is currently disputed.

On the N-I 3 option, the Mthethwa Traditional Council is of interest.

Iphiva-Duma 400 kV Powerline

The area on the I-D East option from just outside Hluhluwe up to the Duma substation is mostly under traditional authority. Settlements are scattered throughout the area with a high density from the Nsolweni area up to the uMfolozi River. This dense area is under the stewardship of the Mpukunyoni Traditional Authority. Other traditional authorities in the study area of the I-D East option include the Mthethwa/Mhlana and Mthembu/Somopho Traditional Authorities.

Almost the whole area on the I-D West option is under traditional authority, but the area is not very densely populated, except for a portion on the West 1 Option. Traditional authorities on

this option include the Mthembu/Somopho, Ximba, Zungu and Mandlakazi Traditional Authorities.

132 kV Distribution powerlines

If the lines start at the Iphiva 6 substation, a small portion of the line will run through an area under the stewardship of the Mandlakazi Traditional Authority.

6.4.1.2 Commercial Farming

The larger area is mainly characterised by timber and sugar cane farming. Other commodities being farmed include cattle, maize and soya beans. The impacts on the farming practices depend on the commodity. Many of the commercial farmers in the area belong to farmers' associations that are area-specific or commodity specific.

Large areas around Piet Retief and between Piet Retief and Paulpietersburg are used for forestry / **timber farming**. These farmers have plantations on their properties and farm with trees. Tree farming is a long-term business as it takes a number of years for trees to mature. Plantations are in different stages of maturity, and therefore the economic impact of losing trees will be felt in the long-term, should this occur. Timber farmers are obliged to conform to strict international standards as prescribed by the Forestry Stewardship Council in order to certify and export their products. They are obliged to have water permits and these specify where they are allowed to cultivate trees. These permits are area specific, and if they lose land they are not allowed to plant new plantations without the necessary permits. These permits are costly and not easy to obtain. The biggest risk to a timber farmer is fire. Their products take a relative long time to reach maturity and a single fire can destroy their entire crop. They are therefore obliged to buy comprehensive public liability insurance – which becomes more costly if an Eskom line crosses a property. Light aircraft are used for fire fighting and these machines need to fly at as low as possible (between 25 and 50m). There must be firebreaks around plantations and these must be kept clear of vegetation and other materials that can burn easily. The local socio-political environment is such that community members are aware of the potential devastating impact of fires, and a culture of using fire as a retribution measure has developed in certain areas. A fire in a forestry area has a big impact on livelihoods and community cohesion. In these already politicised areas the first reaction on a fire is that it results from racial tension and it therefore immediately polarise the community into ethnic groups. This leads to social tension, and when people find out that the fire might have been caused by a natural occurrence, it is often too late and damage to community structures have already been done. Forestry areas are not fenced and access control in these areas is problematic.

Sugar cane farming is mostly found in the areas around Pongola and Mkuze. Sugar cane is traditionally burned before it is harvested, which poses a problem when power lines traverse sugar cane fields. Green harvesting is possible, but more costly and it is difficult to find labour that is willing to do the work, as it is much harder than harvesting after the cane was burnt. Machinery cannot be utilised in hilly areas. Sugar cane is often irrigated, for which farmers pay per hectare. The Department of Agriculture requires permits for the establishment of new sugar

cane fields, but land for expansion may not be available in the area. Most of South Africa's sugar cane farming takes place in KwaZulu-Natal.

Iphiva Substation Site

No commercial farming activities were taking place on either of the sites at the time of assessment.

Normandie-Iphiva 400 kV Powerline

The area around the Normandie substation is characterised by forestry. On the I-D 2 option farmers mainly belong to the Moolman Farmers' Association and on the I-D 3 option, farmers mainly belong to the Commondale Farmers' Association. Many of the plantations in the Commondale area belong to forestry companies. Sugar cane farming takes place in the area around Pongola on the I-D 2 option. In addition to commercial farming, there are some emerging farmers that farm with sugar cane adjacent to the N2 just before Pongola when coming from the direction of Piet Retief. They mostly belong to the Phumelela Farmers Association.

Iphiva-Duma 400 kV Powerline

There are very little commercial farming activities on the I-D West option, with some commercial farming on the I-D East option close to Hluhluwe.

132 kV Distribution powerlines

The proposed double circuit line for Iphiva/Mbazwana and Iphiva/Makhitini will traverse through farming areas, mostly sugar cane.

6.4.1.3 Tourism

The area includes several scenic places that are known for their attraction to tourists. The tourism industry in the area is developed around the sense of place, natural beauty and natural resources. Most of the tourism establishments are private game reserves that cater for the top-end of the market. Some of the game reserves have been declared as protected areas, but not all of them. In addition, the area includes the Hluhluwe-iMfolozi Game Reserve, which is a public game reserve. Tourism establishments are mainly concerned about the visual impact of the proposed power lines on sense of place resulting in an impact on their livelihoods and establishments. Another concern is an increased risk for poaching, as some of the reserves are home to dangerous animals such as lions, elephants and rhinos. These areas are access-controlled and access to servitudes will be a specific issue.

Iphiva Substation Site

No tourism establishments are directly adjacent to either of the site options.

Normandie-Iphiva 400 kV Powerline

The N-I 2 option runs past some tourism establishments between Pongola and Mkhuze, such as the Mkhuze Falls Private Reserve. The N-I 3 option runs past the Ithala Game Reserve and then past more tourism establishments up to Mkuze.

Iphiva-Duma 400 kV Powerline

The I-D East option runs on the inside of a number of private game reserves, such as the Manyoni Private Game Reserve and the Thanda Safari Private Game Reserve, of which the Mduna Royal Game Reserve forms part.

The Manyoni Private Game Reserve was previously known as the Zululand Rhino Reserve. The reserve came into being as a result of 17 landowners dropping their fences to create one protected area for wildlife (www.manyoni.co.za). The reserve is managed centrally in terms of wild life, fences, finances, etc. The shareholders manage their tourism offerings (lodges, accommodation) separately, but according to the guidelines of the reserve. One of the lodges, Rhino River Lodge, offers a complete wilderness experience and is operated by solar power.

The Mduna Royal Game Reserve used to be a Nguni testing and breeding station. With the assistance of the Wildlands Conservation Trust, the Department of Agriculture, the German Development Agency (GTZ), the Ingonyama Trust Board and the Zulu King, Thanda Safari Private Game Reserve has returned the land to wilderness (www.thanda.com). Thanda manages the wildlife, security, anti-poaching and operational reserve requirements inherent in its 90-year lease in return for exclusive traversing rights for its guests. Ipiva, the Zulu King's personal game reserve, is located within the Mduna Royal Game Reserve.

A public game reserve, the Hluhluwe-iMfolozi Game Reserve, is along the route of the I-D East as well as the I-D West options. The reserve actually consists of two separate game reserves, namely the Hluhluwe Game Reserve and the iMfolozi Game Reserve, and visitors can traverse through both reserves without leaving one or the other. The reserve is managed by Ezemvelo KZN Wildlife.

The I-D West option runs adjacent to the road (P234) between the Manyoni Private Game Reserve and the Zimanga Private Game Reserve. As both these reserves border on the road/ road reserve, the powerlines in this corridor will have to be inside one of the two game reserves. There was a request that the powerlines in this section should be buried. Closer to the Duma substation it runs past the iMfolozi Game Reserve. The Zimanga Game Reserve is in the process of applying for protected status and has indicated that there are several endangered bird species nesting in the proposed reserve area. Zimanga advertises itself as wildlife photographic destination (www.zimanga.com) and targets the high end of the tourism market.

132 kV Distribution powerlines

The distribution powerlines will run adjacent to the road (P234) between the Manyoni Private Game Reserve and the Zimanga Game Reserve. . As both these reserves border on the road/ road reserve, the powerlines in this corridor will have to be inside one of the two game reserves.

6.4.1.4 Surrounding urban areas

There are a number of towns and settlements in the area that may host some of the construction workers during the construction of the powerlines and substation, or may experience a temporary increase in people during the construction phase.

Iphiva Substation Site

The two proposed sites for the Iphiva Substation are in close proximity to the town of Mkuze.

Normandie-Iphiva 400 kV Powerline

The main towns and settlements in close proximity or along the route of the N-I 2 option are Piet Retief, Pongola, Magudu and Mkhuze. For the N-I 3 option it is Piet Retief, Paulpietersburg, Louwsburg/Ngotse and Mkuze.

Iphiva-Duma 400 kV Powerline

The main towns and settlements in close proximity or along the route of the I-D East are Mkuze and Hluhluwe. There are a number of rural settlements along this route. The area is populated, but there seems to be little infrastructure. For the I-D West option it is Mkuze, Hlabisa and Nongoma. There are some rural settlements, but seemingly less than on the I-D East option.

132 kV Distribution powerlines

The distribution lines are in close proximity to the town of Mkuze.

7. IMPACT ASSESSMENT

Environmental Impact Assessment Regulations, 2014, published under Government Notice No. 982 in Gazette No. 3822 of 4 December 2014, in terms of sections 24(5) and 44 of the National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended by Appendix 6 of GN 326 of 7 April 2017:

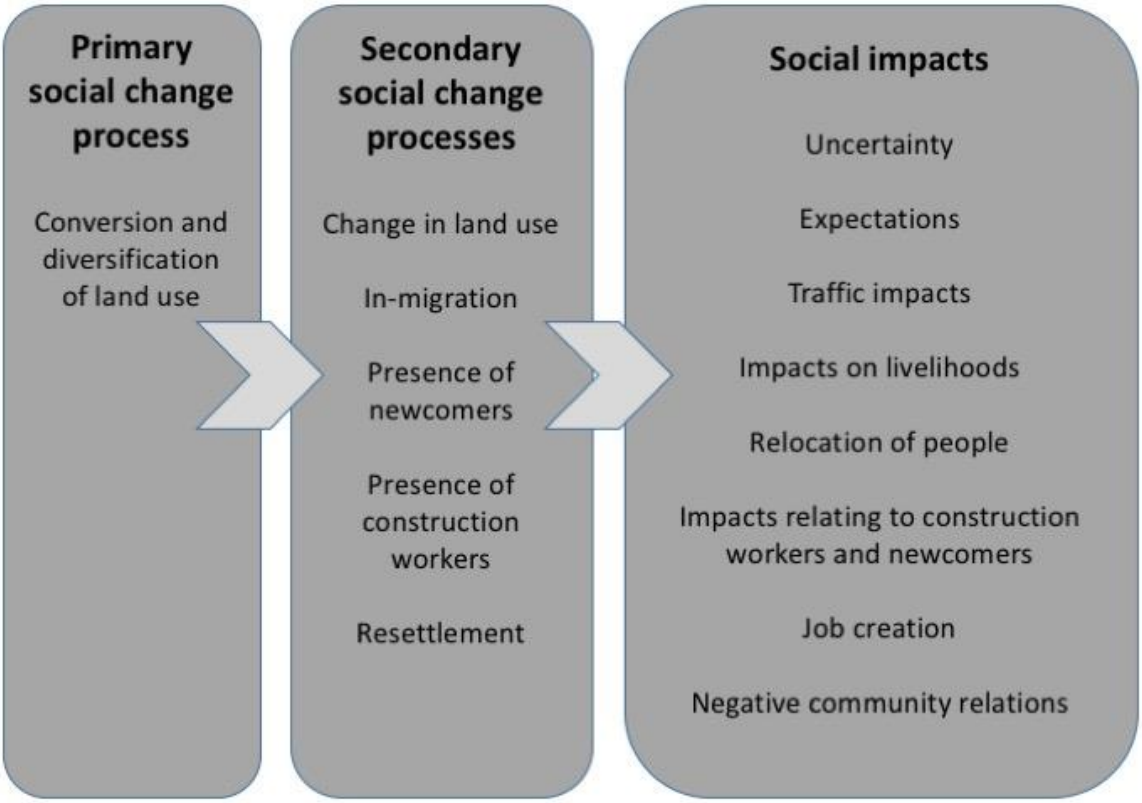
1. (1) A specialist report prepared in terms of these Regulations must contain—

(f) details of an assessment of the specific identified sensitivity of the site related to the proposed activity or activities and its associated structures and infrastructure, inclusive of a site plan identifying site alternatives;
(g) an identification of any areas to be avoided, including buffers;
(h) a map superimposing the activity including the associated structures and infrastructure on the environmental sensitivities of the site including areas to be avoided, including buffers;
(j) a description of the findings and potential implications of such findings on the impact of the proposed activity or activities;

The proposed project activities set into motion certain social change processes, and these change processes can lead to the experience of social impacts. Social impacts are context specific and may be experienced differently by different groups in the area. It must further be considered that the social environment is very dynamic and is constantly changing.

The social change processes and anticipated social impacts are shown in **Figure 15** below.

Figure 15: Social change processes and social impacts



The primary social change process that the project sets in motion is a change in land use. This sets into motion more social change processes, namely resettlement, the presence of construction workers and newcomers and a possible in-migration of people to the area. These social processes result in a number of social impacts throughout the life cycle of the project. Only the most significant impacts will be discussed in this report. The impacts have been clustered together in groups of impacts for the sake of simplicity.

7.1 Planning, design and pre-construction phases

7.1.1 Iphiva Substation Site

Qualitative discussion of impacts

Impact	Stakeholder group	Description
Uncertainty	All	The presence of two alternatives creates uncertainty with the potentially affected landowners as they need to keep the possibility of the change in land use in mind when planning future activities. Very few people want to spend money on expansions or improvements on land that may not be available to them in the relatively near future. The Manyoni Private Game Reserve is assisting the community with business plans to develop the area around the Iphiva 3 site. These plans cannot be finalised or taken forward until a final site has been selected. According to the members of the traditional community in the area, the Iphiva 6 site is under a land claim, meaning there is uncertainty surrounding the proposed site even without the proposed project. Eskom should attempt to finalise the site selection as soon as possible and swiftly enter into negotiations with the relevant land owners. Once the land negotiations have been finalised, it is important that the project should started and completed as soon as possible. Before construction has started there is always the possibility of a change in plans or priorities, which would result in prolonging uncertainty. Eskom should have a communication strategy in place to keep stakeholders up to date with the process.
Expectations	Community members	The traditional communities have an expectation that Eskom will follow the correct procedure to engage with traditional leadership structures to obtain permission to use their land for the intended purpose.

		The traditional community members in the area close to the proposed sites do not currently have access to electricity. They are hopeful that Eskom would be able to address this and assist the community further in terms of their Corporate Social Responsibility. Eskom should have a strategy in place for engaging with traditional leadership structures. They must ensure that they are familiar with the right processes to follow. It must be considered that this will take some time, and sufficient time should be allowed in the negotiation process to engage with the leadership and allow the leadership to consult with their constituencies. It must be acknowledged that this process may take longer than engaging with most of the other landowners. Following the right process also include respect for local customs and Eskom's representatives should know what is expected from them in terms of behaviour and dress code. Eskom should manage expectations in terms of their Corporate Social Responsibility. There should be a system that will allow community members to bring their need or proposed project to the attention of Eskom. Eskom should be clear about the criteria for further consideration and should keep the community up to date with the status of their application. Requests for assistance should be treated with respect and not disappear in a black hole. It is acknowledged that there are limits to the extent to which Eskom can accommodate projects in their CSR programme, and these should be communicated to the relevant stakeholders. Eskom should manage expectations and need to find a balance between making promises that they cannot keep and not being involved at all.

