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REPORT ON

SOCIO-ECONOMIC IMPACT ASSESSMENT FOR THE PROPOSED CONSTRUCTION OF A BRIDGE OVER THE BRAAMHOEKSPRUIT, DOWNSTREAM OF THE INGULA PUMPED STORAGE SCHEME

Report No : 11896/11665/1/E

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EXECUTIVE SUMMARY

INTRODUCTION

Golder Associates Africa (GAA) was requested by Zitholele Consulting (Pty) Ltd to assist in conducting a screening level Socio-economic Impact Assessment (SIA) for the Ingula Bridge Environmental Impact Assessment (Basic Assessment) project. This report provides the results of the SIA undertaken for the proposed Ingula bridge construction.

PROJECT DESCRIPTION

The project area is located approximately 40 km north west of Ladysmith in the area jurisdiction of the Emnambithi Ladysmith Local Municipality. The project involves construction of a normal bridge structure across the Braamhoekspruit to replace the current low water bridge on a provincial gravel road, located approximately 2 km downstream of the proposed lower reserve. It is expected that the road level will be raised at the point of crossing as the proposed bridge will be higher than the current low water bridge.

The Msimanga family resides approximately 50 m south west of the proposed bridge, whilst the Makhoane family resides about 350 m north of the proposed bridge. The Hlongwane family resides about 1.5 km further north east from the site.

TERMS OF REFERENCE

The Terms of Reference of the SIA requires:

- The undertaking of a socio-economic analysis including the socio-economic baseline study describing the socio – economic characteristics of the area;
- The socio-economic assessment must identify relevant social aspects and predict the anticipated socio-economic impacts associated with the proposed Ingula bridge construction project;
- The assessment of positive and negative socio-economic impacts including identification of viable mitigation measures and project related benefits.

APPROACH TO STUDY

The undertaking of a Socio-economic Impact Assessment (SIA) is required for the approval of construction of the proposed Ingula bridge, and forms part of the EIA (Basic Assessment) process. The SIA was conducted in two phases, viz. a scoping phase and an impact assessment phase. The report therefore follows this structure as well.

The scoping phase aimed to provide a brief overview of the baseline socio-economic conditions of the area in which the proposed bridge construction will occur. This phase also identifies socio-economic issues and potential impacts associated with the project that may influence project decisions.

The second phase focused on assessing the socio-economic impacts and providing possible mitigation measures to mitigate or enhance these impacts. However, it must be noted that, in general, socio-economic impacts cannot be addressed or mitigated in isolation, and usually require the extensive participation of several stakeholders. The SIA is a decision-making tool, prepared to inform the public and the proponent and to assist the competent authority with their final decision. The SIA therefore suggests several mitigation measures, however, the proponent will be the responsible party to implement these in the end.

In this regard, the study involved:

- Review of demographic data from the 2001 Census Survey, Emnambithi Local Municipality IDP 2007/2008 and Ukuthela District Municipality 2003/2004 IDP.
- Site-specific information collected during site visit to the area and interviews with the Msimanga household (residing adjacent to the project site); and
- Identification of socio-economic issues associated with the proposed project.

SOCIO-ECONOMIC IMPACT ASSESSMENT PROCESS

The Socio-economic Impact Assessment process aims to identify which social change processes may occur as a result of the implementation of the proposed project. The process further assists in identifying socio-economic impacts and also proposes measures to mitigate negative impacts and enhance positive impacts.

For this project, the change processes which were assessed included the following:

Demographic processes – changes in the number and composition of the people;

Economic processes – changes in the way in which people make a living and the economic activities in a society;

Institutional and empowerment processes – change in the role efficiency and operation of local governance structures, and people's ability to get involved and influence decision making processes;

Socio – cultural processes – changes in a way in which humans behave, interact and relate to each other and their environment and the belief and value systems which guide these interactions;

Where applicable, **social and occupational health and safety** changes and impacts have been assessed under the applicable change processes.

Demographic Processes

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

From the population figures, it became evident that there are more females than males in the study area. This might be ascribed to the migrant labour patterns in South Africa where men move to different areas in search of work. If this is the case, it can be assumed that these men are employed elsewhere and would therefore not be seeking work at the proposed project.

The demographic change process that can be expected as a result of the construction of the Ingula bridge, and which had been assessed, included the following:

- Influx of construction workers;
- Influx of job seekers; and
- Outflow of laborers.

Economic Processes

Economic processes relate to the way in which people make a living and the economic activities within that society. The employment status within a community gives an indication of the economic stability of such a community and also serves as an indicator of such a community's general well – being.

From the community's profile undertaken it was clear that the affected areas are not only characterised by mainly unskilled female population, but also a high unemployment rate. Therefore, any employment opportunities (either directly or indirectly) created by the proposed construction of the Ingula bridge would therefore serve to alleviate poverty in the area.

The economic change processes that were assessed are as follows:

- Direct formal employment opportunities to local individuals; and
- Indirect formal and /or informal employment opportunities to local individuals.

Institutional and Empowerment Processes

Institutional and empowerment process relate to the role, efficiency and operation of local governance in the area. It also investigates the ability of people to engage in decision making processes to such an extent that they have an impact on the way in which decisions are made that would concern them.

From the municipal profile of the area it was evident that the households near the proposed bridge construction area lack efficient municipal services infrastructure and delivery. This also impacts on the already poor living conditions and quality of life for these households.

Overall these households appear to be characterised by poverty, low education levels, high unemployment rate and low levels of household income.

The institutional and empowerment change processes that can be expected with the introduction of the proposed construction of the Ingula bridge, and which was then assessed include the following:

- Attitude formation against the project;
- Negotiation processes; and
- Disaster management plan on site.

Socio-cultural Processes

Socio–cultural change processes that are associated with the construction incorporate changes such as safety aspects and sense of place. The expected changes can occur in relation to social health and safety aspects can be as a result of the presence of construction workers and job seekers during construction period.

The socio – cultural processes that can be expected are as follows:

- Integration with local community;
- Safety and security; and
- Noise pollution.

The following tables provide a summary of the expected impacts per change process, both before and after mitigation or enhancement measures have been implemented. To determine the significance of each identified issue, the following criteria were used:

FINDINGS OF THE STUDY

Based on the information provided by Eskom, a total of approximately 30 people will be employed on the proposed project. Of these, 25 unskilled people, 10% of which will be women, will be employed from the local community during the construction phase. Of the 25 local community people, 20% will be semi–skilled and 5% of these will be semi-skilled women. The remaining skilled workforce will be sourced from other areas. The majority of the job opportunities during the construction phase are therefore low-skilled jobs. The total wage bill for the construction phase is estimated at R830 500.. A proportion of the total wage bill from the estimated 30 workers employed over the construction period will be spent in the local economy. This will also create additional opportunities for local businesses in the area, as well as the creation of new small businesses.

The estimated capital expenditure associated with the construction phase of the project is in the region of R3 700 000. This represents the largest investment in the area to date and it is anticipated that it will create significant business opportunities for Emnambithi ward 13 and the local economy.

The SIA has further identified the following potential negative socio-economic impacts associated with the construction phase of the proposed project:

- Influx of construction workers employed on the project and who are housed in the construction village used for other construction activities in the area;
- Influx of job seekers looking for work but who are unsuccessful;
- Increased risk to personal safety of farmers and stock theft;
- Disruptive impact of construction workers on farm workers;
- Potential noise and dust impacts during the construction phase.
- Of the negative impacts the influx of construction workers housed on the construction village and influx of job seekers from neighbouring communities were identified as the key social concerns, specifically for the Msimanga and Makhoane households. The other issues can be effectively addressed by implementing the recommended mitigation measures.