Quantitative assessment of impacts

Impact Description Uncertainty			**Mitigation**					
			Avoid					
			Minimise	Attempt to finalise site selection and start project as soon as possible.				
			Restore/Rehabilitate					
			Compensate/Offset					
Nature	**Extent**	**Duration**	**Intensity**	**Potential for Irreplaceable loss**	**Probability**	**Confidence**	**Consequence**	**Significance**
Iphiva Site 3								

Without Mitigation	3	1	2	1	4	2	7	28
With Mitigation	3	1	2	1	3	2	7	21
Iphiva Site 6								
Without Mitigation	3	1	2	1	4	2	7	28
With Mitigation	3	1	2	1	3	2	7	21

Impact Description Expectations			**Mitigation**					
			Avoid					
			Minimise	Manage expectations in terms of Corporate Social Responsibility. There should be a system that will allow community members to bring their need or proposed project to the attention of Eskom. Eskom should be clear about the criteria for further consideration and should keep the community up to date with the status of their application. Requests for assistance should be treated with respect and not disappear in a black hole. It is acknowledged that there are limits to the extent to which Eskom can accommodate projects in their CSR programme, and these should be communicated to the relevant stakeholders. Eskom should manage expectations and need to find a balance between making promises that they cannot keep and not being involved at all.				
			Restore/Rehabilitate					
			Compensate/Offset					
Nature	**Extent**	**Duration**	**Intensity**	**Potential for Irreplaceable loss**	**Probability**	**Confidence**	**Consequence**	**Significance**
Iphiva Site 3								
Without Mitigation	3	2	2	1	4	2	8	32
With Mitigation	3	2	2	1	3	2	8	24
Iphiva Site 6								
Without Mitigation	3	2	2	1	4	2	8	32
With Mitigation	3	2	2	1	3	2	8	24

7.1.2 Normandie-Iphiva 400 kV Powerline

Qualitative discussion of impacts

Impact	Stakeholder group	Description
Uncertainty	All	The presence of two alternatives creates uncertainty with the potentially affected landowners as they need to keep the possibility of the change in land use in mind when planning future activities. Very few people want to spend money on expansions or improvements on land that may not be available to them in the relatively near future. Eskom should attempt to finalise the route selection as soon as possible and swiftly enter into negotiations with the relevant land owners. Once the land negotiations have been finalised, it is important that the project should started and completed as soon as possible. Before construction has started there is always the possibility of a change in plans or priorities, which would result in prolonging uncertainty. Eskom should have a communication strategy in place to keep stakeholders up to date with the process.
Expectations	Traditional community groups	The traditional communities have an expectation that Eskom will follow the correct procedure to engage with traditional leadership structures to obtain permission to use their land for the intended purpose. Communities along the N-I 2 option have expressed the expectation that Eskom would assist the communities through their Corporate Social Responsibility Programme. In one of the areas, for example, there is a special needs school, the Siphosethu Special School, that looks after the needs of children with learning disabilities and physical challenges and serves the whole Pongola area. The school has virtually no infrastructure and is subsidised by the community. The community has expressed the hope that Eskom could assist them. Communities along the N-I 3 option have similar expectations, but there are less communities along this route. Eskom should have a strategy in place for engaging with traditional leadership structures. They must ensure that they are familiar with the right processes to follow. It must be considered that this will take

		some time, and sufficient time should be allowed in the negotiation process to engage with the leadership and allow the leadership to consult with their constituencies. It must be acknowledged that this process may take longer than engaging with most of the other landowners. Following the right process also include respect for local customs and Eskom's representatives should know what is expected from them in terms of behaviour and dress code. Eskom should manage expectations in terms of their Corporate Social Responsibility. There should be a system that will allow community members to bring their need or proposed project to the attention of Eskom. Eskom should be clear about the criteria for further consideration and should keep the community up to date with the status of their application. Requests for assistance should be treated with respect and not disappear in a black hole. It is acknowledged that there are limits to the extent to which Eskom can accommodate projects in their CSR programme, and these should be communicated to the relevant stakeholders. Eskom should manage expectations and need to find a balance between making promises that they cannot keep and not being involved at all.

Quantitative assessment of impacts

Impact Description Uncertainty			**Mitigation**					
			Avoid					
			Minimise	Attempt to finalise route selection and start project as soon as possible.				
			Restore/Rehabilitate					
			Compensate/Offset					
Nature	**Extent**	**Duration**	**Intensity**	**Potential for Irreplaceable loss**	**Probability**	**Confidence**	**Consequence**	**Significance**
N-I 2								
Without Mitigation	3	1	2	1	4	2	7	28
With Mitigation	3	1	2	1	3	2	7	21
N-I 3								
Without Mitigation	3	1	2	1	4	2	7	28
With Mitigation	3	1	2	1	3	2	7	21

Impact Description Expectations			**Mitigation**					
			Avoid					
			Minimise	Manage expectations in terms of Corporate Social Responsibility. There should be a system that will allow community members to bring their need or proposed project to the attention of Eskom. Eskom should be clear about the criteria for further consideration and should keep the community up to date with the status of their application. Requests for assistance should be treated with respect and not disappear in a black hole. It is acknowledged that there are limits to the extent to which Eskom can accommodate projects in their CSR programme, and these should be communicated to the relevant stakeholders. Eskom should manage expectations and need to find a balance between making promises that they cannot keep and not being involved at all.				
			Restore/Rehabilitate					
			Compensate/Offset					
Nature	**Extent**	**Duration**	**Intensity**	**Potential for Irreplaceable loss**	**Probability**	**Confidence**	**Consequence**	**Significance**
N-I 2								
Without Mitigation	3	2	3	1	4	2	9	36
With Mitigation	3	2	2	1	3	2	8	24
N-I 3								
Without Mitigation	3	2	2	1	4	2	8	32
With Mitigation	3	2	2	1	3	2	8	24

7.1.3 Iphiva-Duma 400 kV Powerline

Qualitative discussion of impacts

Impact	Stakeholder group	Description
Uncertainty	All	The presence of two alternatives creates uncertainty with the potentially affected landowners as they need to keep the possibility of the change in land use in mind when planning future activities. Very few people want to spend money on expansions or improvements on land that may not be available to them in the relatively near future. Eskom should attempt to finalise the route selection as soon as possible and swiftly enter into negotiations with the relevant land owners. Once the land negotiations have been finalised, it is important that the project should started and completed as soon as possible. Before construction has started there is always the possibility of a change in plans or priorities, which would result in prolonging uncertainty. Eskom should have a communication strategy in place to keep stakeholders up to date with the process.
Expectations	Traditional communities	The traditional communities have an expectation that Eskom will follow the correct procedure to engage with traditional leadership structures to obtain permission to use their land for the intended purpose. The communities are hopeful that Eskom would be able to assist the communities in terms of their Corporate Social Responsibility. Eskom should have a strategy in place for engaging with traditional leadership structures. They must ensure that they are familiar with the right processes to follow. It must be considered that this will take some time, and sufficient time should be allowed in the negotiation process to engage with the leadership and allow the leadership to consult with their constituencies. It must be acknowledged that this process may take longer than engaging with most of the other landowners. Following the right process also include respect for local customs and Eskom's representatives should know what is expected from them in terms of behaviour and dress code.

		Eskom should manage expectations in terms of their Corporate Social Responsibility. There should be a system that will allow community members to bring their need or proposed project to the attention of Eskom. Eskom should be clear about the criteria for further consideration and should keep the community up to date with the status of their application. Requests for assistance should be treated with respect and not disappear in a black hole. It is acknowledged that there are limits to the extent to which Eskom can accommodate projects in their CSR programme, and these should be communicated to the relevant stakeholders. Eskom should manage expectations and need to find a balance between making promises that they cannot keep and not being involved at all.
Feelings in relation to planned intervention		

Quantitative assessment of impacts

Impact Description Uncertainty			**Mitigation**					
			Avoid					
			Minimise	Attempt to finalise route selection and start project as soon as possible.				
			Restore/Rehabilitate					
			Compensate/Offset					
Nature	**Extent**	**Duration**	**Intensity**	**Potential for Irreplaceable loss**	**Probability**	**Confidence**	**Consequence**	**Significance**
I-D East								
Without Mitigation	3	1	2	1	4	2	7	28
With Mitigation	3	1	2	1	3	2	7	21
I-D West								
Without Mitigation	3	1	2	1	4	2	7	28
With Mitigation	3	1	2	1	3	2	7	21

Impact Description Expectations			**Mitigation**					
			Avoid					
			Minimise	Manage expectations in terms of Corporate Social Responsibility. There should be a system that will allow community members to bring their need or proposed project to the attention of Eskom. Eskom should be clear about the criteria for further consideration and should keep the community up to date with the status of their application. Requests for assistance should be treated with respect and not disappear in a black hole. It is acknowledged that there are limits to the extent to which Eskom can accommodate projects in their CSR programme, and these should be communicated to the relevant stakeholders. Eskom should manage expectations and need to find a balance between making promises that they cannot keep and not being involved at all.				
			Restore/Rehabilitate					
			Compensate/Offset					
Nature	**Extent**	**Duration**	**Intensity**	**Potential for Irreplaceable loss**	**Probability**	**Confidence**	**Consequence**	**Significance**
I-D East								
Without Mitigation	3	2	2	1	4	2	8	32
With Mitigation	3	2	2	1	3	2	8	24
I-D West								
Without Mitigation	3	2	2	1	4	2	8	32
With Mitigation	3	2	2	1	3	2	8	24

7.1.4 132 kV Distribution powerlines

Qualitative discussion of impacts

Impact	Stakeholder group	Description
Uncertainty	All	The presence of two alternatives creates uncertainty with the potentially affected landowners as they need to keep the possibility of the change in land use in mind when planning future activities. Very few people want to spend money on expansions or improvements on land that may not be available to them in the relatively near future. Eskom should attempt to finalise the route selection as soon as possible and swiftly enter into negotiations with the relevant land owners. Once the land negotiations have been finalised, it is important that the project should started and completed as soon as possible. Before construction has started there is always the possibility of a change in plans or priorities, which would result in prolonging uncertainty. Eskom should have a communication strategy in place to keep stakeholders up to date with the process.

Quantitative assessment of impacts

Impact Description Uncertainty			**Mitigation**					
			Avoid					
			Minimise	Attempt to finalise route selection and start project as soon as possible.				
			Restore/Rehabilitate					
			Compensate/Offset					
Nature	**Extent**	**Duration**	**Intensity**	**Potential for Irreplaceable loss**	**Probability**	**Confidence**	**Consequence**	**Significance**
East Option								
Without Mitigation	3	1	2	1	4	2	7	28
With Mitigation	3	1	2	1	3	2	7	21
West Option								
Without Mitigation	3	1	2	1	4	2	7	28
With Mitigation	3	1	2	1	3	2	7	21

7.2 Construction phase

7.2.1 Iphiva Substation Site

Qualitative discussion of impacts

Impact	Stakeholder group	Description
Traffic impacts	All	The road up to both sites is a gravel road, and although it seems to be a relatively busy road, it was not designed for heavy vehicles. Heavy vehicles using this road can lead to damage and deterioration of the road. The area is populated and there are many pedestrians. Employees of Eskom and Eskom's contractors must ensure that they drive safely and comply with the speed restrictions on these roads. Eskom should have an enforceable road use policy in place that includes fines for transgressors.
Impacts on livelihoods	Traditional communities	A livelihood refers to the way of life of a person or household and how they make a living, in particular, how they secure the basic necessities of life, e.g. their food, water, shelter and clothing, and live in the community (Vanclay et al., 2015). The Iphiva 6 site is populated with people from communities under traditional authority. Livelihood activities of people in the traditional communities include farming with chickens, goats, cattle, maize and beans. Families in traditional communities are in general poor on many levels and not resilient to impacts on their livelihoods. Any impacts on their livelihoods should be treated with extreme caution to ensure that they are not worse off than before. The Iphiva 6 site is furthermore privately owned, and should this site be selected, fair compensation should be negotiated with the owner.
Relocation of people	Traditional communities	Relocation can be a traumatic experience for the people that have to be relocated, disrupting their sense of place, their social networks and community connectedness. Families have often lived in an area for many years and they are in close proximity to their extended family and friends. If they have

		to move to somewhere further away, they have to establish new social networks. In addition, relocation of people can have an impact on their ability to make a livelihood. The Iphiva 6 site is populated and people will need to be relocated if this site is selected. If relocation cannot be avoided, Eskom should follow the correct procedures for engaging with the community through their leadership structures. The leadership will decide whether the families can be moved and the individual families would not have much of a say in the decision. An important aspect to take into consideration is the moving of graves. In some areas graves can be found at the homesteads and in other areas graves are limited to a graveyard. Moving graves is a very sensitive issue in these communities, and whether permission will be given to move the graves should be part of the negotiation process when considering the placement of the substation. Sacred sites such as initiation sites should be identified early in the process, as it is unlikely that these sites could be moved. The communities have indicated that compensation will play an important role when deciding whether families can be moved. It is expected that the families will be in the same situation or better off. Families should be able to continue their livelihood activities in the same way than currently. Communities have indicated that Eskom should relocate people according to a set policy.
Impacts relating to construction camps and newcomers	Traditional communities	Although the communities did not highlight this as a great concern, there are a number of social impacts that are associated with the presence of construction workers which should be taken into consideration. Construction workers usually travel from site to site and their culture is likely to be different from that of the host community. This could result in conflict if their values clash with that of the host community. In areas with high levels of poverty, young females are often attracted to construction workers as they can provide them with a lifestyle that the local young men can't. The presence of construction workers can result in an increase in the incidence of sexually transmitted diseases, HIV and AIDS, and unwanted pregnancies. Eskom should have guidelines for the general conduct of the construction workers and their interaction with the surrounding communities. If there is a construction camp close to the site, it should be set up and managed according to international best practice. The town of Mkhuze is close by, and if possible, the construction workers should stay there, making use of existing infrastructure, rather than erecting a construction camp.

	Urban communities	A temporary increase in economically active people in the area can have a positive impact on trade and businesses that offer accommodation. Construction workers often just spend the most necessary amounts and send the rest of the money home to their families. The presence of construction workers may temporarily put more pressure on existing infrastructure such as the availability of housing, sanitation, water and waste management.
Creation of jobs	Local communities	Local communities have expectations that some of their members will be employed during the construction phase. Although they realise that the project will require specialised skills that they don't have, they are of the opinion that there should be a few jobs that require unskilled or semi-skilled labour that members from the community could perform. Where possible, Eskom should recruit local labour for unskilled or semi-skilled positions on the project. Preference should be given to locals that are currently unemployed. The recruitment process should be agreed with local leadership structures. Potential jobs should be advertised in an accessible way and no false expectations should be created. Indirect employment/entrepreneurship opportunities must be enhanced. Eskom and the contractor must support local entrepreneurs as far as possible. Eskom should consider a local economic development programme that can stretch across the entire project. An example would be to buy a mobile kitchen, and train women along the construction route to cater for the construction forces. This kitchen can move with the labour force and women in different areas will be given the opportunity to get trained and earn an income.

Quantitative assessment of impacts

Impact Description Traffic impacts	**Mitigation**	
	Avoid	
	Minimise	Attempt to transport equipment during off-peak times. Put rules and consequences in place for employees and contractors in terms of road use.
	Restore/Rehabilitate	
	Compensate/Offset	

Nature	Extent	Duration	Intensity	Potential for Irreplaceable loss	Probability	Confidence	Consequence	Significance
Iphiva Site 3								
Without Mitigation	3	1	2	1	4	2	7	28
With Mitigation	3	1	2	1	3	2	7	21
Iphiva Site 6								
Without Mitigation	3	1	2	1	4	2	7	28
With Mitigation	3	1	2	1	3	2	7	21

Impact Description Impacts on livelihoods			**Mitigation**					
			Avoid					
			Minimise	Minimise impacts on livelihoods by selecting the site with the lowest impact on livelihoods.				
			Restore/Rehabilitate	Restore livelihoods where possible. This is particularly important in communities that are under traditional authority as they are usually not very resilient to impacts on livelihoods.				
			Compensate/Offset					
Nature	**Extent**	**Duration**	**Intensity**	**Potential for Irreplaceable loss**	**Probability**	**Confidence**	**Consequence**	**Significance**
Iphiva Site 3								
Without Mitigation	2	5	5	5	5	3	17	85
With Mitigation	2	5	3	1	4	2	11	44
Iphiva Site 6								
Without Mitigation	2	5	5	5	5	3	17	85
With Mitigation	2	5	3	3	4	2	13	52

Impact Description Relocation of people			**Mitigation**					
			Avoid	Avoid relocation of people as far as possible.				
			Minimise					
			Restore/Rehabilitate	If relocation is unavoidable, restore living conditions and livelihoods to the same or better than previously.				
			Compensate/Offset					
Nature	**Extent**	**Duration**	**Intensity**	**Potential for Irreplaceable loss**	**Probability**	**Confidence**	**Consequence**	**Significance**
Iphiva Site 3								
Without Mitigation			No people on site					
With Mitigation								
Iphiva Site 6								
Without Mitigation	1	5	5	5	5	3	16	80
With Mitigation	1	5	3	3	4	2	12	48

Impact Description Impacts relating to construction camps and newcomers			**Mitigation**					
			Avoid					
			Minimise	Eskom needs to ensure that there are rules and consequences in place for their employees and contractors with reference to these issues. Their employees and contractors should be easily identifiable and have identification with them. Where possible, Eskom should inform landowners in advance when they are going to be in the area.				
			Restore/Rehabilitate					
			Compensate/Offset					
Nature	**Extent**	**Duration**	**Intensity**	**Potential for Irreplaceable loss**	**Probability**	**Confidence**	**Consequence**	**Significance**
Iphiva Site 3								
Without Mitigation	3	5	4	3	4	2	15	60
With Mitigation	3	5	2	3	3	2	13	39
Iphiva Site 6								
Without Mitigation	3	5	4	3	4	2	15	60

With Mitigation	3	5	2	3	3	2	13	39

Impact Description Creation of jobs			**Mitigation**					
			Avoid					
			Minimise	Where possible, Eskom should recruit local labour for unskilled or semi-skilled positions on the project. Preference should be given to locals that are currently unemployed. The recruitment process should be agreed with local leadership structures. Potential jobs should be advertised in an accessible way and no false expectations should be created. Indirect employment/entrepreneurship opportunities must be enhanced. Eskom and the contractor must support local entrepreneurs as far as possible. Eskom should consider a local economic development programme that can stretch across the entire project. An example would be to buy a mobile kitchen, and train women along the construction route to cater for the construction forces. This kitchen can move with the labour force and women in different areas will be given the opportunity to get trained and earn an income.				
			Restore/Rehabilitate					
			Compensate/Offset					
Nature	**Extent**	**Duration**	**Intensity**	**Potential for Irreplaceable loss**	**Probability**	**Confidence**	**Consequence**	**Significance**
Iphiva Site 3								
Without Mitigation	3	1	2	1	3	2	7	21
With Mitigation	3	1	2	1	2	2	7	14
Iphiva Site 6								
Without Mitigation	3	1	2	1	3	2	7	21
With Mitigation	3	1	2	1	2	2	7	14

7.2.2 Normandie-Iphiva 400 kV Powerline

Qualitative discussion of impacts

Impact	Stakeholder group	Description
Traffic impacts	All	During construction there will be an increase in the use of local roads and transport systems. The roads along the N-I 2 option mainly consist of the N2 and some gravel roads. The N2 between Piet Retief and Pongola is mostly single lane and the area is hilly. Slow vehicles on the road carrying infrastructure and equipment can lead to frustration and impatience with other road users. Eskom should attempt to transport equipment during off-peak times to have as little impact on traffic as possible. An increase in heavy vehicles on the road can lead to an increase in accidents. The roads along the N-I 3 option is mostly tarred, mostly single line and the area is hilly. Similar impacts than on the N-I 2 option can be expected. Vehicles will need to use gravel roads to get to areas adjacent to the tarred roads. The area is populated and there are many pedestrians. Employees of Eskom and Eskom's contractors must ensure that they drive safely and comply with the speed restrictions on these roads. Eskom should have an enforceable road use policy in place that includes fines for transgressors.
Impacts on livelihoods	Traditional Communities	A livelihood refers to the way of life of a person or household and how they make a living, in particular, how they secure the basic necessities of life, e.g. their food, water, shelter and clothing, and live in the community (Vanclay et al., 2015). The N-I 2 option is densely populated and many of the community members practise subsistence farming, such as farming with chickens, goats, cattle, maize and beans. Their livelihoods can be impacted on in two ways. The family can be relocated to another area, which means they need to move their farming activities to another area as well. Alternatively, it may not be necessary for the family to be relocated, but the area where they farm may be impacted on. Families in traditional communities in general are poor on many levels and not resilient to impacts on their livelihoods. Any impacts on their livelihoods should be treated with extreme caution to ensure that they are not worse off.

	Commercial Farmers	Any aspect that impacts on the ability of a farmer to make a living from his/her land can be seen as an impact on his/her livelihood. The N-I 2 option passes sugar cane fields outside Pongola. Sugar cane is mostly burned before being harvested. When powerlines run over the fields, it can be problematic, as the smoke can conduct the electricity from the lines to the ground, creating a hazard for the farmers and their workers. Green harvesting is possible, but is much more expensive. If the farmers lose productive land, it cannot simply be replaced, as there are permitting implications and limited availability of additional land. Besides the commercial farmers in the area, there are a group of emerging sugar cane farmers in the area that are much more vulnerable than the commercial farmers due to their lower socio-economic status. Both the N-I 2 and N-I 3 options pass through forestry areas. Forestry areas are subject to permitting requirements (water license, impact assessment) and cannot just be replaced. Fire is one of the biggest risks for forestry and a powerline traversing a property can result in higher insurance premiums. Fighting fires in forestry areas is not an easy tasks and planes are usually used for this. Pilots generally do not want fly low in areas with powerlines as they fear that they will fly into the powerlines. When lines trip because of fires and fall to the ground, it put the fire fighting teams at risk. Plantations are required to maintain compulsory fire breaks and there are concerns that Eskom may not keep this up in the way that they should. Loss of trees as a result of fire has a long term impact on the livelihoods of the farmers and their employees.
Relocation of people	Traditional communities	The N-I 2 option is densely populated in the area between the border of KZN and Pongola. It may not be possible to position the transmission lines in such a way that no-one needs to be relocated. Relocating families will result in a disruption of social networks. Often a family has lived in an area for many years and they are in close proximity to their family and friends. If they have to move to somewhere further away, they have to establish new social networks. In addition, relocation of people can have an impact on their ability to make a livelihood. The N-I 3 option is not as densely populated, and it should be possible to position the transmission lines in a way that no-one needs to be relocated. If relocation cannot be avoided, Eskom should follow the correct procedures for engaging with the community through their leadership structures. The leadership will decide whether the families can

		be moved and the individual families would not have much of a say in the decision. An important aspect to take into consideration is the moving of graves. In some areas graves can be found at the homesteads and in other areas graves are limited to a graveyard. Moving graves is a very sensitive issue in these communities, and whether permission will be given to move the graves should be part of the negotiation process when considering the placement of the transmission lines. Sacred sites such as initiation sites should be identified early in the process, as it is unlikely that these sites could be moved. The communities have indicated that compensation will play an important role when deciding whether families can be moved. It is expected that the families will be in the same situation or better off. Families should be able to continue their livelihood activities in the same way than currently.
Negative community relations	All	Negative community relations can develop when Eskom's employees or contractors behave in a way that cause harm, or could potentially cause harm to the members of the community. If Eskom does not diligently maintain their servitudes, it could for example create a fire hazard that is very dangerous for especially people living in the forestry areas. Contractors leaving gates open or drive off road or litter could result in harm to livestock or crops. The same applies to areas where game are kept. The presence of contractors could increase the risk of poaching. Eskom needs to ensure that there are rules and consequences in place for their employees and contractors with reference to these issues. Their employees and contractors should be easily identifiable and have identification with them. Where possible, Eskom should inform landowners in advance when they are going to be in the area.
Impact relating to construction workers and newcomers	Traditional communities	Although the communities did not highlight this as a great concern, there are a number of social impacts that are associated with the presence of construction workers which should be taken into consideration. Construction workers usually travel from site to site and their culture are likely to be different from that of the host community. This could result in conflict if their values clash with that of the host community. In areas with high levels of poverty, young females are often attracted to construction workers as they can provide them with a lifestyle that the local young men usually can't. The presence of construction workers can result in an increase in the incidence of sexually transmitted diseases, HIV and AIDS, and unwanted pregnancies.

	Commercial farmers	The presence of construction workers and construction camps in the area lead to an increase of strangers in the area. Opportunistic criminals can make use of the opportunity to steal livestock and commit crimes in the area. In the forestry areas the presence of strangers increases the risk of forest fires. They can start a fire to cook food or for heat in Winter, and if the fire is not extinguished properly it can result in a forest fire.
	Urban communities	A temporary increase in economically active people in the area can have a positive impact on trade and businesses that offer accommodation. Construction workers often just spend the most necessary amounts and send the rest of the money home to their families.
	Tourism establishments	Tourism establishments face impacts similar to those of the commercial farmers. More strangers in the area can lead to an increase in crime. As most of the establishments keep game, there could be an increase in poaching incidents and damage to infrastructure.
Creation of jobs	Local communities	Local communities have expectations that some of their members will be employed during the construction phase. Although they realise that the project will require specialised skills that they don't have, they are of the opinion that there should be a few jobs that require unskilled or semi-skilled labour that members from the community could perform. Where possible, Eskom should recruit local labour for unskilled or semi-skilled positions on the project. Preference should be given to locals that are currently unemployed. The recruitment process should be agreed with local leadership structures. Potential jobs should be advertised in an accessible way and no false expectations should be created. Indirect employment/entrepreneurship opportunities must be enhanced. Eskom and the contractor must support local entrepreneurs as far as possible. Eskom should consider a local economic development programme that can stretch across the entire project. An example would be to buy a mobile kitchen, and train women along the construction route to cater for the construction forces. This kitchen can move with the labour force and women in different areas will be given the opportunity to get trained and earn an income.

Quantitative assessment of impacts

Impact Description Traffic impacts			**Mitigation**					
			Avoid					
			Minimise	Attempt to transport equipment during off-peak times. Put rules and consequences in place for employees and contractors in terms of road use.				
			Restore/Rehabilitate					
			Compensate/Offset					
Nature	**Extent**	**Duration**	**Intensity**	**Potential for Irreplaceable loss**	**Probability**	**Confidence**	**Consequence**	**Significance**
N-I 2								
Without Mitigation	3	1	1	1	3	2	6	18
With Mitigation	3	1	1	1	2	2	6	12
N-I 3								
Without Mitigation	3	1	1	1	3	2	6	18
With Mitigation	3	1	1	1	2	2	6	12

Impact Description Impacts on livelihoods			**Mitigation**					
			Avoid					
			Minimise	Minimise impacts on livelihoods by selecting the route with the lowest impact on livelihoods.				
			Restore/Rehabilitate					
			Compensate/Offset					
Nature	**Extent**	**Duration**	**Intensity**	**Potential for Irreplaceable loss**	**Probability**	**Confidence**	**Consequence**	**Significance**
N-I 2								
Without Mitigation	2	5	5	5	5	3	17	85
With Mitigation	2	5	3	3	4	2	13	52
N-I 3								
Without Mitigation	2	5	5	5	5	3	17	85
With Mitigation	2	5	3	3	4	2	13	52

Impact Description Relocation of people			**Mitigation**					
			Avoid	Avoid relocation of people as far as possible by careful design of the placement of infrastructure.				
			Minimise					
			Restore/Rehabilitate	If relocation is unavoidable, restore living conditions and livelihoods to the same or better than previously.				
			Compensate/Offset	Compensate stakeholders for loss of productive land as well as the associated loss of livelihood if it is not possible to restore the livelihood.				
Nature	**Extent**	**Duration**	**Intensity**	**Potential for Irreplaceable loss**	**Probability**	**Confidence**	**Consequence**	**Significance**
N-I 2								
Without Mitigation	1	5	5	5	5	3	16	80
With Mitigation	1	5	3	3	4	2	13	48
N-I 3								
Without Mitigation	1	5	5	5	5	3	16	80
With Mitigation	1	5	3	3	4	2	12	48

Impact Description Negative community relations			**Mitigation**					
			Avoid					
			Minimise	Eskom needs to ensure that there are rules and consequences in place for their employees and contractors with reference to these issues. Their employees and contractors should be easily identifiable and have identification with them. Where possible, Eskom should inform landowners in advance when they are going to be in the area.				
			Restore/Rehabilitate					
			Compensate/Offset					
Nature	**Extent**	**Duration**	**Intensity**	**Potential for Irreplaceable loss**	**Probability**	**Confidence**	**Consequence**	**Significance**
N-I 2								
Without Mitigation	3	2	3	3	3	2	11	33
With Mitigation	3	2	2	1	2	2	8	16
N-I 3								
Without Mitigation	3	2	3	3	3	2	11	33
With Mitigation	3	2	2	1	2	2	8	16

Impact Description Impacts relating to construction camps and newcomers			**Mitigation**					
			Avoid					
			Minimise	Construction camps should be set up in line with International best practice. There should be rules and consequences in place for their employees and contractors with reference to these issues. Employees and contractors should be briefed in advance to inform them of what is expected of them.				
			Restore/Rehabilitate					
			Compensate/Offset					
Nature	**Extent**	**Duration**	**Intensity**	**Potential for Irreplaceable loss**	**Probability**	**Confidence**	**Consequence**	**Significance**
N-I 2								
Without Mitigation	3	5	4	3	4	2	15	60
With Mitigation	3	5	2	3	3	2	13	39
N-I 3								
Without Mitigation	3	5	4	3	4	2	15	60
With Mitigation	3	5	2	3	3	2	13	39

Impact Description Creation of jobs			**Mitigation**					
			Avoid					
			Minimise	Where possible, Eskom should recruit local labour for unskilled or semi-skilled positions on the project. Preference should be given to locals that are currently unemployed. The recruitment process should be agreed with local leadership structures. Potential jobs should be advertised in an accessible way and no false expectations should be created. Indirect employment/entrepreneurship opportunities must be enhanced. Eskom and the contractor must support local entrepreneurs as far as possible. Eskom should consider a local economic development programme that can stretch across the entire project. An example would be to buy a mobile kitchen, and train women along the construction route to cater for the construction forces. This kitchen can move with the labour force and women in different areas will be given the opportunity to get trained and earn an income.				
			Restore/Rehabilitate					
			Compensate/Offset					
Nature	**Extent**	**Duration**	**Intensity**	**Potential for Irreplaceable loss**	**Probability**	**Confidence**	**Consequence**	**Significance**

N-I 2								
Without Mitigation	3	1	2	1	3	2	7	21
With Mitigation	3	1	1	1	2	2	6	12
N-I 3								
Without Mitigation	3	1	2	1	3	2	7	21
With Mitigation	3	1	1	1	2	2	6	12

7.2.3 Iphiva-Duma 400 kV Powerline

Qualitative discussion of impacts

Impact	Stakeholder group	Description
Traffic impacts	All	During construction there will be an increase in the use of local roads and transport systems. The roads along the I-D East option consist of the N2 almost up to Hluhluwe and some gravel roads from there up to the Duma substation. The N2 is mostly single lane. Slow vehicles on the road carrying infrastructure and equipment can lead to frustration and impatience with other road users. Eskom should attempt to transport equipment during off-peak times to have as little impact on traffic as possible. An increase in heavy vehicles on the road can lead to an increase in accidents. The roads along the I-D West options are mostly gravel roads.
Impacts on livelihoods	Tourism Establishments	A livelihood refers to the way of life of a person or household and how they make a living, in particular, how they secure the basic necessities of life, e.g. their food, water, shelter and clothing, and live in the community (Vanclay et al., 2015). On the I-D East option the Transmission lines will run parallel with the N2 road past a number of private game reserves. The game reserves offer their visitors a wilderness experience. This experience is very dependent on sense of place and the physical and aesthetic quality of the living environment. If this experience is altered by the presence of Transmission lines, it threatens the livelihoods of not only the owners of the establishments, but also that of their employees and

		suppliers. One of the lodges in the Manyoni Private Game Reserve, Rhino River Lodge is well inside the 2 km wide corridor within which a servitude for the Transmission line can be negotiated, and is such would most likely be visually impacted on by the line, regardless of its placement in the corridor. This lodge does not have electricity and is completely off the grid and a visible Transmission line in close proximity to the camp will spoil the whole experience that is attracting their clients.
	Traditional Communities	The I-D West options run through traditional communities as does the I-D East option when it approaches the Duma substation. Many of the community members practise subsistence farming, such as farming with chickens, goats, cattle, maize and beans. Their livelihoods can be impacted on in two ways. The family can be relocated to another area, which means they need to move their farming activities to another area as well. Alternatively, it may not be necessary for the family to be relocated, but the area where they farm may be impacted on. Families in traditional communities in general are poor on many levels and not resilient to impacts on their livelihoods. Any impacts on their livelihoods should be treated with extreme caution to ensure that they are not worse off.
Relocation of people	Traditional communities	Although both options run through areas under traditional authority, the routes are such that relocation could in all likelihood be avoided. If relocation cannot be avoided, Eskom should follow the correct procedures for engaging with the community through their leadership structures. The leadership will decide whether the families can be moved and the individual families would not have much of a say in the decision. An important aspect to take into consideration is the moving of graves. In some areas graves can be found at the homesteads and in other areas graves are limited to a graveyard. Moving graves is a very sensitive issue in these communities, and whether permission will be given to move the graves should be part of the negotiation process when considering the placement of the transmission lines. Sacred sites such as initiation sites should be identified early in the process, as it is unlikely that these sites could be moved. The communities have indicated that compensation will play an important role when deciding whether families can be moved. It is expected that the families will be in the same situation or better off. Families should be able to continue their livelihood activities in the same way than currently.