  While the presence of construction workers and job seekers do not in themselves constitute a socio-economic impact, the manner in which the construction workers and job seekers conduct themselves can impact on the local community.

  The main area of concern identified during the study was the potential impact on existing family structures and social networks. The potential impact on family structures and social networks are linked to the potential behaviour of male construction workers and the implications that this may have in terms of:

  - A potential increase in alcohol and drug use;
  - A potential increase in crime levels;
  - A potential increase in teenage and or unwanted pregnancies;
  - Potential increase in prostitution and increase in transmission of STD's, and specifically HIV;
  - Loss of girlfriends and or wives to construction workers with associated (and potentially violent) conflict.

  These aspects are all interrelated, specifically the links between alcohol, drugs, prostitution and crime. The findings of the SIA indicate that the Msimanga and Makhoane households are most vulnerable to these impacts, specifically females and the youth.

Mitigation or maximisation measures were also identified for negative and positive impacts, respectively. The main mitigation measures that were proposed included the maximisation of local employment opportunities, engaging the local community in decision making processes, following mitigation measures recommended by other specialists and maximising opportunities for income creation for local people.

It is further recommended that labour should be sourced locally as far as possible during construction and operation of the project. This will minimise the risk of conflict among local residents and newcomers, and better relationships for workers housed in temporary housing for construction workers.

The possibility of crime escalating in the study is not of great concern based on the size of the small size of communities in the area within which the bridge is planned. However, the Communal Property Association and farmers in the area as well as Ward 13 Councillor should be made aware of the impact that the influx of new people could have on the area. They should also be made aware of the exact location where the construction village will be erected. Furthermore, "new" people in the area must be urged to refrain from abusing resources and infrastructure of the existing adjacent communities.

An agreement should be drafted by between Ward Councillor, CPA, farmers in the area and Eskom that seeks to ensure the proper and acceptable code of conduct that will be required from the construction workers. This information should be conveyed to all relevant construction workers and affected communities.

With appropriate measures, the negative impacts can be reduced to acceptable levels while the positive impacts can be maximised to provide significant benefits to the region.

Table 1: Summary of category of impacts

PROJECT PHASE	ASSESSMENT AREA	SIGNIFICANCE (Pre–Mitigation)	SIGNIFICANCE (Post-Mitigation
DEMOGRAPHIC			
CONSTRUCTION	Influx of construction workers	Low	Low
	Influx of job seekers	Low	Low
	Outflow of labourers	Low	Low
OPERATIONAL	Relocation of households	None	None
	Influx of maintenance workers	None	None
ECONOMIC			
CONSTRUCTION	Compensation for servitude	None	None
	Direct formal employment opportunities to local individuals	Medium	High
	Indirect formal and / or informal employment opportunities for local individuals	Medium	High
OPERATIONAL	Direct formal employment opportunities to local individuals	None	None
INSTITUTIONAL AND EMPOWERMENT			
CONSTRUCTION	Attitude formation against the project	Low	Low
	Disaster management Plan (on site)	Low	Low
OPERATIONAL	Disaster Management Plan	None	None
SOCIO-CULTURAL			

CONSTRUCTION	Integration with local community	Medium	Low
	Safety and security	Low	Low
	Noise pollution	Medium	Low
OPERATIONAL	Movement of maintenance workers	None	None

CONCLUSION

Based on the findings of this report, it can be concluded that the socio-economic environment in general poses no fatal flaws to the construction of the proposed Ingula bridge. This should, however, be seen under the conditions that the identified mitigation measures in this document are implemented and adhered to. This is particularly relevant where construction activities could affect the quality of life of adjacent households in terms of noise, dust, safety and security.

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1 INTRODUCTION

Golder Associates Africa (GAA) was requested by Zitholele Consulting (Pty) Ltd to assist in conducting a screening level Socio-economic Impact Assessment (SIA) for the proposed Ingula Bridge Environmental Impact Assessment (Basic Assessment) project. This report provides the results of the SIA undertaken for the proposed Ingula bridge construction

1.1 PROJECT DESCRIPTION

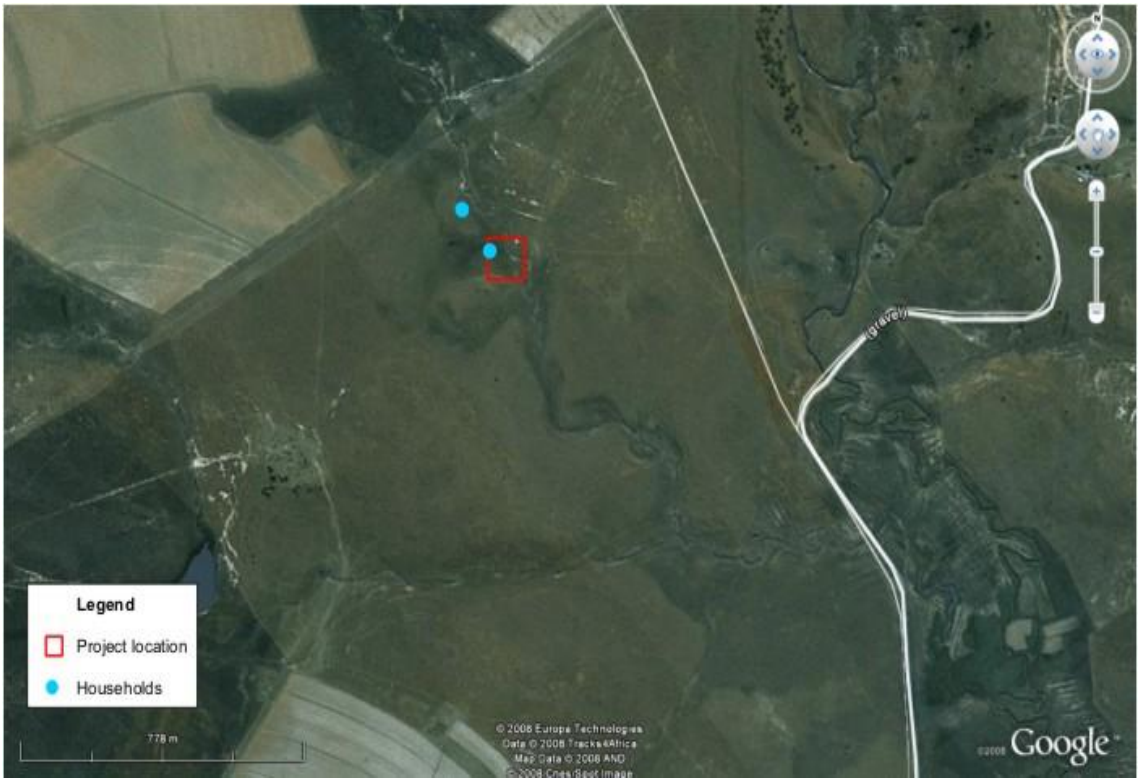

Figure 1 Project Location

The project area is located approximately 40 km north of Ladysmith in the jurisdiction of the Emnambithi Ladysmith Local Municipality. The project involves construction of a normal bridge structure across the Braamhoekspruit to replace the current low water bridge on a provincial gravel road, at a distance of approximately 2 km downstream of the proposed lower reserve. It is expected that the road level will be raised at the point of crossing as the bridge will be higher than the current low water bridge.

1.2 MOTIVATION FOR THE PROJECT

Eskom intends to construct a bridge over the Braamhoekspruit downstream of the Ingula Pumped Storage Scheme to replace the current low water bridge, on a provincial gravel road. The gravel road is used frequently by local communities and other road users. Eskom has identified a number of major problems associated with the current bridge:

- The technical design and specifications of the bridge results in it being flooded when there are heavy rains, which impacts directly on the adjacent community by cutting off access routes;
- The risks of drowning become very high for the children and other users from these adjacent community.