Negative community relations	All	Negative community relations can develop when Eskom's employees or contractors behave in a way that cause harm, or could potentially cause harm to the members of the community. If Eskom does not diligently maintain their servitudes, it could for example create a fire hazard. Contractors leaving gates open or drive off road or litter could result in harm to livestock or crops. The same applies to areas where game are kept. Some of the game reserves keep rhinos and the presence of contractors could increase the risk of poaching. Eskom needs to ensure that there are rules and consequences in place for their employees and contractors with reference to these issues. Their employees and contractors should be easily identifiable and have identification with them. Where possible, Eskom should inform landowners in advance when they are going to be in the area.
Impact relating to construction workers and newcomers	Traditional communities	Although the communities did not highlight this as a great concern, there are a number of social impacts that are associated with the presence of construction workers which should be taken into consideration. Construction workers usually travel from site to site and their culture are likely to be different from that of the host community. This could result in conflict if their values clash with that of the host community. In areas with high levels of poverty, young females are often attracted to construction workers as they can provide them with a lifestyle that the local young men usually can't. The presence of construction workers can result in an increase in the incidence of sexually transmitted diseases, HIV and AIDS, and unwanted pregnancies.
	Tourism establishments	The presence of construction workers and construction camps in the area lead to an increase of strangers in the area. Opportunistic criminals can make use of the opportunity to poach game, damage infrastructure and commit crimes in the area.
	Urban communities	A temporary increase in economically active people in the area can have a positive impact on trade and businesses that offer accommodation. Construction workers often just spend the most necessary amounts and send the rest of the money home to their families.
Creation of jobs	Local communities	Local communities have expectations that some of their members will be employed during the construction phase. Although they realise that the project will require specialised skills that they don't

		have, they are of the opinion that there should be a few jobs that require unskilled or semi-skilled labour that members from the community could perform. Where possible, Eskom should recruit local labour for unskilled or semi-skilled positions on the project. Preference should be given to locals that are currently unemployed. The recruitment process should be agreed with local leadership structures. Potential jobs should be advertised in an accessible way and no false expectations should be created. Indirect employment/entrepreneurship opportunities must be enhanced. Eskom and the contractor must support local entrepreneurs as far as possible. Eskom should consider a local economic development programme that can stretch across the entire project. An example would be to buy a mobile kitchen, and train women along the construction route to cater for the construction forces. This kitchen can move with the labour force and women in different areas will be given the opportunity to get trained and earn an income.

Quantitative assessment of impacts

Impact Description Traffic impacts			**Mitigation**					
			Avoid					
			Minimise	Attempt to transport equipment during off-peak times. Put rules and consequences in place for employees and contractors in terms of road use.				
			Restore/Rehabilitate					
			Compensate/Offset					
Nature	**Extent**	**Duration**	**Intensity**	**Potential for Irreplaceable loss**	**Probability**	**Confidence**	**Consequence**	**Significance**
I-D East								
Without Mitigation	3	1	1	1	3	2	6	18
With Mitigation	3	1	1	1	2	2	6	12
I-D West								
Without Mitigation	3	1	1	1	3	2	6	18
With Mitigation	3	1	1	1	2	2	6	12

Impact Description Impacts on livelihoods			**Mitigation**					
			Avoid					
			Minimise	Minimise impacts on livelihoods by selecting the route with the lowest impact on livelihoods.				
			Restore/Rehabilitate					
			Compensate/Offset	Compensate stakeholders for loss of productive land as well as the associated loss of livelihood if it is not possible to restore the livelihood.				
Nature	**Extent**	**Duration**	**Intensity**	**Potential for Irreplaceable loss**	**Probability**	**Confidence**	**Consequence**	**Significance**
I-D East								
Without Mitigation	2	5	5	5	5	3	17	85
With Mitigation	2	5	3	3	4	2	13	52
I-D West								
Without Mitigation	2	5	5	5	5	3	17	85
With Mitigation	2	5	3	3	4	2	13	52

Impact Description Relocation of people			**Mitigation**					
			Avoid	Avoid relocation of people as far as possible by careful design of the placement of infrastructure.				
			Minimise					
			Restore/Rehabilitate	If relocation is unavoidable, restore living conditions and livelihoods to the same or better than previously.				
			Compensate/Offset					
Nature	**Extent**	**Duration**	**Intensity**	**Potential for Irreplaceable loss**	**Probability**	**Confidence**	**Consequence**	**Significance**
I-D East								
Without Mitigation	1	5	5	5	5	3	16	80
With Mitigation	1	5	3	3	4	2	12	48
I-D West								
Without Mitigation	1	5	5	5	5	3	16	80
With Mitigation	1	5	3	3	4	2	12	48

Impact Description Negative community relations			**Mitigation**					
			Avoid					
			Minimise	Eskom needs to ensure that there are rules and consequences in place for their employees and contractors with reference to these issues. Their employees and contractors should be easily identifiable and have identification with them. Where possible, Eskom should inform landowners in advance when they are going to be in the area.				
			Restore/Rehabilitate					
			Compensate/Offset					
Nature	**Extent**	**Duration**	**Intensity**	**Potential for Irreplaceable loss**	**Probability**	**Confidence**	**Consequence**	**Significance**
I-D East								
Without Mitigation	3	2	3	5	3	2	13	39
With Mitigation	3	2	2	1	2	2	8	16
I-D West								
Without Mitigation	3	2	3	5	3	2	13	39
With Mitigation	3	2	2	1	2	2	8	16

Impact Description Impacts relating to construction workers and newcomers			**Mitigation**					
			Avoid					
			Minimise	Construction camps should be set up in line with International best practice. There should be rules and consequences in place for their employees and contractors with reference to these issues. Employees and contractors should be briefed in advance to inform them of what is expected of them.				
			Restore/Rehabilitate					
			Compensate/Offset					
Nature	**Extent**	**Duration**	**Intensity**	**Potential for Irreplaceable loss**	**Probability**	**Confidence**	**Consequence**	**Significance**
I-D East								
Without Mitigation	3	5	4	3	4	2	15	60
With Mitigation	3	5	3	3	3	2	14	42
I-D West								
Without Mitigation	3	5	4	3	4	2	15	60

With Mitigation	3	5	3	3	3	2	14	42

Impact Description Creation of jobs			**Mitigation**					
			Avoid					
			Minimise	Where possible, Eskom should recruit local labour for unskilled or semi-skilled positions on the project. Preference should be given to locals that are currently unemployed. The recruitment process should be agreed with local leadership structures. Potential jobs should be advertised in an accessible way and no false expectations should be created. Indirect employment/entrepreneurship opportunities must be enhanced. Eskom and the contractor must support local entrepreneurs as far as possible. Eskom should consider a local economic development programme that can stretch across the entire project. An example would be to buy a mobile kitchen, and train women along the construction route to cater for the construction forces. This kitchen can move with the labour force and women in different areas will be given the opportunity to get trained and earn an income.				
			Restore/Rehabilitate					
			Compensate/Offset					
Nature	**Extent**	**Duration**	**Intensity**	**Potential for Irreplaceable loss**	**Probability**	**Confidence**	**Consequence**	**Significance**
I-D East								
Without Mitigation	3	1	2	1	3	2	7	21
With Mitigation	3	1	2	1	2	2	7	14
I-D West								
Without Mitigation	3	1	2	1	3	2	7	21
With Mitigation	3	1	2	1	2	2	7	14

7.2.4 132 kV Distribution powerlines

Qualitative discussion of impacts

Impact	Stakeholder group	Description
Traffic impacts	All	During construction there will be an increase in the use of local roads, farm roads and transport systems. Slow vehicles on the road carrying infrastructure and equipment can lead to frustration and impatience with other road users. Eskom should attempt to transport equipment during off-peak times to have as little impact on traffic as possible. An increase in heavy vehicles on the road can lead to an increase in accidents.
Impacts on livelihoods	Commercial Farmers	A livelihood refers to the way of life of a person or household and how they make a living, in particular, how they secure the basic necessities of life, e.g. their food, water, shelter and clothing, and live in the community (Vanclay et al., 2015). Any aspect that impacts on the ability of a farmer to make a living from his/her land can be seen as an impact on his/her livelihood. The Distribution lines pass through sugar cane fields outside Mkuze. Sugar cane is mostly burned before being harvested. When powerlines run over the fields, it can be problematic, as the smoke can conduct the electricity from the lines to the ground, creating a hazard for the farmers and their workers. Green harvesting is possible, but is much more expensive. If the farmers lose productive land, it cannot simply be replaced, as there are permitting implications and limited availability of additional land. Planning of the route should take place in consultation with the farmers in order to have the least impact on their activities.
Negative community relations	All	Negative community relations can develop when Eskom's employees or contractors behave in a way that cause harm, or could potentially cause harm to the members of the community. If Eskom does not diligently maintain their servitudes, it could for example create a fire hazard. Contractors leaving gates open or drive off road or litter could result in harm to crops or livestock. Eskom needs to ensure that there are rules and consequences in place for their employees and contractors with reference to these issues. Their employees and contractors should be easily

		identifiable and have identification with them. Where possible, Eskom should inform landowners in advance when they are going to be in the area.
Impact relating to construction workers and newcomers	Commercial farmers	The presence of construction workers and construction camps in the area lead to an increase of strangers in the area. Opportunistic criminals can make use of the opportunity to steal livestock and commit crimes in the area.
	Urban communities	A temporary increase in economically active people in the area can have a positive impact on trade and businesses that offer accommodation. Construction workers often just spend the most necessary amounts and send the rest of the money home to their families.
Creation of jobs	Local communities	Local communities have expectations that some of their members will be employed during the construction phase. Although they realise that the project will require specialised skills that they don't have, they are of the opinion that there should be a few jobs that require unskilled or semi-skilled labour that members from the community could perform. Where possible, Eskom should recruit local labour for unskilled or semi-skilled positions on the project. Preference should be given to locals that are currently unemployed. The recruitment process should be agreed with local leadership structures. Potential jobs should be advertised in an accessible way and no false expectations should be created. Indirect employment/entrepreneurship opportunities must be enhanced. Eskom and the contractor must support local entrepreneurs as far as possible. Eskom should consider a local economic development programme that can stretch across the entire project. An example would be to buy a mobile kitchen, and train women along the construction route to cater for the construction forces. This kitchen can move with the labour force and women in different areas will be given the opportunity to get trained and earn an income.

Quantitative assessment of impacts

Impact Description Traffic impacts			**Mitigation**					
			Avoid					
			Minimise	Attempt to transport equipment during off-peak times. Put rules and consequences in place for employees and contractors in terms of road use.				
			Restore/Rehabilitate					
			Compensate/Offset					
Nature	**Extent**	**Duration**	**Intensity**	**Potential for Irreplaceable loss**	**Probability**	**Confidence**	**Consequence**	**Significance**
East Option								
Without Mitigation	3	1	1	1	3	2	6	18
With Mitigation	3	1	1	1	2	2	6	12
West Option								
Without Mitigation	3	1	1	1	3	2	6	18
With Mitigation	3	1	1	1	2	2	6	12

Impact Description Impacts on livelihoods			**Mitigation**					
			Avoid	Avoid relocation of people as far as possible by careful design of the placement of infrastructure.				
			Minimise	Minimise impacts on livelihoods by selecting the route with the lowest impact on livelihoods.				
			Restore/Rehabilitate					
			Compensate/Offset	Compensate stakeholders for loss of productive land as well as the associated loss of livelihood if it is not possible to restore the livelihood.				
Nature	**Extent**	**Duration**	**Intensity**	**Potential for Irreplaceable loss**	**Probability**	**Confidence**	**Consequence**	**Significance**
East Option								
Without Mitigation	2	5	5	5	5	3	17	85
With Mitigation	2	5	3	3	4	2	13	52
West Option								
Without Mitigation	2	5	5	5	5	3	17	85
With Mitigation	2	5	3	3	4	2	13	52

Impact Description Negative community relations			**Mitigation**					
			Avoid					
			Minimise	Eskom needs to ensure that there are rules and consequences in place for their employees and contractors with reference to these issues. Their employees and contractors should be easily identifiable and have identification with them. Where possible, Eskom should inform landowners in advance when they are going to be in the area.				
			Restore/Rehabilitate					
			Compensate/Offset					
Nature	**Extent**	**Duration**	**Intensity**	**Potential for Irreplaceable loss**	**Probability**	**Confidence**	**Consequence**	**Significance**
East Option								
Without Mitigation	3	2	3	5	3	3	13	39
With Mitigation	3	2	2	1	2	2	8	16
West Option								
Without Mitigation	3	2	3	5	3	3	13	39
With Mitigation	3	2	2	1	2	2	8	16

Impact Description Impacts relating to construction camps and newcomers			**Mitigation**					
			Avoid					
			Minimise	Construction camps should be set up in line with International best practice. There should be rules and consequences in place for their employees and contractors with reference to these issues. Employees and contractors should be briefed in advance to inform them of what is expected of them.				
			Restore/Rehabilitate					
			Compensate/Offset					
Nature	**Extent**	**Duration**	**Intensity**	**Potential for Irreplaceable loss**	**Probability**	**Confidence**	**Consequence**	**Significance**
East Option								
Without Mitigation	3	5	4	3	4	2	15	60
With Mitigation	3	5	3	3	3	2	14	42
West Option								
Without Mitigation	3	5	4	3	4	2	15	60
With Mitigation	3	5	3	3	3	2	14	42

Impact Description Creation of jobs			**Mitigation**					
			Avoid					
			Minimise	Where possible, Eskom should recruit local labour for unskilled or semi-skilled positions on the project. Preference should be given to locals that are currently unemployed. The recruitment process should be agreed with local leadership structures. Potential jobs should be advertised in an accessible way and no false expectations should be created. Indirect employment/entrepreneurship opportunities must be enhanced. Eskom and the contractor must support local entrepreneurs as far as possible. Eskom should consider a local economic development programme that can stretch across the entire project. An example would be to buy a mobile kitchen, and train women along the construction route to cater for the construction forces. This kitchen can move with the labour force and women in different areas will be given the opportunity to get trained and earn an income.				
			Restore/Rehabilitate					
			Compensate/Offset					
Nature	**Extent**	**Duration**	**Intensity**	**Potential for Irreplaceable loss**	**Probability**	**Confidence**	**Consequence**	**Significance**
East Option								
Without Mitigation	3	1	2	1	3	2	7	21
With Mitigation	3	1	2	1	2	2	7	14
West Option								
Without Mitigation	3	1	2	1	3	2	7	21
With Mitigation	3	1	2	1	2	2	7	14

7.3 Operational phase

7.3.1 Iphiva Substation Site

Qualitative discussion of impacts

Impacts	Stakeholder group	Description
Negative community relations	All	Negative community relations can develop when Eskom's employees or contractors behave in a way that cause harm, or could potentially cause harm to the members of the community. If Eskom does not diligently maintain their servitudes, it could create hazards for the community. Contractors leaving gates open or drive off road or litter could result in harm to livestock or crops. Eskom needs to ensure that there are rules and consequences in place for their employees and contractors with reference to these issues. Their employees and contractors should be easily identifiable and have identification with them. Where possible, Eskom should inform landowners in advance when they are going to be in the area.

Quantitative assessment of impacts

Impact Description Negative community relations			**Mitigation**					
			Avoid					
			Minimise	Eskom needs to ensure that there are rules and consequences in place for their employees and contractors with reference to these issues. Their employees and contractors should be easily identifiable and have identification with them. Where possible, Eskom should inform landowners in advance when they are going to be in the area.				
			Restore/Rehabilitate					
			Compensate/Offset					
Nature	**Extent**	**Duration**	**Intensity**	**Potential for Irreplaceable loss**	**Probability**	**Confidence**	**Consequence**	**Significance**
Iphiva Site 3								
Without Mitigation	3	3	3	3	3	2	12	36
With Mitigation	3	3	2	1	2	2	9	18

Iphiva Site 6								
Without Mitigation	3	3	3	3	3	2	12	36
With Mitigation	3	3	2	1	2	2	9	18

7.3.2 Normandie-Iphiva 400 kV Powerline

Qualitative discussion of impacts

Impacts	Stakeholder group	Description
Negative community relations	All	Negative community relations can develop when Eskom's employees or contractors behave in a way that cause harm, or could potentially cause harm to the members of the community. If Eskom does not diligently maintain their servitudes, it could for example create a fire hazard, that is very dangerous for especially people living in the forestry areas. Contractors leaving gates open or drive off road or litter could result in harm to livestock or crops. The same applies to areas where game are kept. Eskom needs to ensure that there are rules and consequences in place for their employees and contractors with reference to these issues. Their employees and contractors should be easily identifiable and have identification with them. Where possible, Eskom should inform landowners in advance when they are going to be in the area.

Quantitative assessment of impacts

Impact Description Negative community relations			**Mitigation**					
			Avoid					
			Minimise	Eskom needs to ensure that there are rules and consequences in place for their employees and contractors with reference to these issues. Their employees and contractors should be easily identifiable and have identification with them. Where possible, Eskom should inform landowners in advance when they are going to be in the area.				
			Restore/Rehabilitate					
			Compensate/Offset					
Nature	**Extent**	**Duration**	**Intensity**	**Potential for Irreplaceable loss**	**Probability**	**Confidence**	**Consequence**	**Significance**
N-I 2								
Without Mitigation	3	3	3	3	3	2	12	36

With Mitigation	3	3	2	1	2	2	9	18
N-I 3								
Without Mitigation	3	3	3	3	3	2	12	36
With Mitigation	3	3	2	1	2	2	9	18

7.3.3 Iphiva-Duma 400 kV Powerline

Qualitative discussion of impacts

Impacts	Stakeholder group	Description
Negative community relations	All	Negative community relations can develop when Eskom's employees or contractors behave in a way that cause harm, or could potentially cause harm to the members of the community. If Eskom does not diligently maintain their servitudes, it could for example create a fire hazard. Contractors leaving gates open or drive off road or litter could result in harm to crops or livestock. Eskom needs to ensure that there are rules and consequences in place for their employees and contractors with reference to these issues. Their employees and contractors should be easily identifiable and have identification with them. Where possible, Eskom should inform landowners in advance when they are going to be in the area.

Quantitative assessment of impacts

Impact Description Negative community relations			**Mitigation**					
			Avoid					
			Minimise	Eskom needs to ensure that there are rules and consequences in place for their employees and contractors with reference to these issues. Their employees and contractors should be easily identifiable and have identification with them. Where possible, Eskom should inform landowners in advance when they are going to be in the area.				
			Restore/Rehabilitate					
			Compensate/Offset					
Nature	**Extent**	**Duration**	**Intensity**	**Potential for Irreplaceable loss**	**Probability**	**Confidence**	**Consequence**	**Significance**

I-D East								
Without Mitigation	3	3	3	3	3	2	12	36
With Mitigation	3	3	2	1	2	2	9	18
I-D West								
Without Mitigation	3	3	3	3	3	2	12	36
With Mitigation	3	3	2	1	2	2	9	18

7.3.4 132 kV Distribution powerlines

Qualitative discussion of impacts

Impacts	Stakeholder group	Description
Negative community relations	All	Negative community relations can develop when Eskom's employees or contractors behave in a way that cause harm, or could potentially cause harm to the members of the community. If Eskom does not diligently maintain their servitudes, it could for example create a fire hazard. Contractors leaving gates open or drive off road or litter could result in harm to livestock or crops. The same applies to areas where game are kept. Some of the game reserves keep rhinos and the presence of contractors could increase the risk of poaching. Eskom needs to ensure that there are rules and consequences in place for their employees and contractors with reference to these issues. Their employees and contractors should be easily identifiable and have identification with them. Where possible, Eskom should inform landowners in advance when they are going to be in the area.

Quantitative assessment of impacts

Impact Description Negative community relations	**Mitigation**	
	Avoid	
	Minimise	Eskom needs to ensure that there are rules and consequences in place for their employees and contractors with reference to these issues. Their employees and contractors should be easily identifiable and have identification with them. Where possible, Eskom should inform landowners in advance when they are going to be in the area.
	Restore/Rehabilitate	

			Compensate/Offset					
Nature	**Extent**	**Duration**	**Intensity**	**Potential for Irreplaceable loss**	**Probability**	**Confidence**	**Consequence**	**Significance**
East Option								
Without Mitigation	3	3	3	3	3	2	12	36
With Mitigation	3	3	2	1	2	2	9	18
West Option								
Without Mitigation	3	3	3	3	3	2	12	36
With Mitigation	3	3	2	1	2	2	9	18

8. RECOMMENDED MITIGATION MEASURES

Environmental Impact Assessment Regulations, 2014, published under Government Notice No. 982 in Gazette No. 3822 of 4 December 2014, in terms of sections 24(5) and 44 of the National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended by Appendix 6 of GN 326 of 7 April 2017:

1. (1) A specialist report prepared in terms of these Regulations must contain—

(k) any mitigation measures for inclusion in the EMPr;

(l) any conditions for inclusion in the environmental authorisation;

(m) any monitoring requirements for inclusion in the EMPr or environmental authorisation

(n) (ii) if the opinion is that the proposed activity, activities or portions thereof should be authorised, any avoidance, management and mitigation measures that should be included in the EMPr, and where applicable, the closure plan.

It is not possible to compartmentalise social mitigation measures according to project phases. The mitigation and monitoring measures should start in the planning phase, and most need to be in place up to the decommissioning phase.

8.1 Iphiva Substation Site

8.1.1 Mitigation and Monitoring Measures for Inclusion in the EMPr

Management Objective	Manage expectations and improve relationships with communities	
Management Outcome	**Indicator**	**Targets**
Appoint Community Liaison Officer (CLO)	CLO appointed	Establish good relationships with affected communities and landowners and protect their interests
Compile community relations strategy	Written community relations strategy Communication register	Establish good relationships with affected communities and landowners and protect their interests
Compile communication strategy	Written communication strategy Communication register	Establish good relationships with affected communities and landowners and protect their interests

Compile grievance mechanism	Written grievance mechanism Grievance register	Establish good relationships with affected communities and landowners and protect their interests
Activities	Engage with communities, landowners and other stakeholders	
Aspects	Share information open and honestly, even if it is negative	
Impacts and Risks	Not engaging with stakeholders can have a negative impact on stakeholder relationships and social licence to operate and cause unnecessary delays to the project. It could also damage Eskom's corporate reputation.	
Management Actions	**Responsible Person**	**Timeframe**
Appoint CLO	Eskom – management and HR	Start as soon as possible during planning phase and continue until decommissioning. Revise activities during operational phase.
Compile required documentation	Eskom	Start as soon as possible during planning phase and continue until decommissioning. Revise activities during operational phase.
Implement strategies and mechanisms – procedures on a practical level	Eskom and CLO	Start as soon as possible during planning phase and continue until decommissioning. Revise activities during operational phase.
Put mechanisms in place for monitoring and evaluation of strategies	Eskom and CLO	Start as soon as possible during planning phase and continue until decommissioning. Revise activities during operational phase.
Monitoring		
Method		**Frequency**

Report back to relevant Eskom managers on activities and progress on issues	Monthly until operations phase, then quarterly

Management Objective	Manage expectations in terms of job creation and CSI	
Management Outcome	**Indicator**	**Targets**
Employment policy	Written employment policy	Manage expectations proactively to indicate what positions will be available, how to apply and how selection will work
CSI strategy	Written CSI strategy	Manage expectations proactively to indicate the process to be followed should Eskom's involvement be sought with any activities, and also what the criteria for involvement would be.
Activities	Manage expectations by communicating requirements for recruitment and Eskom's potential involvement in community projects	
Aspects	Share information open and honestly, even if it is negative. Even something like a delay in the process will be important to communicate. Make use of a certain portion of local labour – it is acknowledged that not all skills will be available locally. Jobs should be advertised in a way that is accessible to all members of society. Labour desks should be established in accessible areas. Consult with relevant communities before engaging in any CSI projects in the area	
Impacts and Risks	Not engaging with stakeholders can have a negative impact on stakeholder relationships and social licence to operate and cause unnecessary delays to the project. It could also damage Eskom's corporate reputation.	
Management Actions	**Responsible Person**	**Timeframe**
Compile required documentation	Eskom	Start as soon as possible during planning phase and continue until

		decommissioning. Revise activities during operational phase.
Implement policies and strategies – procedures on a practical level	Eskom and CLO	Start as soon as possible during planning phase and continue until decommissioning. Revise activities during operational phase.
Put mechanisms in place for monitoring and evaluation		Start as soon as possible during planning phase and continue until decommissioning. Revise activities during operational phase.
Monitoring		
Method		**Frequency**
Report back to relevant Eskom managers on activities and progress on issues		Monthly until operations phase, then quarterly
Identify potential projects that align with Eskom's CSI initiatives		Ongoing

Management Objective	Manage traffic impacts	
Management Outcome	**Indicator**	**Targets**
Road use policy	Written road use policy	Ensure road use behaviour of Eskom employees and contractors do not cause additional impacts
Activities	Encourage responsible and considerate road use	
Aspects	Heavy vehicles should be clearly marked and travel during off peak times Deliver infrastructure during off peak times Drivers should obey traffic rules and use designated roads	
Impacts and Risks	Irresponsible road behaviour can lead to accidents and loss of lives. Liability of Eskom in case of negligence of employees or contractors	
Management Actions	**Responsible Person**	**Timeframe**
Compile required documentation	Eskom	Start as soon as possible during planning phase and

		continue until end of construction phase.
Implement strategies and mechanisms – procedures on a practical level	Eskom	Start as soon as possible during planning phase and continue until end of construction phase.
Put mechanisms in place for monitoring and evaluation of strategies	Eskom	Start as soon as possible during planning phase and continue until end of construction phase.
Monitoring		
Method		**Frequency**
Report back to relevant Eskom managers on activities and progress on issues		Monthly
Link compliance to road use policy to payment of contractors		Monthly

Management Objective	Manage impacts resulting from presence of construction workers	
Management Outcome	**Indicator**	**Targets**
Construction camp policy	Written construction camp policy	Construction camps should be established in accordance with the IFC's guidelines for Workers' Accommodation
Employee & contractor conduct policy	Written conduct policy	Conduct of employees and contractors should not cause conflict in and with the communities and other stakeholder groups
HIV and life skills strategy	Written HIV and life skills strategy	HIV and life skills training should be presented to all Eskom employees, contractors and densely populated communities.
Fire fighting strategy	Written fire fighting strategy	Ensure employees and contractors know what to do in case of fire

Security strategy	Written security strategy	Ensure Eskom's activities do not put communities at risk in terms of community safety and security
Activities	Construction camps should be established in in line with IFC guidelines Employees and contractors should know what are expected of them and how they should behave in order to minimise their impact on the surrounding communities HIV and Life Skills training should be presented to employees. Where possible this training should also be presented at local schools and community centres in densely populated areas, such the are between Piet Retief and Pongola. Topics such as HIV/AIDS, prostitution, teen pregnancy, etc should be included. The community should also be prepared for the impacts and be equipped to deal with them. Eskom should join the local Fire Protection Associations and assist with fire fighting when required. Eskom employees, contractors and vehicles should be easily identifiable. This should assist in enhancing security. Where possible land owners and other stakeholders should be informed in advance when Eskom will be in the area.	
Aspects	Policies and strategies should be adhered to strictly Eskom should strive to be a good and civil member of the community	
Impacts and Risks	The location of the construction camp must be agreed with surrounding neighbours, to minimise unintended impacts like forest fires Not making provision for dealing with these issues can damage Eskom's corporate reputation, lead to unnecessary financial claims against Eskom, have a negative impact on stakeholder relationships and social license to operate.	
Management Actions	**Responsible Person**	**Timeframe**
Compile required documentation	Eskom	Start as soon as possible during planning phase and continue until decommissioning. Revise activities during operational phase.

Implement strategies and mechanisms – procedures on a practical level	Eskom and CLO	Start as soon as possible during planning phase and continue until decommissioning. Revise activities during operational phase.
Put mechanisms in place for monitoring and evaluation of strategies	Eskom and CLO	Start as soon as possible during planning phase and continue until decommissioning. Revise activities during operational phase.
Monitoring		
Method		**Frequency**
Report back to relevant Eskom managers on activities and progress on issues		Monthly until operations phase, then quarterly

Management Objective	Manage relocation of people and impacts on livelihoods	
Management Outcome	**Indicator**	**Targets**
Relocation policy	Written relocation policy	Ensure relocation procedures are standardised and the same for all
Relocation action plan	Written relocation action plan	Ensure relocation is done in a fair way and takes into consideration all relevant aspects in terms of culture and livelihoods
Compensation policy	Written compensation policy	Ensure the same procedures and rule applies to all in terms of compensation
Activities	Relocation and compensation should be done in a fair and transparent way. The same policy must be applicable to all, and any potential deviations should be provided for in the policy. Relocation and compensation should be done in line with international best practice.	
Aspects	Policies should be fair and transparent.	