Furthermore, Eskom has identified possible longer periods of overtopping of the lower current water bridge due the duration of magnitude of flood peaks downstream as a result of the reduction effect and release system of the reservoir. To this effect, a normal bridge with adequate opening to accommodate large water-flows without overtopping is critical, hence Eskom's proposal for the construction of the Ingula bridge.

1.3 TERMS OF REFERENCE

The Terms of Reference of the SIA require that:

- The socio-economic analysis includes the social baseline study describing the socio–economic characteristics of the area;
- The socio-economic assessment identifies relevant socio-economic aspects and predicts the anticipated socio-economic impacts associated with the proposed Ingula bridge construction project; and
- The assessment of positive and negative socio-economic impacts including identification of viable mitigation measures and project related benefits.

1.4 SCOPE AND OBJECTIVES

The aim of this Socio-economic Impact Assessment is to investigate and describe the socio-economic environment surrounding the proposed bridge construction. The social environment consists of an all-encompassing social network with systems that will be impacted by the proposed project. The SIA further seeks to assess the anticipated socio-economic impacts of the proposed Ingula bridge and to identify appropriate mitigation measures to mitigate adverse impacts and to enhance beneficial impacts. The task was undertaken in consultation with the local adjacent households, the local Communal Property Association and local farmers in order to assess local concerns and develop local capacity. This Socio-economic Impact Assessment is meant to assist the decision-making authorities to decide whether the development will be socially, environmentally and economically sustainable.

In terms of the scope of work for the SIA, the study aims to:

- Understand the baseline socio-economic conditions within the project area, and how this relates to the local and Emnambithi Municipal Ward 13 area;
- Identify socio-economic issues and aspects which may become problematic if not adequately addressed and predict the anticipated socio-economic impacts resulting from these aspects; and
- Identify mitigation measures to manage the socio-economic impacts resulting from the proposed development.

1.5 ASSUMPTIONS AND LIMITATIONS

It is essential that the SIA should be based on current and accurate project information. To this effect this report takes into consideration information received during the Environmental process as well as project information relating to planning and implementation available to the SIA team.

The following assumptions have been considered and are pertinent:

- It is assumed that local employment will be priority for the entire construction period;
- It is assumed that the 2001 Census data provides a broad reflection of the Emnambithi Local Municipality social environment (bearing in mind that the profiles may have changed in the recent number of years);
- It is assumed that information by the applicant was accurate; and
- It is assumed that information related to the socio-economic environment obtained from Emnambithi Local Municipality Integrated Development Plan (IDP) 2007/2008 and Uthukela District Municipality IDP 2003/2004 was accurate.

2 STUDY APPROACH AND METHODOLOGY

2.1 UNDERSTANDING SOCIAL IMPACT ASSESMENT

Socio-economic Impact Assessment is regarded as a process of analysing, monitoring and managing the intended and unintended social consequences, both positive and negative, of planned interventions 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. To this effect SIA can also be described in terms of efforts to assess, appraise or estimate in advance the social consequences that bare likely to follow from proposed action.

SIA should therefore enable the authorities, project proponents, individuals, communities and organizations to understand and be in a position to identify and anticipate the potential social consequences of the implementation of a proposed policy, programme, plan or project. The SIA process should alert communities and individuals to the proposed project and possible social impacts, while at the same time allowing them to assess the implications and identify potential alternatives. The assessment process should also alert proponents and planners to the likelihood and nature of socio-economic impacts and enable them to anticipate and predict these impacts in advance so that the

findings and recommendations of the assessment are incorporated into and inform the planning and decision-making process.

Social change processes are set in motion by project activities or policies. Change has a way of creating other changes. Social change processes can lead to several other, second-order social change processes. Depending on the characteristics of the local social setting and mitigation processes that are put in place, social change processes can lead to social impacts. Social change processes relevant to the project will be discussed before the potential social impacts will be investigated and mitigation measures proposed.

The following two types of social impacts: have been identified:

Objective social impacts.

These are impacts that can be quantified and verified by independent observers, such as changes in population size or composition, in employment patterns, in standard of living or in health and safety. This can typically be quantified

Subjective social impacts

These are impacts that occur "in the imagination" or emotions of people, such as negative public attitudes, psychological stress or reduced quality of life. This kind of impact is much more difficult to identify and describe, as one cannot readily quantify perceptions or emotions.

For the purpose of this SIA the following 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 as well as 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 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.

2.2 APPROACH AND METHODOLOGY

2.3 Data collection

This section describes the various methods by which data was collected. These included primary and secondary data collection methods. Primary data collection method included the following:

- A site visit by motor vehicle on 8th July 2008;
- Individual interviews with various stakeholders to gauge their sentiments regarding the proposed bridge construction.

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

- Local maps;
- Census data (2001);
- Relevant sections of the Emnambithi Local Municipality 2007 /2008 IDP;
- Relevant sections of the Uthukela District Municipality 2003 /2004; and
- Existing project documentations.

Information that was relevant to the project was identified and assessed from these sources, within the context of the construction and operational phases of the proposed bridge construction.

The primary and secondary data collection methods are described in more detail below.

2.3.1 Individual interviews

Interviews were conducted with the following key informants:

- Ms A. Msimanga adjacent household member (interview date: 8 July 2008)
- Mr Sacrament Msimanga adjacent household member (interview date: 11 July 2008)
- Ms A. Msimanga adjacent household member (interview date: 14 July 2008)

- Ward Councillor J Magasela - Emnambithi Local Municipality ANC Ward 13 councillor (interview date 15 July 2008)
- Baba Zweli CPA representative (Interview date: 18 July 2008)

The aim of these interviews were to gain an understanding of stakeholder views and concerns regarding the proposed developments, to gauge the significance of potential impacts, and to identify appropriate mitigation measures to reduce negative impacts and enhance positive ones.

2.3.2 Review of other documents

Other documents that were reviewed to obtain baseline information on the study area and to assess potential socio-economic impacts incorporated the following:

- Emnambithi Local Municipality Integrated Development Plan (IDP) 2007/2008;
- Uthukela District Municipality IDP 2003/2004; and
- Census 2001 population statistics (obtained from the website of the Municipal Demarcation Board: www.demarcation.org.za).

3 SOCIO – ECONOMIC PROFILE OF THE STUDY AREA

The proposed development is situated within the area of jurisdiction of Emnambithi Ladysmith Local Municipality. This municipality forms part of the greater Uthukela District Municipality. The aim of this section is to contextualise the study by developing a socio-demographic profile that captures the relevant characteristics of the local municipality and of settlements in the immediate vicinity of the proposed developments.

3.1 REGIONAL PROFILE

The Uthukela District Municipality (DC23) is situated in the west of the province of KwaZulu-Natal. The service area of DC23 includes the towns of Bergville, Colenso, Escorts, Ladysmith, Weenen and Winterton. It consists of 5 Local Municipalities. The geographical area of the District Municipality is approximately 113 900 km^2. For the purpose of this study, the Emnambithi Ladysmith Local Municipality which is part of Uthukela District Municipality will be assessed.

Emnambithi – Ladysmith Local Municipality

This section focuses on the socio-demographic characteristics of the Emnambithi Ladysmith Local Municipality as a whole, while the subsequent section focuses specifically on the settlements around the proposed bridge construction

The Emnambithi Ladysmith Local Municipality is located in close proximity to the Drakensberg and along the popular Battlefields route. The Emnambithi Ladysmith Local Municipality is easily accessible from major national highways (N3 and N11). In terms of Census 2001 compiled by

Statistics South Africa, the Emnambithi Ladysmith Local Municipality (KZN232) consists of 25 wards with the geographical area of approximately 2 900 km^2.