	There should be fixed guidelines along which negotiations for land and compensation should be done. Consult with local communities to determine correct processes to follow for land acquisition and resettlement	
Impacts and Risks	Not having fixed guidelines could lead to accusations of bias towards certain stakeholders. Not taking cultural processes and structures into consideration could lead to costly delays in the process and loss of social license to operate.	
Management Actions	**Responsible Person**	**Timeframe**
Compile required documentation	Eskom	Start as soon as possible in planning phase
Implement policies and procedures on a practical level	Eskom	Start with discussions as soon as route and site selections have been finalised
Put mechanisms in place for monitoring and evaluation	Eskom and CLO	Start as soon as possible in planning phase
Monitoring		
Method		**Frequency**
Report back to relevant Eskom managers on activities and progress on issues		Monthly
Check in on relocated families to ensure that they are not worse off than before		Every six months after relocation for at least five years

8.1.2 Conditions to be included in the EA

The EA should include the following measures:

- Social mitigation and monitoring measures should be adhered to
- Appoint a Community Liaison Officer
- Have a grievance mechanism in place
- Have a relocation and compensation policy according to international best practice
- Appoint a relocation specialist if relocation is required
- Construction camps should be established according to international best practice

8.2 Normandie-Iphiva 400 kV Powerline

8.2.1 Mitigation and Monitoring Measures for Inclusion in the EMPr

Management Objective	Manage expectations and improve relationships with communities	
Management Outcome	**Indicator**	**Targets**
Appoint Community Liaison Officer (CLO)	CLO appointed	Establish good relationships with affected communities and landowners and protect their interests
Compile community relations strategy	Written community relations strategy Communication register	Establish good relationships with affected communities and landowners and protect their interests
Compile communication strategy	Written communication strategy Communication register	Establish good relationships with affected communities and landowners and protect their interests
Compile grievance mechanism	Written grievance mechanism Grievance register	Establish good relationships with affected communities and landowners and protect their interests
Activities	Engage with communities, landowners and other stakeholders	
Aspects	Share information open and honestly, even if it is negative	
Impacts and Risks	Not engaging with stakeholders can have a negative impact on stakeholder relationships and social licence to operate and cause unnecessary delays to the project. It could also damage Eskom's corporate reputation.	
Management Actions	**Responsible Person**	**Timeframe**
Appoint CLO	Eskom – management and HR	Start as soon as possible during planning phase and continue until decommissioning. Revise activities during operational phase.
Compile required documentation	Eskom	Start as soon as possible during planning phase and continue until

		decommissioning. Revise activities during operational phase.
Implement strategies and mechanisms – procedures on a practical level	Eskom and CLO	Start as soon as possible during planning phase and continue until decommissioning. Revise activities during operational phase.
Put mechanisms in place for monitoring and evaluation of strategies	Eskom and CLO	Start as soon as possible during planning phase and continue until decommissioning. Revise activities during operational phase.
Monitoring		
Method		**Frequency**
Report back to relevant Eskom managers on activities and progress on issues		Monthly until operations phase, then quarterly

Management Objective	Manage expectations in terms of job creation and CSI	
Management Outcome	**Indicator**	**Targets**
Employment policy	Written employment policy	Manage expectations proactively to indicate what positions will be available, how to apply and how selection will work
CSI strategy	Written CSI strategy	Manage expectations proactively to indicate the process to be followed should Eskom's involvement be sought with any activities, and also what the criteria for involvement would be.
Activities	Manage expectations by communicating requirements for recruitment and Eskom's potential involvement in community projects	

Aspects	Share information open and honestly, even if it is negative. Even something like a delay in the process will be important to communicate. Make use of a certain portion of local labour – it is acknowledged that not all skills will be available locally. Jobs should be advertised in a way that is accessible to all members of society. Labour desks should be established in accessible areas. Consult with relevant communities before engaging in any CSI projects in the area	
Impacts and Risks	Not engaging with stakeholders can have a negative impact on stakeholder relationships and social licence to operate and cause unnecessary delays to the project. It could also damage Eskom's corporate reputation.	
Management Actions	**Responsible Person**	**Timeframe**
Compile required documentation	Eskom	Start as soon as possible during planning phase and continue until decommissioning. Revise activities during operational phase.
Implement policies and strategies – procedures on a practical level	Eskom and CLO	Start as soon as possible during planning phase and continue until decommissioning. Revise activities during operational phase.
Put mechanisms in place for monitoring and evaluation		Start as soon as possible during planning phase and continue until decommissioning. Revise activities during operational phase.
Monitoring		
Method		**Frequency**
Report back to relevant Eskom managers on activities and progress on issues		Monthly until operations phase, then quarterly
Identify potential projects that align with Eskom's CSI initiatives		Ongoing

Management Objective	Manage traffic impacts

Management Outcome	Indicator	Targets
Road use policy	Written road use policy	Ensure road use behaviour of Eskom employees and contractors do not cause additional impacts
Activities	Encourage responsible and considerate road use	
Aspects	Heavy vehicles should be clearly marked and travel during off peak times Deliver infrastructure during off peak times Drivers should obey traffic rules and use designated roads	
Impacts and Risks	Irresponsible road behaviour can lead to accidents and loss of lives. Liability of Eskom in case of negligence of employees or contractors	
Management Actions	**Responsible Person**	**Timeframe**
Compile required documentation	Eskom	Start as soon as possible during planning phase and continue until end of construction phase.
Implement strategies and mechanisms – procedures on a practical level	Eskom	Start as soon as possible during planning phase and continue until end of construction phase.
Put mechanisms in place for monitoring and evaluation of strategies	Eskom	Start as soon as possible during planning phase and continue until end of construction phase.
Monitoring		
Method		**Frequency**
Report back to relevant Eskom managers on activities and progress on issues		Monthly
Link compliance to road use policy to payment of contractors		Monthly

Management Objective	Manage impacts resulting from presence of construction workers	
Management Outcome	**Indicator**	**Targets**
Construction camp policy	Written construction camp policy	Construction camps should be established in accordance with the IFC's guidelines for

		Workers' Accommodation
Employee & contractor conduct policy	Written conduct policy	Conduct of employees and contractors should not cause conflict in and with the communities and other stakeholder groups
HIV and life skills strategy	Written HIV and life skills strategy	HIV and life skills training should be presented to all Eskom employees, contractors and densely populated communities.
Fire fighting strategy	Written fire fighting strategy	Ensure employees and contractors know what to do in case of fire
Security strategy	Written security strategy	Ensure Eskom's activities do not put communities at risk in terms of community safety and security
Activities	Construction camps should be established in in line with IFC guidelines Employees and contractors should know what are expected of them and how they should behave in order to minimise their impact on the surrounding communities HIV and Life Skills training should be presented to employees. Where possible this training should also be presented at local schools and community centres in densely populated areas, such the are between Piet Retief and Pongola. Topics such as HIV/AIDS, prostitution, teen pregnancy, etc should be included. The community should also be prepared for the impacts and be equipped to deal with them. Eskom should join the local Fire Protection Associations and assist with fire fighting when required. Eskom employees, contractors and vehicles should be easily identifiable. This should assist in enhancing security. Where possible land owners and other stakeholders should be informed in advance when Eskom will be in the area.	
Aspects	Policies and strategies should be adhered to strictly	

	Eskom should strive to be a good and civil member of the community	
Impacts and Risks	The location of the construction camp must be agreed with surrounding neighbours, to minimise unintended impacts like forest fires Not making provision for dealing with these issues can damage Eskom's corporate reputation, lead to unnecessary financial claims against Eskom, have a negative impact on stakeholder relationships and social license to operate.	
Management Actions	**Responsible Person**	**Timeframe**
Compile required documentation	Eskom	Start as soon as possible during planning phase and continue until decommissioning. Revise activities during operational phase.
Implement strategies and mechanisms – procedures on a practical level	Eskom and CLO	Start as soon as possible during planning phase and continue until decommissioning. Revise activities during operational phase.
Put mechanisms in place for monitoring and evaluation of strategies	Eskom and CLO	Start as soon as possible during planning phase and continue until decommissioning. Revise activities during operational phase.
Monitoring		
Method		**Frequency**
Report back to relevant Eskom managers on activities and progress on issues		Monthly until operations phase, then quarterly

Management Objective	Manage relocation of people and impacts on livelihoods	
Management Outcome	**Indicator**	**Targets**
Relocation policy	Written relocation policy	Ensure relocation procedures are

		standardised and the same for all
Relocation action plan	Written relocation action plan	Ensure relocation is done in a fair way and takes into consideration all relevant aspects in terms of culture and livelihoods
Compensation policy	Written compensation policy	Ensure the same procedures and rule applies to all in terms of compensation
Activities	Relocation and compensation should be done in a fair and transparent way. The same policy must be applicable to all, and any potential deviations should be provided for in the policy. Relocation and compensation should be done in line with international best practice.	
Aspects	Policies should be fair and transparent. There should be fixed guidelines along which negotiations for land and compensation should be done. Consult with local communities to determine correct processes to follow for land acquisition and resettlement	
Impacts and Risks	Not having fixed guidelines could lead to accusations of bias towards certain stakeholders. Not taking cultural processes and structures into consideration could lead to costly delays in the process and loss of social license to operate.	
Management Actions	**Responsible Person**	**Timeframe**
Compile required documentation	Eskom	Start as soon as possible in planning phase
Implement policies and procedures on a practical level	Eskom	Start with discussions as soon as route and site selections have been finalised
Put mechanisms in place for monitoring and evaluation	Eskom and CLO	Start as soon as possible in planning phase
Monitoring		
Method		**Frequency**
Report back to relevant Eskom managers on activities and progress on issues		Monthly

Check in on relocated families to ensure that they are not worse off than before	Every six months after relocation for at least five years

8.2.2 Conditions to be included in the EA

The EA should include the following measures:

- Social mitigation and monitoring measures should be adhered to
- Appoint a Community Liaison Officer
- Have a grievance mechanism in place
- Have a relocation and compensation policy according to international best practice
- Appoint a relocation specialist if relocation is required
- Construction camps should be established according to international best practice

8.3 Iphiva-Duma 400 kV Powerline

8.3.1 Mitigation and Monitoring Measures for Inclusion in the EMPr

Management Objective	Manage expectations and improve relationships with communities	
Management Outcome	**Indicator**	**Targets**
Appoint Community Liaison Officer (CLO)	CLO appointed	Establish good relationships with affected communities and landowners and protect their interests
Compile community relations strategy	Written community relations strategy Communication register	Establish good relationships with affected communities and landowners and protect their interests
Compile communication strategy	Written communication strategy Communication register	Establish good relationships with affected communities and landowners and protect their interests
Compile grievance mechanism	Written grievance mechanism Grievance register	Establish good relationships with affected communities and landowners and protect their interests
Activities	Engage with communities, landowners and other stakeholders	
Aspects	Share information open and honestly, even if it is negative	

Impacts and Risks	Not engaging with stakeholders can have a negative impact on stakeholder relationships and social licence to operate and cause unnecessary delays to the project. It could also damage Eskom's corporate reputation.	
Management Actions	**Responsible Person**	**Timeframe**
Appoint CLO	Eskom – management and HR	Start as soon as possible during planning phase and continue until decommissioning. Revise activities during operational phase.
Compile required documentation	Eskom	Start as soon as possible during planning phase and continue until decommissioning. Revise activities during operational phase.
Implement strategies and mechanisms – procedures on a practical level	Eskom and CLO	Start as soon as possible during planning phase and continue until decommissioning. Revise activities during operational phase.
Put mechanisms in place for monitoring and evaluation of strategies	Eskom and CLO	Start as soon as possible during planning phase and continue until decommissioning. Revise activities during operational phase.
Monitoring		
Method		**Frequency**
Report back to relevant Eskom managers on activities and progress on issues		Monthly until operations phase, then quarterly

Management Objective	Manage expectations in terms of job creation and CSI	
Management Outcome	**Indicator**	**Targets**
Employment policy	Written employment policy	Manage expectations proactively to indicate

		what positions will be available, how to apply and how selection will work
CSI strategy	Written CSI strategy	Manage expectations proactively to indicate the process to be followed should Eskom's involvement be sought with any activities, and also what the criteria for involvement would be.
Activities	Manage expectations by communicating requirements for recruitment and Eskom's potential involvement in community projects	
Aspects	Share information open and honestly, even if it is negative. Even something like a delay in the process will be important to communicate. Make use of a certain portion of local labour – it is acknowledged that not all skills will be available locally. Jobs should be advertised in a way that is accessible to all members of society. Labour desks should be established in accessible areas. Consult with relevant communities before engaging in any CSI projects in the area	
Impacts and Risks	Not engaging with stakeholders can have a negative impact on stakeholder relationships and social licence to operate and cause unnecessary delays to the project. It could also damage Eskom's corporate reputation.	
Management Actions	**Responsible Person**	**Timeframe**
Compile required documentation	Eskom	Start as soon as possible during planning phase and continue until decommissioning. Revise activities during operational phase.
Implement policies and strategies – procedures on a practical level	Eskom and CLO	Start as soon as possible during planning phase and continue until

		decommissioning. Revise activities during operational phase.
Put mechanisms in place for monitoring and evaluation		Start as soon as possible during planning phase and continue until decommissioning. Revise activities during operational phase.
Monitoring		
Method		**Frequency**
Report back to relevant Eskom managers on activities and progress on issues		Monthly until operations phase, then quarterly
Identify potential projects that align with Eskom's CSI initiatives		Ongoing

Management Objective	Manage traffic impacts	
Management Outcome	**Indicator**	**Targets**
Road use policy	Written road use policy	Ensure road use behaviour of Eskom employees and contractors do not cause additional impacts
Activities	Encourage responsible and considerate road use	
Aspects	Heavy vehicles should be clearly marked and travel during off peak times Deliver infrastructure during off peak times Drivers should obey traffic rules and use designated roads	
Impacts and Risks	Irresponsible road behaviour can lead to accidents and loss of lives. Liability of Eskom in case of negligence of employees or contractors	
Management Actions	**Responsible Person**	**Timeframe**
Compile required documentation	Eskom	Start as soon as possible during planning phase and continue until end of construction phase.
Implement strategies and mechanisms – procedures on a practical level	Eskom	Start as soon as possible during planning phase and continue until end of construction phase.

Put mechanisms in place for monitoring and evaluation of strategies	Eskom	Start as soon as possible during planning phase and continue until end of construction phase.
Monitoring		
Method		**Frequency**
Report back to relevant Eskom managers on activities and progress on issues		Monthly
Link compliance to road use policy to payment of contractors		Monthly

Management Objective	Manage impacts resulting from presence of construction workers	
Management Outcome	**Indicator**	**Targets**
Construction camp policy	Written construction camp policy	Construction camps should be established in accordance with the IFC's guidelines for Workers' Accommodation
Employee & contractor conduct policy (include access control policy specifically for game reserves and protected areas)	Written conduct policy	Conduct of employees and contractors should not cause conflict in and with the communities and other stakeholder groups
HIV and life skills strategy	Written HIV and life skills strategy	HIV and life skills training should be presented to all Eskom employees, contractors and densely populated communities.
Fire fighting strategy	Written fire fighting strategy	Ensure employees and contractors know what to do in case of fire
Security strategy	Written security strategy	Ensure Eskom's activities do not put communities at risk in terms of community safety and security

Activities	Construction camps should be established in in line with IFC guidelines Employees and contractors should know what are expected of them and how they should behave in order to minimise their impact on the surrounding communities HIV and Life Skills training should be presented to employees. Where possible this training should also be presented at local schools and community centres in densely populated areas, such the are between Piet Retief and Pongola. Topics such as HIV/AIDS, prostitution, teen pregnancy, etc should be included. The community should also be prepared for the impacts and be equipped to deal with them. Eskom should join the local Fire Protection Associations and assist with fire fighting when required. Eskom employees, contractors and vehicles should be easily identifiable. This should assist in enhancing security. Where possible land owners and other stakeholders should be informed in advance when Eskom will be in the area.	
Aspects	Policies and strategies should be adhered to strictly Eskom should strive to be a good and civil member of the community	
Impacts and Risks	The location of the construction camp must be agreed with surrounding neighbours, to minimise unintended impacts like forest fires Not making provision for dealing with these issues can damage Eskom's corporate reputation, lead to unnecessary financial claims against Eskom, have a negative impact on stakeholder relationships and social license to operate.	
Management Actions	**Responsible Person**	**Timeframe**
Compile required documentation	Eskom	Start as soon as possible during planning phase and continue until decommissioning. Revise activities during operational phase.
Implement strategies and mechanisms – procedures on a practical level	Eskom and CLO	Start as soon as possible during planning phase and continue until decommissioning. Revise activities during operational phase.