3.1.1 Population groups in the municipality

The population growth rate and future projections is very important for planning purposes. The total population for the area in the 2001 Census results estimate a total of 225 452 .From Table 2 below, black Africans represents the majority of the population group (89.9%) in the Municipality.

Table 2: Population groups in the municipality

Population group	Number / Percentage	
Black African	202 749	89.9%
Coloured	2 241	1%
Indian/Asian	11 505	5.1%
White	8 962	4%
Total	**225 452**	**100%**

3.1.2 Population group and gender of household head in the municipality

In terms of the 2001 Census, the black African population has the most number of households, a fairly large number of these have more than 5 members per household. The majority of these households are located in the rural areas of the municipality that lack social- and infrastructure services with an extremely weak economy due few and inadequate businesses as well as low levels of employment opportunities in the area.. The age and gender composition of a population can have a considerable effect on demographics for future and present planning. From Table 3 below, the black African group forms the biggest proportion of the population (45441 – 87.5%).

Table 3: Population group and gender of household head in the municipality

	Male	Female	Total
Black African	22 216	23 225	45 441
Coloured	293	203	496
Indian or Asian	2 306	768	3 074
White	2 226	637	2 863
Total	**27 041**	**24 833**	**51 874**

3.1.3 Household income

The levels of income determine the extent of welfare of an area. This is the ability to meet the basic needs such as food, shelter, and basic amenities. The important indicator for poverty is the number of people with an income below the minimum level of living. Table 4 shows that 28 086 (55.5%) households in the municipality, earn an income of less than R1 640 per household per month.

Table 4: Monthly household income in the municipality

Monthly Income	Households
None - R 800	28 086
R 801 - R 3 200	14 508
R 3200 +	7 935
Total	**50 529**

3.1.4 Educational attendance of those aged 5 – 24 years

Education and training satisfy the basic human need for knowledge and skills and therefore increases the value of other forms of social and physical investment. In terms of the 2001 Census as can be seen in Table 5 below, the number of people aged 5 – 24 years not attending school is approximately 30 720, about 30%. This reflects the low level of literacy between ages 5 – 24 years in the municipality.

Table 5: Educational Attendance of those aged 5 – 24 years

	Persons
Not Attending	30 720
Pre-School	2 701
School	66 813
College	498
Technikon	172
University	185
Adult ed. Centre	73
Other	140
Total	**100 852**

3.1.5 Highest Level of Education over 20+

From Table 6 below, the number of people over 20 years with no schooling at all is 19 293 about 16% of the entire population. This indicates a need to focus educational and skills training on groups with no schooling or some primary education.

Table 6: Highest level of education over 20+

	Persons
No Schooling	19 293
Some Primary	23 182
Complete Primary	8 108
Some Secondary	37 716
Std 10/ Grade	12 25 306
Higher	8 062
Total	**121 667**

3.1.6 Mode of transport

Table 7 depicts the modes of travel that people in the municipality employ to get to work or to school. As this table shows, most people travel by foot (57.2%) or minibus taxi (15.2%). Relatively few people (less than 1%) make use of trains.

Table 7: Mode of transport

Mode of transport	Percentage
Train	0.5
On foot	57.2
Bicycle	1.8
Motorcycle	1.4
By car as a driver	7.1
By car as a passenger	7.9
By minibus / taxi	15.2
By bus	8.9
Total	**100**

3.1.7 Main water supply

Table 8 depicts the water supply used by households within the municipal area. These statistics indicate that most households have piped water inside the dwelling (16 834 - 32.4%) or inside the yard (12 064 - 23.5%). A relatively small proportion of households (683 - 1.3%) does not have access to any supply of water.

Table 8: Main water supply

Water supply	Households
Piped water inside dwelling	16 834
Piped water inside yard	12 064
Piped water on community stand: distance less than 200m. from dwelling	5 173
Piped water on community stand: distance greater than 200m. from dwelling	7 746
Borehole	4 268
Spring	1 775
Rain-water tank	248
Dam/pool/stagnant water	1 033
River/stream	1 743
Water vendor	314
Other	683
Total	**51 881**

3.1.8 Access to sanitation

Table 9 below indicates that about 23 303 (44.9%) of the households in the municipality have access to flush toilets connected to sewerage system.

Table 9: Access to sanitation

Access to sanitation	Households
Flush toilet (connected to sewerage system)	23 303
Flush toilet (with septic tank)	608
Chemical toilet	1 463
Pit latrine with ventilation (VIP)	4 601
Pit latrine without ventilation	16 718
Bucket latrine	525
None	4 662
Total	**51 881**

3.1.9 Electricity supply

Eskom and the municipality are jointly responsible for electricity provision. The municipality is responsible for the urban areas, whilst Eskom is responsible for the rural areas. The capacity to provide infrastructure especially in the rural areas is still a problem as Table 10 indicates that only 35 235 (67,9%) of households have electricity for cooking and lighting.

Table 10: Electricity supply

Electricity supply	Households
Electricity	35 235
Gas	231
Paraffin	1 039
Candles	15 117
Solar	69
Other	189
Total	**51 881**

3.1.10 Refuse removal

According to Emnambithi IDP, refuse removal service is provided to all residing within the urban areas. The challenge is to ensure service provision for residents of rural areas which consists of 13 wards from a total of 25 wards. This is evident from Table 11 which shows that 435 households (0.8%) use communal refuse damp, 18 346 households (35.4%) use own refuse dump and 5 491 (10.5%) have no rubbish disposal mechanisms.

Table 11: Refuse removal

Refuse removal	Households
Removed by local authority at least once a week	27425
Removed by local authority less often	183
Communal refuse dump	435
Own refuse dump	18346
No rubbish disposal	5491
Total	**51881**

3.1.11 Housing

As can be seen from Table 12, most households in the local municipality reside in a house or brick structure, although a significant number of households live in traditional dwellings.

Table 12: Housing

Housing	Households
House or brick structure on a separate stand or yard	28 328
Traditional dwelling/hut/structure made of traditional materials	15 166
Flat in block of flats	2 058
Town/cluster/semi=detached house (simplex; duplex; triplex)	520
House/flat/room in back yard	1 158
Informal dwelling/shack in back yard	687
Informal dwelling/shack NOT in back yard	1 885
Room/flatlet not in back yard but on shared property	647
Caravan or tent	72
Private ship/boat	9
Not applicable (living quarters is not housing unit)	1 351
Total	**51 881**

3.2 PROFILE OF SURROUNDING SETTLEMENTS

The social profile presented below focuses on the surrounding settlements as analysed in relation to characteristics of Emnambithi Municipal Ward 13, within which the proposed bridge construction is located.

3.2.1 Population

Table 13 shows the population totals of these settlements. The columns represent data as per interviews with the household members.

Table 13: Populations of surrounding settlements

Households	Interviews with household members
Msimanga household	13
Makhoane household	12
Hlongwane household	10

Table 14 shows the proportion of males to females in the various settlements. As this table shows, there is a prevalence of female in most settlements. The fact that females tend to outnumber males indicates that a large number of males have left the settlements to work at other bigger cities (migrant labour).

Table 14: Gender distribution of surrounding settlements

Settlement	Males	Females
Msimanga household	3	10
Makhoane household	4	8
Hlongwane household	3	7

3.2.2 Housing

Table 15 indicates the type of housing in the surrounding area. All houses are traditional houses and have been extended to cater for the growth of the household members.

Table 15: Types of housing of the project affected households

Settlement	Formal	Traditional	Informal
Msimanga household	0	2	0
Makhoane household	0	1	0
Hlongwane household	0	2	0

3.2.3 Employment

Table 16 shows the percentage of the labour force in each household that is employed. The table also indicates the percentage of the employed labour force in each household that is employed within the various economic sectors.

Table 16: Sectoral employment of the project affected households

Household	Employ-ment rate	Agri-culture	Mining	Manu-facturing	Elec-tricity	Con-struction	Trade	Trans-port	Finance	Commu-nity services
Msimanga household	7%	1%	0%	0%	1%	3%	2%	0%	0%	0%
Makhoane household	6%	1%	0%	0%	0%	2%	2%	0%	0%	1%
Hlongwane household	4%	1%	0%	0%	0%	1%	1%	0%	0%	1%

4 SOCIAL CHANGE PROCESSES AND IMPACT ASSESSMENT

The following section proceeds to discuss the various change processes and related expected impacts that could be expected as a result of the proposed bridge construction. The change processes which were assessed included the following:

- **Democratic processes**: changes in the number and composition of the community.
- **Economic processes**: changes in a way in which people make a living and the economic activities in the community.

- **Institutional and empowerment processes**: changes in the role, efficiency and operation of local structures and the community's ability to get involved and influence decision making process.
- **Socio–cultural processes**: changes in a way in which human behave, interact or relate to each other and their environment and the belief and the value systems which guide these interactions.

A change process can be regarded as a change that takes place within the receiving environment as a result of a direct or indirect intervention. A potential impact follows as a result of a change process However; a change process can only result in an impact once it is experienced as such by an individual or community on a physical and / or cognitive level.

This section will further discuss the following:

- The change process without the project;
- The expected change process with the project;
- Circumstances that will lead to the change processes;
- Assess the potential impacts as a result of the project before mitigation;
- Determine significance of the impact before mitigation;
- Proposed mitigation measures; and
- Discuss both cumulative and residual impacts if any.

The SIA has taken into consideration the extent, duration, intensity and probability of an occurrence that a potential impact might have on the social environment. Impacts could either be negative, neutral or positive. The impacts have also been categorised according to the various project stages viz. construction and operational phases. Mitigation measures have also been identified with the aim to mitigate the negative impacts and enhance positive impacts. Also included in the assessment table is a rating of the significance of the impact.

4.1 Demographic processes

Demographic processes relate to the number of people and composition of a community and also include an overview of the population size and the educational profile of the affected households. From the population figures, it became evident that there are more females than males in the study area. This might be ascribed to the migrant labour patterns in South Africa were men move to different areas in search of work. If this is the case, it can be assumed that these men are employed elsewhere and would therefore not be seeking work at the proposed project. It could also then be assumed that the majority of job seekers will be women with few men from the neighbouring villages. It should also be indicated that these women are poor and therefore possibly vulnerable to socio-economic impacts that may arise from the project. They might be exploited by construction labourers during the construction period.

4.1.1 Demographic change process and resultant impacts

The construction of the proposed Ingula bridge could possibly lead to a change in the number and composition of the affected households within the local area, which in turn could lead to economic and socio–cultural impacts.

Construction phase

This sub–section deals with the expected demographic change process and resultant impacts that can be expected with the introduction of the proposed project in the affected local area. The expected demographic change process can be categorised as follows:

- Influx of construction workers;
- Influx of job seekers; and
- Outflow of labourers.

Influx of construction workers

Based on the information provided by Eskom, a total of approximately 30 people will be employed on the proposed project. Of these, 25 unskilled people, 10% of which will be women, will be employed from the local community during the construction phase. Of the 25 local community people, 20% will be semi–skilled and 5% of these will be semi-skilled women. The remaining skilled workforce will be sourced from other areas. The majority of the job opportunities during the construction phase are therefore low-skilled jobs.

The impact of the influx of construction workers will be applicable to areas surrounding the construction camps where workers spend evenings and weekends. It is however expected that a segment of the unskilled construction team would be sourced from the local area, thereby reducing the number of construction workers who would flood the construction area.

Table 17: Influx of construction workers

CONSTRUCTION PHASE – INFLUX OF CONSTRUCTION WORKERS		
Category 1 Impact	Influx of construction workers will lead to a change in the number and composition of the local community, and impact on economy, health, safety and social well-being.	
Category 2 Impacts	None	None
Extent	Local	2
Duration	Short term	2
Magnitude	Moderate	6
Probability	Probable	3
Significance	Low	30
Status	**Negative**	**L -**
The impact is rated low negative before the implementation of mitigation measures. **Nature of impact:** If construction workers are from a different cultural background than locals, conflicts can be expected where cultural backgrounds are not respected. This may lead to local developing negative attitude towards construction workers, with the possible resultant negative impact on social being. On the other hand, if the community is accepting of new people, the presence of construction workers could lead to a temporary boost in the local economy if construction workers utilise local services. If available local service will not sufficient for both locals and construction members, this could create other problems. There appears to be limited resources in the immediate area in terms of services such as shops, service posts, etc. As a result of volumes of construction workers in the area especially those working on the construction of the pumped storage scheme and its associated activities, this may lead to the increase or establishment of informal trade markets.		
Areas of concern: Adjacent settlements belonging to the Masinga and Makhoane households.		
Mitigation Measures: Raise awareness amongst construction workers about local traditions and practices. Inform local businesses about the expected influx of construction workers so that they could plan for extra demand. Ensure that the local community communicates their expectations of construction workers' behaviour with the construction sub-contractor, and formalize a written agreement between the community and the sub-contractor..		
Extent	Local	2
Duration	Short term	2
Magnitude	Low	4
Probability	Probable	3
Significance	Low	24
Status	**Negative to neutral**	**L – to /**
The impact is rated as low negative to neutral after the implementation of mitigation measures.		
Cumulative Impacts: Influx of construction workers to other projects taking place in the area, i.e. the construction of the pumped storage scheme and its associated activities. This influx could lead to significant increase on the demand of local services.		
Residual Impacts: It is expected that construction workers who do not leave the area once the construction phase has been completed will continue to impact on the number and composition of the local community, thereby possibly affecting social well-being. Long term demographic changes, for example when unplanned pregnancies occur as a result of relationships		

between construction workers and community members. Spread of HIV / AIDS and other sexually transmitted infections leaving behind a vulnerable community in terms of illnesses and lack of access to medical care.

Influx of job seekers

Job seekers will always be expected at the area of the construction village or at the construction site. Although it is not expected that large number of job seekers would be employed in this way, job seekers mostly reside in the vicinity of the camp for a few days in the hope of securing jobs on site. Once these job seekers are not offered any employment, they may look for material that they can steal in order to sell. This may lead to increase in theft in the area.

Table 18: Influx of job seekers

CONSTRUCTION PHASE : INFLUX OF JOB SEEKERS		
Category I Impact	Influx of job seekers that will lead to a change in the number and composition of the local community on economy, health, safety and social well-being.	
Category 2 Impact		
Extent	Local	2
Duration	Short term	2
Magnitude	Moderate	6
Probability	Probable	3
Significance	Low	30
Status	**Negative**	**L -**
The impact is rated as low negative before the implementation of mitigation measures. **Nature of Impact:** The influx of job seekers into the environment may contribute to the increased demand on local services but will not necessarily lead to a boost in the local economy, seeing that these job seekers are mostly unemployed. This influx of job seekers may lead to conflict with local community over limited job opportunities and theft.		
Areas of concern: Formal settlements in the study area		
Mitigation measures: Ensure that employment procedures / policy is communicated to local stakeholders, especially local Communal Property Association (CPA), local farmers and ward 13 local Councillor. Have clear rules and regulations for access to the construction village to control loitering. Consult with local SAPS to establish standard operating procedures for the control and removal of loiterers at the construction site. Construction workers should be clearly identifiable by wearing proper construction uniforms displaying the logo of the construction company. Construction workers must also be provided with identification tags.		
Extent	Site	1
Duration	Short term	2
Magnitude	Moderate	6
Probability	Probable	3
Significance	Low	27
Status	**Negative to neutral**	**L – to /**
The impact is rated as low negative to neutral after the implementation of the mitigation measures.		
Cumulative Impacts: The concurrent influx of seekers together with the influx of appointed construction workers would further increase the demand on services to the disadvantage of the receiving environment. Influx of job seekers to other to the other construction of the pumped storage scheme and its associated activities. In overall the influx of these job seekers and construction workers may bring about a significant change in the size and composition of the current community and also increase demand on local services. Job seekers who do not leave the area will continue to impact on te number and composition of the local community, thereby affecting social well – being. Long term demographic changes, for example when unplanned pregnancies occur as a result of relationships between construction workers and community members. Spread of HIV / AIDS and other sexually transmitted infections leaving behind a vulnerable community in terms of illnesses and lack of access to medical care.		