Put mechanisms in place for monitoring and evaluation of strategies	Eskom and CLO	Start as soon as possible during planning phase and continue until decommissioning. Revise activities during operational phase.
Monitoring		
Method		**Frequency**
Report back to relevant Eskom managers on activities and progress on issues		Monthly until operations phase, then quarterly

Management Objective	Manage relocation of people and impacts on livelihoods	
Management Outcome	**Indicator**	**Targets**
Relocation policy	Written relocation policy	Ensure relocation procedures are standardised and the same for all
Relocation action plan	Written relocation action plan	Ensure relocation is done in a fair way and takes into consideration all relevant aspects in terms of culture and livelihoods
Compensation policy	Written compensation policy	Ensure the same procedures and rule applies to all in terms of compensation
Activities	Relocation and compensation should be done in a fair and transparent way. The same policy must be applicable to all, and any potential deviations should be provided for in the policy. Relocation and compensation should be done in line with international best practice.	
Aspects	Policies should be fair and transparent. There should be fixed guidelines along which negotiations for land and compensation should be done. Consult with local communities to determine correct processes to follow for land acquisition and resettlement	
Impacts and Risks	Not having fixed guidelines could lead to accusations of bias towards certain stakeholders.	

	Not taking cultural processes and structures into consideration could lead to costly delays in the process and loss of social license to operate.	
Management Actions	**Responsible Person**	**Timeframe**
Compile required documentation	Eskom	Start as soon as possible in planning phase
Implement policies and procedures on a practical level	Eskom	Start with discussions as soon as route and site selections have been finalised
Put mechanisms in place for monitoring and evaluation	Eskom and CLO	Start as soon as possible in planning phase
Monitoring		
Method		**Frequency**
Report back to relevant Eskom managers on activities and progress on issues		Monthly
Check in on relocated families to ensure that they are not worse off than before		Every six months after relocation for at least five years

8.3.2 Conditions to be included in the EA

The EA should include the following measures:

- Social mitigation and monitoring measures should be adhered to
- Appoint a Community Liaison Officer
- Have a grievance mechanism in place
- Have a relocation and compensation policy according to international best practice
- Appoint a relocation specialist if relocation is required
- Construction camps should be established according to international best practice
- Have an access protocol for accessing protected areas and game reserves that was agreed with stakeholders

8.4 132 kV Distribution powerlines

8.4.1 Mitigation and Monitoring Measures for Inclusion in the EMPr

Management Objective	Manage expectations and improve relationships with communities	
Management Outcome	**Indicator**	**Targets**
Appoint Community Liaison Officer (CLO)	CLO appointed	Establish good relationships with affected communities and landowners and protect their interests
Compile community relations strategy	Written community relations strategy Communication register	Establish good relationships with affected communities and landowners and protect their interests
Compile communication strategy	Written communication strategy Communication register	Establish good relationships with affected communities and landowners and protect their interests
Compile grievance mechanism	Written grievance mechanism Grievance register	Establish good relationships with affected communities and landowners and protect their interests
Activities	Engage with communities, landowners and other stakeholders	
Aspects	Share information open and honestly, even if it is negative	
Impacts and Risks	Not engaging with stakeholders can have a negative impact on stakeholder relationships and social licence to operate and cause unnecessary delays to the project. It could also damage Eskom's corporate reputation.	
Management Actions	**Responsible Person**	**Timeframe**
Appoint CLO	Eskom – management and HR	Start as soon as possible during planning phase and continue until decommissioning. Revise activities during operational phase.
Compile required documentation	Eskom	Start as soon as possible during planning phase and continue until

		decommissioning. Revise activities during operational phase.
Implement strategies and mechanisms – procedures on a practical level	Eskom and CLO	Start as soon as possible during planning phase and continue until decommissioning. Revise activities during operational phase.
Put mechanisms in place for monitoring and evaluation of strategies	Eskom and CLO	Start as soon as possible during planning phase and continue until decommissioning. Revise activities during operational phase.
Monitoring		
Method		**Frequency**
Report back to relevant Eskom managers on activities and progress on issues		Monthly until operations phase, then quarterly

Management Objective	Manage expectations in terms of job creation and CSI	
Management Outcome	**Indicator**	**Targets**
Employment policy	Written employment policy	Manage expectations proactively to indicate what positions will be available, how to apply and how selection will work
CSI strategy	Written CSI strategy	Manage expectations proactively to indicate the process to be followed should Eskom's involvement be sought with any activities, and also what the criteria for involvement would be.
Activities	Manage expectations by communicating requirements for recruitment and Eskom's potential involvement in community projects	

Aspects	Share information open and honestly, even if it is negative. Even something like a delay in the process will be important to communicate. Make use of a certain portion of local labour – it is acknowledged that not all skills will be available locally. Jobs should be advertised in a way that is accessible to all members of society. Labour desks should be established in accessible areas. Consult with relevant communities before engaging in any CSI projects in the area	
Impacts and Risks	Not engaging with stakeholders can have a negative impact on stakeholder relationships and social licence to operate and cause unnecessary delays to the project. It could also damage Eskom's corporate reputation.	
Management Actions	**Responsible Person**	**Timeframe**
Compile required documentation	Eskom	Start as soon as possible during planning phase and continue until decommissioning. Revise activities during operational phase.
Implement policies and strategies – procedures on a practical level	Eskom and CLO	Start as soon as possible during planning phase and continue until decommissioning. Revise activities during operational phase.
Put mechanisms in place for monitoring and evaluation		Start as soon as possible during planning phase and continue until decommissioning. Revise activities during operational phase.
Monitoring		
Method		**Frequency**
Report back to relevant Eskom managers on activities and progress on issues		Monthly until operations phase, then quarterly
Identify potential projects that align with Eskom's CSI initiatives		Ongoing

Management Objective	Manage traffic impacts

Management Outcome	Indicator	Targets
Road use policy	Written road use policy	Ensure road use behaviour of Eskom employees and contractors do not cause additional impacts
Activities	Encourage responsible and considerate road use	
Aspects	Heavy vehicles should be clearly marked and travel during off peak times Deliver infrastructure during off peak times Drivers should obey traffic rules and use designated roads	
Impacts and Risks	Irresponsible road behaviour can lead to accidents and loss of lives. Liability of Eskom in case of negligence of employees or contractors	
Management Actions	**Responsible Person**	**Timeframe**
Compile required documentation	Eskom	Start as soon as possible during planning phase and continue until end of construction phase.
Implement strategies and mechanisms – procedures on a practical level	Eskom	Start as soon as possible during planning phase and continue until end of construction phase.
Put mechanisms in place for monitoring and evaluation of strategies	Eskom	Start as soon as possible during planning phase and continue until end of construction phase.
Monitoring		
Method		**Frequency**
Report back to relevant Eskom managers on activities and progress on issues		Monthly
Link compliance to road use policy to payment of contractors		Monthly

Management Objective	Manage impacts resulting from presence of construction workers	
Management Outcome	**Indicator**	**Targets**
Construction camp policy	Written construction camp policy	Construction camps should be established in accordance with the IFC's guidelines for

		Workers' Accommodation
Employee & contractor conduct policy	Written conduct policy	Conduct of employees and contractors should not cause conflict in and with the communities and other stakeholder groups
HIV and life skills strategy	Written HIV and life skills strategy	HIV and life skills training should be presented to all Eskom employees, contractors and densely populated communities.
Fire fighting strategy	Written fire fighting strategy	Ensure employees and contractors know what to do in case of fire
Security strategy	Written security strategy	Ensure Eskom's activities do not put communities at risk in terms of community safety and security
Activities	Construction camps should be established in in line with IFC guidelines Employees and contractors should know what are expected of them and how they should behave in order to minimise their impact on the surrounding communities HIV and Life Skills training should be presented to employees. Where possible this training should also be presented at local schools and community centres in densely populated areas, such the are between Piet Retief and Pongola. Topics such as HIV/AIDS, prostitution, teen pregnancy, etc should be included. The community should also be prepared for the impacts and be equipped to deal with them. Eskom should join the local Fire Protection Associations and assist with fire fighting when required. Eskom employees, contractors and vehicles should be easily identifiable. This should assist in enhancing security. Where possible land owners and other stakeholders should be informed in advance when Eskom will be in the area.	
Aspects	Policies and strategies should be adhered to strictly	

	Eskom should strive to be a good and civil member of the community	
Impacts and Risks	The location of the construction camp must be agreed with surrounding neighbours, to minimise unintended impacts like forest fires Not making provision for dealing with these issues can damage Eskom's corporate reputation, lead to unnecessary financial claims against Eskom, have a negative impact on stakeholder relationships and social license to operate.	
Management Actions	**Responsible Person**	**Timeframe**
Compile required documentation	Eskom	Start as soon as possible during planning phase and continue until decommissioning. Revise activities during operational phase.
Implement strategies and mechanisms – procedures on a practical level	Eskom and CLO	Start as soon as possible during planning phase and continue until decommissioning. Revise activities during operational phase.
Put mechanisms in place for monitoring and evaluation of strategies	Eskom and CLO	Start as soon as possible during planning phase and continue until decommissioning. Revise activities during operational phase.
Monitoring		
Method		**Frequency**
Report back to relevant Eskom managers on activities and progress on issues		Monthly until operations phase, then quarterly

Management Objective	Manage relocation of people and impacts on livelihoods	
Management Outcome	**Indicator**	**Targets**
Relocation policy	Written relocation policy	Ensure relocation procedures are standardised and the same for all

Relocation action plan	Written relocation action plan	Ensure relocation is done in a fair way and takes into consideration all relevant aspects in terms of culture and livelihoods
Compensation policy	Written compensation policy	Ensure the same procedures and rule applies to all in terms of compensation
Activities	Relocation and compensation should be done in a fair and transparent way. The same policy must be applicable to all, and any potential deviations should be provided for in the policy. Relocation and compensation should be done in line with international best practice.	
Aspects	Policies should be fair and transparent. There should be fixed guidelines along which negotiations for land and compensation should be done. Consult with local communities to determine correct processes to follow for land acquisition and resettlement	
Impacts and Risks	Not having fixed guidelines could lead to accusations of bias towards certain stakeholders. Not taking cultural processes and structures into consideration could lead to costly delays in the process and loss of social license to operate.	
Management Actions	**Responsible Person**	**Timeframe**
Compile required documentation	Eskom	Start as soon as possible in planning phase
Implement policies and procedures on a practical level	Eskom	Start with discussions as soon as route and site selections have been finalised
Put mechanisms in place for monitoring and evaluation	Eskom and CLO	Start as soon as possible in planning phase
Monitoring		
Method		**Frequency**
Report back to relevant Eskom managers on activities and progress on issues		Monthly

Check in on relocated families to ensure that they are not worse off than before	Every six months after relocation for at least five years

8.4.2 Conditions to be included in the EA

The EA should include the following measures:

- Social mitigation and monitoring measures should be adhered to
- Appoint a Community Liaison Officer
- Have a grievance mechanism in place
- Have a relocation and compensation policy according to international best practice
- Appoint a relocation specialist if relocation is required
- Construction camps should be established according to international best practice

9. CONSULTATION PROCESS

> Environmental Impact Assessment Regulations, 2014, published under Government Notice No. 982 in Gazette No. 3822 of 4 December 2014, in terms of sections 24(5) and 44 of the National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended by Appendix 6 of GN 326 of 7 April 2017:
>
> 1. (1) A specialist report prepared in terms of these Regulations must contain—
>
> (o) a description of any consultation process that was undertaken during the course of preparing the specialist report.

Due to the size of the area, not all potentially affected people could be interviewed. A representative sample of key people were interviewed, these include traditional authorities, farmers' associations, representatives of private game reserves and other land owners.

10. COMMENTS RECEIVED

Environmental Impact Assessment Regulations, 2014, published under Government Notice No. 982 in Gazette No. 3822 of 4 December 2014, in terms of sections 24(5) and 44 of the National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended by Appendix 6 of GN 326 of 7 April 2017:

1. (1) A specialist report prepared in terms of these Regulations must contain—
(p) a summary and copies of any comments received during any consultation process and where applicable all responses thereto.

Comments received were forwarded to the EAP for inclusion in the Issues and Responses Report.

11. OTHER INFORMATION REQUESTED BY THE AUTHORITY

Environmental Impact Assessment Regulations, 2014, published under Government Notice No. 982 in Gazette No. 3822 of 4 December 2014, in terms of sections 24(5) and 44 of the National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended by Appendix 6 of GN 326 of 7 April 2017:

1. (1) A specialist report prepared in terms of these Regulations must contain—
(q) any other information requested by the competent authority.

None.

12. CONCLUSION

Environmental Impact Assessment Regulations, 2014, published under Government Notice No. 982 in Gazette No. 3822 of 4 December 2014, in terms of sections 24(5) and 44 of the National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended by Appendix 6 of GN 326 of 7 April 2017:

1. (1) A specialist report prepared in terms of these Regulations must contain—
    (n) a reasoned opinion—
        (i) whether the proposed activity, activities or portions thereof should be authorised;
            (iA) regarding the acceptability of the proposed activity or activities; and

12.1 Iphiva Substation

Site 6 for the Iphiva substation is privately owned while Site 3 belongs to the Mbulungwane Communal Property Trust. There are people residing on Site 6, but not on Site 3. The traditional community has indicated that they would like the substation on their land (Site 3) and they have indicated that there is a land claim on Site 6. There are no tourism establishments on, or directly adjacent to either of the sites. There is however a stewardship area near Site 3 and there are plans to develop the area around Site 3 in a conservation corridor area.

In this context, it is complex recommending a site for the substation. On the surface Site 3 seems ideal as the landowners would prefer the site there, no people are living on the site, and there is no land claim on the site. For this site to become part of the conservation corridor, and thus part of the tourism attractions in the area, will be of greater socio-economic value to the community than having a substation on their land. Given what the private game reserves have already achieved in the area, and as they are part of the development plan, it is very likely that this development will materialise.

As not the total Site 6 will be used for the substation, but only a relatively small portion, it should theoretically be possible to position the site in such a way that no households need to be resettled. It is further understood that the same community that owns Site 3, will be the beneficiaries if the land claim on Site 6 is successful. From this perspective, Site 6 will be a more appropriate choice for the substation than Site 3, and is thus the recommended site.

12.2 Normandie-Iphiva 400 kV Powerline

The Normandie-Iphiva 400 kV Powerline consists of the N-I 2 and the N-I 3 options. The N-I 2 option have the following characteristics that are of concern – a small pocket of forestry on the route, the area is densely populated along the N2 between Piet Retief and Pongola from about the border between KZN and Mpumalanga, and it runs through sugar cane farming areas. All aspects that are not ideal companions for a powerline. The N-I 3 area runs past a larger forestry area and through sugar cane farming areas. Some areas are populated, but not as densely as along the N2. There are however existing powerlines running along the N-I 2 option between Piet Retief and Pongola.