Outflow of Labourers

Locals who secure employment with the contractors will also receive training, thereby enabling them to secure more permanent employment elsewhere after the completion of this project thereby adding to the migrant labour force.

Table 19: Outflow of labourers

CONSTRUCTION PHASE : OUTFLOW OF LABOURERS		
Category 1 Impact	Outflow of labourers could negatively impact on social well – being, social relationships and health.	
Category 2 Impact		
Extent	local	2
Duration	Long term	4
Magnitude	High	8
Probability	Probable	3
Significance	Medium	42
Status	**Negative**	**M -**
The impact is rated as medium negative before the implementation of mitigation measures. **Nature of Impact:** The impact assessed before the implementation of mitigation measures mostly relates to the negative impact that can be expected as a result of the outflow of labourers from the area. These potential impacts should not only be viewed in purely negative terms, as it might also have a positive impact in terms of financial gain to families. These could lead to improved living conditions and social upliftment of the local community. The local areas will experience a loss of men / women who becomes part of the migrant community. The impact of this migration becomes evident when the labourers go back home after having contracted HIV and other STIs, infect their wives and / or girlfriends. This can be viewed as a residual impact as a result of migrant work and the social pathologies associated with such work such as prostitution and alcohol abuse. Some men / women might never return home, leaving behind vulnerable families who live in poverty.		
Areas of concern: Vulnerable women and children who stay behind in the community.		
Mitigation measures: Implement methods to create HIV and STI awareness amongst construction workers. Develop skills transfer plans that would enable a worker to move from one project to another within the same area / region.		
Extent	Local	2
Duration	Long term	4
Magnitude	Moderate	6
Probability	Probable	3
Significance	Medium	36
Status	**Negative to neutral**	**M – to /**
The impact is rated as medium negative to neutral after the implementation of mitigation measures.		
Cumulative Impact: Construction workers who leave the area will not necessarily be available to work on future projects in the area and this leads to influx of other construction workers / job seekers (bringing other associated impacts) into the area.		
Residual impacts: Loss of men in the community, leaving women to struggle to raise children. This adds to the migrant labour		

workforce leaving families who stay behind in a vulnerable position.

4.2 Economic processes

Economic processes relate to the way in which people make a living and the economic activities within that society. The employment status within a community gives an indication of the economic stability of such a community and also serves as an indicator of such a community's general well – being.

From the community's profile undertaken it was clear that the affected areas are not only characterised by mainly unskilled female population, but also a high unemployment rate. Therefore, any employment opportunities (either directly or indirectly) created by the proposed construction of the Ingula bridge would therefore serve to alleviate poverty in the area.

4.2.1 Economic change processes and resultant impacts

This sub–section deals with the expected economic change processes and the resultant impacts that can be expected with the introduction of the proposed Ingula bridge construction at the affected area.

Construction phase

The economic change process can be expected during this phase of the project as follows:

- Direct formal employment opportunities to local individuals; and
- Indirect formal and /or informal employment opportunities to local individuals.

Direct formal employment opportunities to local individuals

Eskom intends to employ 30 unskilled labourers from the local area. This will be work component that does not require any substantial amount of skills.

Table 20: Direct formal job opportunities

CONSTRUCTION PHASE: DIRECT FORMAL JOB OPPORTUNITIES		
Category 1 Impact	Direct formal job opportunities for local individuals that create income (economic impact)	
Category 2 Impact		
Extent	Local	2
Duration	Very short term	1
Magnitude	Low	4
Probability	Probable	3
Significance	Low	21
Status	**Positive**	**L +**
The impact is rated as low positive before the implementation of mitigation measures. **Nature of Impact:** Although job opportunities are viewed as positive impacts, the fact that job opportunities are only temporary in nature limits the extent of such positive impacts in view of the fact that the economic relief and the associated impacts would only be temporary in nature. This impact also depends on the timeframe of the project.		
Areas of concern: Women, who are normally not regarded as suitable for construction work.		
Mitigation Measures: Unskilled job opportunities should be afforded to the Msimanga, Makhoane and Hlongwane households. Even if Eskom uses a recruiting agency, the local CPA and local ward Councillor should be utilized for recruitment process. Equal opportunities for employment should be created to ensure that the local female population also has access to these opportunities. Individuals with the potential to develop their skills should be afforded training opportunities. Mechanisms should be developed to provide alternative solutions for creating job security upon completion of the project. Payment should comply with applicable Labour Law legislation in terms of minimum wags. Where local labourers are employed on a more permanent basis, these labourers should be registered with the Unemployment Insurance Fund (UIF), Pay as You Earn or any other official bodies as required by law. This would enable the workers to claim UIF as a means of continuous financial support when the workers' positions on the construction itself has become redundant or once the construction phase comes to and end.		
Extent	Local	2
Duration	Short term	2
Magnitude	Moderate	6
Probability	Highly probable	4
Significance	Medium	40
Status	**Positive**	**M +**
The impact is rated as medium positive after the implementation of mitigation measures.		
Cumulative impacts: The local economy will be boosted on a temporary basis, and the family members might experience financial relief to some extent, including women related to the employees.		
Residual impacts: Training of local individuals will provide them with the necessary skills to find employment on other construction projects. Also unemployed individuals are motivated and empowered to find and maintain employment. Income received by local individuals would have a positive impact on their families as money is now available		

to increase their livelihood, even if it will be for a short period.

Indirect formal and / or informal employment opportunities to local individuals

Indirect informal job opportunities largely relate to services that are not directly linked with the construction activities, e.g. food stalls, etc. either at the construction village or the construction site. These services are usually expected to be limited.

Table 21: Indirect formal / informal job opportunities

CONSTRUCTION PHASE: INDIRECT FORMAL AND / OR INFORMAL JOB OPPORTUNITIES		
Category 1 Impact	Indirect formal and / or informal job opportunities for local individuals for income creation (economic impact)	
Category 2 Impact		
Extent	Local	2
Duration	Very short term	1
Magnitude	Low	4
Probability	Probable	3
Significance	Low	21
Status	**Positive**	**L +**
The impact is rated as low positive before the implementation of mitigation measures. **Nature of Impact:** Individuals might indirectly benefit economically from the project if they are afforded the opportunity.		
Areas of concern: Women who are normally regarded unsuitable for construction work.		
Mitigation Measures: Through consultation with relevant key stakeholders, identify the segment that might benefit from informal indirect opportunities, and promote skills development and subsidisation initiatives that are sustainable. Encourage, in consultation with key stakeholders, construction workers to use local services.		
Extent	Local	2
Duration	Short term	2
Magnitude	Moderate	6
Probability	Highly probable	4
Significance	Medium	40
Status	**Positive**	**M +**
The impact is rated as medium positive after the implementation of mitigation measures.		
Cumulative impacts: The local economy will be boosted on a temporary basis due to usage of local services such as domestic services and retail services. Financial relief in the short term is expected.		
Residual impacts: Informal job opportunities are only temporary in nature. No training is required; therefore the individual has a brief period of economic benefit and does not gain any formal skills to qualify for more formal employment.		

4.3 Institutional and Empowerment Process

Institutional and empowerment process relate to the role, efficiency and operation of local governance in the area. It also investigates the ability of people to engage in decision making processes to such an extent that they have an impact on the way in which decisions are made that would concern them.

From the municipal profile of the area it was evident that the households near the proposed bridge construction area lack efficient municipal services infrastructure and delivery. This also impacts on the already poor living conditions and quality of life for these households.

On the whole these households appear to be poorly developed and characterised by poverty, low education levels, high unemployment rate and low levels of household income.

4.3.1 Institutional and Empowerment Change Process and related impacts

This sub – section will deal with the expected institutional and empowerment change process and resultant impacts that can be expected with the introduction of the proposed project to the affected area.

Construction phase

The change process expected during this phase will include the following;

- Attitude formation against the project;
- Negotiation process; and
- Disaster management plan on site.

Attitude formation against the project

Attitudes are formed by means of people's perceptions, specifically perceptions that people from the local households might have or form on the proposed project, which in turn might influence their attitude towards the project.

From the consultation and interviews held with adjacent household members, there were no opposition to the proposed project and this considerably reduced the risk for social mobilisation.

Table 22: Attitude formation against project

CONSTRUCTION PHASE: ATTITUDE FORMATION AGAINST THE PROJECT		
Category 1 Impact	Attitude formation against the project could have economic impacts and could impact on social well–being.	
Category 2 Impact		
Extent	Local	2
Duration	Short term	2

Magnitude	High	8
Probability	Probable	3
Significance	Medium	36
Status	**Negative**	**M -**
The impact is rated medium negative before implementation of mitigation measures. **Nature of impact:** At the time of the study, attitude towards the project were fairly neutral. The only issue raised by household members was the manner in which they would benefit from the proposed project. Most significantly, the expected benefit was the acquisition of permanent employment during contruction of the proposed project.		
Areas of concern: The Msimanga, Makhoane and Hlongwane households.		
Mitigation Measures: Factual and transparent information should be supplied to the community from the beginning of the project. Employment opportunities should first be offered to the local community. Eskom or its appointed contractors should deliver to their undertakings with the community in terms of employment creation.		
Extent	Local	2
Duration	Very short term	1
Magnitude	Moderate	6
Probability	Improbable	2
Significance	Low	18
Status	**Negative**	**L -**
The impact is rated as low negative after implementation of mitigation measures.		
Cumulative Impacts: Attitudes towards construction activities could further be influenced by other construction activities such as the construction of the pumped – storage scheme and its associated activities.		
Residual Impacts: If a community becomes opposed to the construction activity, this might have negative impacts on other and future construction activities in the area / region.		

Negotiation process

The negotiation process should take place during and beyond the Environmental Impact Assessment (EIA) process. The negotiation process should be fair, inclusive and conducted in a transparent manner.

Table 23: Negotiation process

CONSTRUCTION PHASE: NEGOTIATION PROCESS		
Category 1 Impact	A breakdown in the negotiation process could delay the project and result in an economic impact on both affected stakeholders as well as Eskom.	
Category 2 Impact		
Extent	Local	2
Duration	Short term	2
Magnitude	Moderate	6

Probability	Highly probable	4
Significance	Medium	40
Status	**Negative**	**M -**
The impact is rated as medium negative before implementation of mitigation measures. **Nature of Impact:** If negotiations are not handled with the necessary sensitivity, the impact of this process can be severely negative, i.e. deadlock in negotiating resulting in the delay of the project. Fruitful negotiation will be better once environmental authorisation has been awarded. However, the EIA process would have identified issues and concerns as raised by stakeholders / interested and affected parties. Low scale negotiation is recommended in order to in order to deal with some of the issues raised.		
Areas of concern: Area incorporating the Msimanga, Makhoane and Hlongwane households.		
Mitigation Measures: A process of fair and transparent process should be implemented. Negotiations to be approached with the necessary cultural sensitivity with the effort to negotiate in the language understood by all affected parties. (a good interpreter should be used where necessary).		
Extent	Local	2
Duration	Very short term	1
Magnitude	Minor	2
Probability	Highly probable	4
Significance	Low	20
Status	**Low neutral to positive**	**L / to +**
The impact is rated as low neutral to positive after implementation of mitigation measures.		
Cumulative impacts: None		
Residual impacts: None		

Disaster Management Plan (on site)

According to the Emnambithi Local Municipality IDP 2007/2008, health care facilities within the municipal area are not satisfactory due to the low levels of health care services coupled with the poorly developed health care infrastructure. The nearest health care centres are at Ladysmith and Watersmeet clinic which are between 40 and 50 kilometres away.

It is for this reason vital that construction contractors develop and implement a disaster management plan for the construction site that would be in compliance with the Occupational Health and Safety Act (Act 85 of 1993).

Table 24: Disaster Management Plan on site

CONSTRUCTION PHASE: DISASTER MANAGEMENT PLAN ON SITE		
Category 1 Impact	Disaster Management Plan to enhance safety on site.	
Category 2 Impact		
Extent	Local	2

Duration	Very short term	1
Magnitude	Minor	2
Probability	Probable	3
Significance	Low	15
Status	**Positive**	**L +**
The impact is rated as low positive before implementation of enhancement measures. **Nature of impact:** The implementation of an effective Disaster Management Plan on site implies that a medical emergency can be addressed efficiently within a short response time. The plan should be seen as to the municipalities' emergency response teams available in the area.		
Areas of concern: Emnambithi Local Municipality		
Mitigation measures: Develop and implement disaster management plan for implementation during the construction phase. Suitable individuals should be identified and trained for level 1 – 3 first aid so that they could be used as first aid officers during any eventuality. Private ambulance services and hospitals should be made aware of the project.		
Extent	Local	2
Duration	Short term	2
Magnitude	Moderate	6
Probability	Highly probable	4
Significance	Medium	40
Status	**Positive**	**M +**
The impact is rated as medium positive after the implementation of mitigation measures.		
Cumulative impacts: Other construction projects in the area further overburdens the already lacking available health care facilities.		
Residual impacts: None		

4.4 Socio–cultural Processes

This process relate to the manner in which human behave, interact and relate to each other and their environment, as well as the belief and value systems which guide these interactions. The area within which the proposed project will be located has some cultural site including graves.

4.4.1 Socio–cultural Change Processes and related impacts

Socio–cultural change processes that are associated with the construction incorporate changes such as safety aspects and sense of place. The expected changes may occur in relation to social health and safety aspects may be a result of the presence of construction workers and job seekers during construction period.

Construction phase

The socio–cultural change process that can be expected during this phase of the project incorporates:

- Integration with local community;
- Safety and security; and
- Noise pollution.

Integration with local community

Construction workers tend to ignore their cultural or societal rules that guide their behaviour once they are away from their respective home places. They also tend to engage in behaviour such as risky sexual and other destructive behaviours. This leads to infections such as HIV/AIDS which these migrant labours take back home to their partners/wives.