The challenges associated with the combination of powerlines and forestry, makes the N-I 3 option less than ideal. As there are existing powerlines on the N-I 2 option, and the issues in terms of forestry have been sorted out on this route, it would be preferable if the route on the N-I 2 option along existing powerlines could be followed. Although the area is densely populated, the settlements are scattered and there is thus a strong possibility that the infrastructure of the powerline could be placed in such a way within the two kilometre corridor that no, or very few, households will need to be resettled. This makes the N-I 2 option the recommended option.

12.3 Iphiva-Duma 400 kV Powerline

The alternatives for the Iphiva-Duma 400kV Powerline consists of an East option and a West option, with some deviations on the West option. From the Iphiva substation, the East option will run along the P34 road, and then along the N2 until close to Hluhluwe, where it will turn and run around the Hluhluwe-iMfolozi Game Reserve to the Duma Substation. The West options will run from the Iphiva substation in proximity of the P234 road (but not through private game reserves) and then around the Hluhluwe-iMfolozi Game Reserve to the Duma Substation. The East option will impact on the livelihoods of the private game reserves along the N2. It is not only the livelihoods of the owners of the establishments that will be impacted, but also those of their employees and their service providers. The impact on the livelihoods of specifically the Rhino River Lodge will be to such an extent that it cannot be mitigated. Based on this, the West option is the recommended option. There are no social aspects that would make any of the West options or deviations on the West option more or less desirable than the other, and this selection should be based on the results of the other specialist studies.

12.4 132 kV Distribution Powerline

The 132 kV Distribution Powerline has a route alternative for the Iphiva-Makhathini/Iphiva-Mbazwane double circuit powerline. Stakeholders have requested that the option of burying the powerlines should also be investigated. It may be possible to bury some of the powerlines along the P234 road. This resulted in the following design alternatives:

- All powerlines above-ground
- Burying 4 x 132 kV powerline and construct 1 x 400 kV powerline next to them
- Bury all of the lines
- Bury the 400 kV lines and construct 132 kV above ground on double circuit towers

- One tower with 1 x 400kV and 2 x 132kV powerlines and the rest buried.

Spacing between buried conductors (cables) for a single underground line is typically 2 m (for all three trenches per powerline). The depth of buried cables is at least 1.2 m. Land use above buried cables will be limited. No trees or structures will be allowed, only grass.

In addition to burying powerlines, visual and land use impacts can also be reduced by using double or multi-circuit towers. The seven (7) various combinations of burying and multi-circuit towers is presented in the table below.

Table 20: Combinations of burying and multi-circuit towers in the P234 Corridor

	Iphiva-Duma West	**Iphiva-Duma East**
All above ground (132k V powerlines on double circuit towers)	1	2
Burying 4 x 132 kV powerline and construct 1 x 400 kV powerline next to them	3	4
Bury all of the lines	(same as 3)	5
Bury the 400 kV powerline and construct 132 kV above ground on double circuit towers next to it	(same as 1)	6
One tower with 1x400 kV and 2x 132kV powerlines and 1 x 132kV powerline buried	N/A	7

As Iphiva-Duma West is the recommended route from a social perspective, it leaves to option of selecting Option 1 or Option 3 along the P234 as well as the route alternative for the Iphiva-Makhathini/Iphiva-Mbazwane double circuit powerline. The suggested route (East) for the double circuit powerline cuts across a farming area, while the alternative (West) runs parallel with a road that runs parallel to the N2. From this perspective the route alternative (West) is the preferred option.

Underground powerlines have the advantage that it would eliminate the visual impact that the powerlines would have, which is a major benefit in terms of sense of place. The disadvantages of underground powerlines are:

- A greater area of environmental disturbance;
- The complete removal of small trees and brush along the servitude;
- Increased construction and repair costs;
- Increased operation and maintenance costs;
- Damage to powerlines are difficult to pinpoints and repairs will take significantly longer;
- Risk of cable theft.

From a social perspective, the risks associated with the underground powerlines outweigh the benefit, and for this reason the preferred option is for above-ground structures.

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Appendix A: CV's of SIA project team

Ilse Aucamp
Social Scientist

Summary	Ilse Aucamp is an experienced facilitator, trainer and lecturer and presents modules on social impact assessment and public participation on several short courses. She is also a guest lecturer for honours and masters degree students at a number of universities across South Africa. She is past chair person of the sections coordinating committee of the International Association for Impact Assessment (IAIA) having been section chair for the SIA section before. She has served on the National Executive Committee of IAIA's South African affiliate for a number of years. She advises the Centre for Environmental Rights on social issues, and is also on the advisory panel of the SIAhub, an international website aimed at SIA practitioners. She is a co-author of the newly published ***Social Impact Assessment: Guidance for assessing and managing the social impacts of projects*** document published by the International Association for Impact Assessment. Dr. Aucamp has conducted more than 100 social impact assessments during the last fifteen years. Her experience includes facilitation and training, strategic assessments, social management and monitoring plans and social development initiatives.
Qualifications	• 1994, BA (Social Work), University of Pretoria • 2004, Masters degree in Environmental Management (Cum Laude), Potchefstroom University for Christian Higher Education • 2015, D Phil (Social Work) University of Pretoria.
Registration(s)	• South African Council for Social Service Professions(Registration number: 10 –16558)
Further training 2001- 2017	• Introduction to SIA - Burdge • Sustainable Livelihoods Training – Khanya Development Trust • Achieving the full potential of SIA – Vanclay & Esteves • Involuntary Resettlement – Appleby, Rawa & Rivas de Neffa
Affiliations	• International Association for Impact Assessment (South Africa) – National Executive Committee member 2005 - 2010 • International Association for Impact Assessment – Chair of Section Coordinating committee 2009 – 2010 • International Association for Impact Assessment – Chair of Social Impact Assessment Section 2005 – 2008 • LEAD Fellow: Cohort 12 • Advisory panel member: socialimpactassessment.net (SIAhub); Centre for Environmental Rights
Countries of work experience	South Africa; Swaziland, Taiwan, United Kingdom, Angola, Namibia, Mozambique, Zambia
Nationality	South African
Years of experience	18
Date of birth	18 January 1973
Languages	**Speaking** / **Reading** / **Writing**

Afrikaans	Excellent	Excellent	Excellent
English	Excellent	Excellent	Excellent

RELEVANT PROFESSIONAL EXPERIENCE

Social Impact Assessment and related projects 2001 - 2017	• Port feasibility and social assessments including Oranjemund Port Feasibility Study, Expansion of the Port of Lüderitz Feasibility Study • Industrial development • Residential developments • Mines including Rössing Uranium • Waste sites • Power generation projects including Khanyisa Power Station, Coal 3 and 4 Power Stations, Vaal South power station and Waterberg power stations. • Roads. • Terrain suitability study • Recreational facilities • Lebone II College of the Royal Bafokeng. • Filling Stations. • Social and Labour Plans • Karoo Array Telescope. • Coastal Livelihood Assessment Paternoster & Melkhoutfontein. • Powerlines including Garona/Aries, De Beers/Eskom Voorspoed Mine, Mamelodi /Hatherley transmission lines, Soweto Integration Power Lines, Eskom /Tabor-Spencer, Eskom Kudu, Solar Park Integration Project, and Eskom Camden-Theta Transmission lines. • Golf Estates • Township developments
Social Audits/Due diligence 2001-2017	• Kelvin Power • EnviroServ • Shoprite Angola
Social Management Implementation: 2009 –ongoing	• Mokolo Crocodile Water Augementation Project • Upgrade of Staff infrastructure in Etosha National Park (2012-2014)
Public Consultation 2001 – 2017	• Relevant projects include: De Beers/Eskom Voorspoed Mine power line, Eskom Tabor-Spencer power line
Human behaviour studies 2009 - 2017	• Human behaviour studies in gold mining areas as input for modelling for radiological impact assessment studies (Clients include Harmony, Anglo Gold Ashanti, Bosvel Phosphates, Tronox and others)

PROFESSIONAL HISTORY

Date	Company	Position
2013 -current	Equispectives Research and Consulting Services	Director
2006 -2014	Ptersa Environmental Management Consultants	Director
2005 - 2006	Strategic Environmental Focus	Public participation Co-ordinator & Social Scientist

2004 - 2005	EIMS	Manager: Stakeholder Engagement Unit
2004	Clean Stream Environmental Services	Senior Environmental Practitioner
2002 -2003	Ptersa Environmental Management Consultants	Social Scientist
2001 - 2002	Joy School of Teaching, Taichung, Taiwan	Teacher
1999 - 2000	RS Locums. United Kingdom of England	Locum Social Worker
1995 - 1999	South African National Defence Force	Senior Social Worker

PAPERS AND PUBLICATIONS

- Vanclay, F., Esteves, A.M., **Aucamp, I.** & Franks, D. 2015. *Social Impact Assessment: Guidance for assessing and managing the social impacts of projects.* Fargo ND: International Association for Impact Assessment
- **Aucamp, I.**, Woodborne, S., Perold, J., Bron, A. & Aucamp, S. 2011. Looking beyond impact assessment to social sustainability. In Vanclay F. & Esteves A. (Eds.), *New Directions in Social Impact Assessment: Conceptual and Methodological Advances.* Cheltenham: Edward Elgar
- Member of technical advisory committee for World Congress on Housing 2005. Transforming Housing Environments through design
- Conference coordinator – IAIAsa 2009 annual conference
- Member of international SIA steering group in IAIA developing guidelines for SIA
- Advisory member for the Centre for Environmental Rights
- Technical coordinator – IAIAsa 2016 annual conference in Port Elizabeth

San-Marié Aucamp

Research Psychologist

Summary	An analytical, efficient and organised individual with excellent interpersonal skills that performs well under pressure and communicates good both in writing and orally. Relates very well to people on all levels and is comfortable in multi-cultural environment. Enjoys problem solving, welcomes constant challenge and enjoys learning new skills. Experienced in qualitative and quantitative social research methods, project and account management, lecturing, moderating, interviewing and social impact assessment.
Qualifications	1990 BA (cum laude), University of Pretoria (majored in Psychology and Criminology) 1991 BA (Hons) Psychology, University of Pretoria 1992 Higher Education Diploma (Post graduate), University of Pretoria 1994 University of South Africa, Not for degree purposes – Mathematics 3 & Computer Science 1 (while working full-time) 1996 University of Pretoria, Not for degree purposes – Mathematical Statistics 1 (while working full-time) 2003 MA (Research Psychology), University of Pretoria
Registration(s)	Health Professions Council of South Africa – Research Psychologist and Psychometrist in independent practice
Affiliations	Psychological Society of South Africa – member Society for Industrial and Occupational Psychology – member Southern African Marketing Research Association – member and past national council member Services SETA – Past National Council Member
Countries of work experience	South Africa; Zambia, Botswana; Ghana, Kenya, Namibia, Hong Kong, Seychelles Managed multi-country projects (from South Africa) with fieldwork in Swaziland; Uganda; Rwanda; Nigeria; Cameroon; Namibia, Hungary, Japan, China, India
Nationality	South African
Years of experience	26

PROFESSIONAL EXPERIENCE

Social Impact Assessments & Social and Labour Plans **2007 –**	Design, execution and project management of SIA's, SLP's and social research input as part of multi-disciplinary projects Conducting baseline studies for SIA's using social indicators such as poverty rate, unemployment rate, crime, literacy levels, income, household size, access to water, etc.

Reporting, data analysis and client liaison

Human behaviour studies **2009 -**	Human behaviour studies in gold mining areas as input for modelling for radiological impact assessment studies
Social & marketing research **1997 –**	Translating client needs in research projects – including measurement and tracking Design, implementation and project management of research projects (qualitative and quantitative methodologies, including statistics and indices) Reporting, analysis and client liaison Worked on more than 100 research projects Project size varies from about 10 to 3 500 respondents Project respondents varied in age, gender, cultural group and educational level Project types include employee satisfaction, customer satisfaction, product tests, branding, etc. Industry experience and clients include the mining, manufacturing, agriculture, government, automotive, financial services, telecoms and IT as well as FMCG sectors Worked on multi country projects as either team member or team leader
Training **1997 -**	Research methodology for second year psychology students (1998) Guest lecturer in modules on Social Impact Assessment, Public Participation and Social and Labour Plans at UNISA, Tshwane University of Technology, University of Johannesburg, Centre for Environmental Management (North West University) Public meeting facilitation skills – SAPREF (2010)

PROFESSIONAL HISTORY

Date	Company	Position
2007 - present	Equispectives Research & Consulting Services	Member – Social specialist
2006 -present	Ptersa Environmental Management Consultants	Member
2004 - 2006	Synovate	Senior key accounts manager
2002 - 2004	ACNielsen	Client service executive
2000 - 2002	ACNielsen	Omnibus manager
1998 - 1998	University of Pretoria	Intern research psychologist & assistant lecturer
1995 - 1997	Department of Health	Administrative officer
1993 - 1995	Department of Health	Assistant administrative officer
1992- 1993	Self-employed	Mathematics tutor
1988 - 1991	Woolworths	Part-time cashier

Ad Hoc Projects	Saville and Holdsworth Ltd South Africa (1998) ABSA Brokers (1999) MarkData (1999/2000) BMW (2006)
Further training	Introduction to SIA – IAIA International (Rabel Burdge) Sustainable Livelihoods Training – Khanya Development Trust Professional Selling Skills Personnel evaluation Hay method of job evaluation Negotiating skills (Scotwork) Diagnostic market research and psychodynamic mapping (Censydiam) Bar-On EQ-I (Jopie van Rooyen & Associates) Career Counselling Workshops (Prof K Maree & Prof C Foxcroft, PsySSA 2008) Ethnography and Observational Research (Esomar – 2011) Mining Social and Labour Plan (Global Prospectus – 2012)

PUBLICATIONS

Fiedeldey-Van Dijk, C. & Aucamp, S. (1998, July). *Faces of complexity in research methodology: Delphi contributions*. Paper presented at the 14th World Congress of Sociology, Montréal, Canada.

Aucamp, S. (1999). *A systems view of interpersonal communication.* Unpublished manuscript. Recommended reading for the Interpersonal Processes section of the MA (Research Psychology) Course in 1999.

Aucamp, S. (2002). *Identification of mental models of managers with reference to success criteria for brokers.* Unpublished master's dissertation, University of Pretoria, Pretoria.

Richards, A. & Aucamp, S. (2006, July). *Mirror, mirror on the wall, who's the fairest of them all. A reflection of web spaces as research tools in the .co.za tribe.* Paper presented at the 16th World Congress of Sociology, Durban, South Africa.

Aucamp, I.C., Woodborne, S., Perold, J.J., Bron, A. & Aucamp, S. (2011). *Looking beyond impact assessment to social sustainability.* In Vanclay, F. & Esteves, A.M. (2011). *New Directions in Social Impact Assessment: Conceptual and Methodological Advances.*

Contributor to: Vanclay, F., Esteves, A.M., Aucamp, I. & Franks, D. (2015) *Social Impact Assessment: Guidance for assessing and managing the social impacts of projects.* Fargo ND: International Association for Impact Assessment.

King, N., Aucamp, I.C. & Aucamp, S. (2015, August). *Human Rights and Effective Public Participation: Are we doing the right things or just doing things right?* Workshop presented at IAIAsa Conference, Champagne Castle, KwaZulu Natal.

Aucamp, S. (2015, August). *Social Life Cycle Assessment as a method to identify social impacts for an industry consisting of small businesses.* Paper presented at IAIAsa Conference, Champagne Castle, KwaZulu Natal.

Aucamp, S. (2015, August). *Using Psychology as a tool in impact assessment: friend or foe?* Paper presented at IAIAsa Conference, Champagne Castle, KwaZulu Natal.

Aucamp, S. (2016, November). *S-LCA for the Clay Brick Industry: a practical approach.* Paper presented at 1st Southern Africa LCA Colloquium, Cape Town, Western Cape.