Table 25: Integration with local community

CONSTRUCTION PHASE: INTEGRATION WITH LOCAL COMMUNITY		
Category 1 Impacts	Socially acceptable integration, including the risk of spreading STIs and HIV/AIDS with an impact on health.	
Category 2 Impacts		
Extent	National	4
Duration	Permanent	5
Magnitude	Very high	10
Probability	Highly probable	4
Significance	High	76
Status	**Negative**	**H -**
The impact is rated as high negative before implementation of mitigation measures. **Nature of Impact:** HIV infection has an economic impact, not only to the local area but extends to regional and national context. The increase in HIV/AIDS related deaths can lead to reduced workforce and this in turn will affect basic services as well as the smooth running of the economy.		
Area of concern: Households in close proximity to the construction site and construction village. Women who may be exploited.		
Mitigation measures: Launch aggressive culturally appropriate STI and HIV/AIDS awareness campaigns; Distribute condoms by placing them at centrally located points; Control access to the construction site and construction villages to prevent sex workers; Employ local women to decrease their financial vulnerability.		
Extent	National	4
Duration	Permanent	5
Magnitude	Moderate	6
Probability	Probable	3

Significance	Medium	45
Status	**Negative**	**M -**
The impact is rated as medium negative after the implementation of mitigation measures.		
Cumulative impacts: Permanent duration due to the nature of HIV/AIDS and other STIs that are incurable; The extent is listed as national since infected persons from the community as well as construction team are mobile and could infect more people in other parts of the country.		
Residual impacts: A reduction in human resources, in turn leading to a reduction in the international competitiveness of this country; Reduced life expectancy; Increase in health care expenditure; and An increase in health care cost.		

Safety and security

Physical safety of communities can potentially be endangered as a result of the influx of job seekers and construction workers, for example, by a potential increase in crime. In addition, occurrence of crime during the time of the project is likely be ascribed to the construction workers. This has a mental health impact, such as fear. It should also be noted that criminal activities are more likely to be exacerbated by job seekers who loiter at the site in search of employment.

Table 26: Safety and security

CONSTRUCTION PHASE: SAFETY AND SECURITY		
Category 1 Impact	Presence of construction workers and job seekers on surrounding households' sense of safety and security.	
Category 2 Impacts		
Extent	Local	2
Duration	Short term	2
Magnitude	Moderate	6
Probability	Probable	3
Significance	Medium	30
Status	**Negative**	**M -**
The impact is rated as medium negative before implementation of mitigation measures. **Nature of Impact:** Loss of possession; and Fear.		
Areas of concern: Settlements close to the construction village and construction site.		
Mitigation Measures: Construction workers should be clearly identifiable. Overalls should have the logo of the construction company on it and construction workers should wear identification cards. Construction site to be fenced and access to be controlled; Loitering of outsiders at either the construction side or at the construction village should not be allowed. Local		

SAPS should be requested to assist in this regard.		
Extent	Site	1
Duration	Very short term	1
Magnitude	Low	4
Probability	Improbable	2
Significance	Low	12
Status	**Negative**	**L -**
The impact is rated as low negative after the implementation of mitigation measures.		
Cumulative Impacts: None		
Residual impacts: Increased crime as loiters continue to engage in criminal activities even after the completion of the project.		

Noise pollution

The Msimanga and Makhoane households will be most exposed to constant level of noise generated by the construction activities, due to their proximity to the construction site.

Table 27: Noise pollution

CONSTRUCTION PHASE: NOISE POLLUTION		
Category 1 Impact	Social impact of construction activities and resultant noise pollution on surrounding households.	
Category 2 Impacts		
Extent	Local	2
Duration	Short term	2
Magnitude	Moderate	6
Probability	Highly probable	4
Significance	Medium	40
Status	**Negative**	**M -**
The impact is rated as medium negative before the implementation of mitigation measures. **Nature of Impact:** The Msimanga and Makhoane households will be mostly exposed to constant level of noise generated by the construction activities taking place due to their proximity to the construction site. A constant high level of noise is believed to have prolonged detrimental effects on a person's general well–being and functioning.		
Area of concern: The Msimanga and Makhoane households.		
Mitigation measures: Construction activities should be restricted to daytime hours between 07:00 to 18:00; Adjacent households (Msimanga and Makhoane) should be consulted and notified of any construction activities that could lead to excessive noise levels in advance. The two households should also be consulted if any night time construction activities are to take place.		
Extent	Local	2
Duration	Very short term	1
Magnitude	Low	4

Probability	Probable	3
Significance	Low	21
Status	**Negative**	**L -**
The impact is rated as low negative after implementation of mitigation measures.		
Cumulative Impacts: Other construction activities taking place in the area could add to the noise levels.		
Residual Impacts: None		

5 CONCLUSION AND RECOMMENDATIONS

The study has identified the following potential negative impacts associated with the construction phase of the proposed project:

- Influx of construction workers employed on the project and who are housed in the construction village used for other constructions in the area;
- Influx of job seekers looking for work but who are unsuccessful;
- Increased risk to personal safety of farmers and stock theft;
- Disruptive impact of construction workers on farm workers;
- Potential noise and dust impacts during the construction phase.
- Of the negative impacts, the influx of construction workers housed on the construction village and influx of job seekers from neighbouring communities were identified as the key social concerns, specifically for the Msimanga and Makhoane households. The other issues can be effectively addressed by implementing the recommended mitigation measures.

  While the presence of construction workers and job seekers do not in themselves constitute a social impact, the manner in which the construction workers and job seekers conduct themselves can impact on the local community.

  The main area of concern identified during the study was the potential impact on existing family structures and social networks. The potential impact on family structures and social networks are linked to the potential behaviour of male construction workers and the implications that this may have in terms of:

  - A potential increase in alcohol and drug use;
  - A potential increase in crime levels;
  - A potential increase in teenage and or unwanted pregnancies;
  - Potential increase in prostitution and increase in transmission of STDs, and specifically HIV/AIDS;

- Loss of girlfriends and/or wives to construction workers with associated (and potentially violent) conflict.

These aspects are all interrelated, specifically the links between alcohol, drugs, prostitution and crime. The findings of the SIA indicate that the Msimanga and Makhoane households are most vulnerable to these impacts, specifically females and the youth.

Furthermore, it can also be concluded that many of the significant socio-economic impacts of the proposed development will occur during the construction phase. Positive impacts during this phase will include temporary creation of employment opportunities (25 jobs for the local community), as well as concomitant economic benefits and possible creation of opportunities for establishment of small businesses.

6 RECOMMENDATIONS

It is recommended that the mitigation and maximisation measures included in this report be implemented to decrease the effect of negative impacts on communities and maximise the effect of positive impacts on communities.

Mitigation or maximisation measures have been identified for negative and positive impacts, respectively. The main mitigation measures that were proposed included the maximisation of local employment opportunities, engaging the local community in decision making processes, following mitigation measures recommended by other specialists and maximising opportunities for income creation for local people.

It is further recommended that labour should be sourced locally as far as possible during construction and operation of the project. This will minimise the risk of conflict among local residents and newcomers, and better relationships for workers housed in temporary housing for construction workers.

The possibility of crime escalating in the study is not of great concern based on the size of the small size of communities in the area within which the bridge is planned. However, the Communal Property Association and farmers in the area as well as Ward 13 Councillor should be made aware of the impact that the influx of new people could have on the area. They should also be made aware of the exact location where the construction village will be erected. Furthermore, “new” people in the area must be urged to refrain from abusing resources and infrastructure of the existing adjacent communities.

An agreement should be drafted by between Ward Councillor, CPA, farmers in the area and Eskom that seeks to ensure the proper and acceptable code of conduct that will be required from the construction workers. This information should be conveyed to all relevant construction workers and affected communities.

With appropriate measures, the negative impacts can be reduced to acceptable levels while the positive impacts can be maximised to provide significant benefits to the region.

Based on the findings of this report, it can be concluded that the socio-economic environment in general in the area within which the proposed Ingula bridge construction is planned, pose no fatal flaws to the development of the proposed project, under the conditions that the identified mitigation measures in this document that have recommended are implemented.

Tebogo Sebego Chris Antrobus
GOLDER ASSOCIATES AFRICA (PTY) LTD

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APPENDIX A

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