

**PROPOSED STEELPOORT PUMPED STORAGE SCHEME
AND ASSOCIATED INFRASTRUCTURE, MPUMALANGA AND LIMPOPO
PROVINCES**

**DRAFT SCOPING REPORT
SOCIAL IMPACT ASSESSMENT**

As part of the

ENVIRONMENTAL SCOPING ASSESSMENT

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EXECUTIVE SUMMARY

ESKOM is planning to construct a pumped storage power generation facility in the Steelpoort area. Environmental authorisation for the project comprises of two phases. Phase 1 entailed an Environmental Screening Investigation (ESI) with the objective of comparing and selecting possible sites for the facility. The ESI used readily available information to identify potential environmental (biophysical, socio-economic and enviro-legal) issues of concern. The ESI was not an environmental impact assessment and therefore does not quantify any environmental and social issues. The ESI is also not required by current legislation, but serves as a valuable tool to identify issues which could influence the outcome of the project. The ESI serves as input for Phase 2 of the project. Phase 2 entails the EIA regulatory process in terms of the Environment Conservation Act, and would then include the following:

1. A scoping phase of all the sites; and
2. A detailed investigation and assessment of potentially significant environmental impacts as identified within the Scoping Study for the nominated site/s.

This report forms part of the scoping phase for the EIA for the construction and operation of the proposed pumped storage generation facility. The report firstly lists the social issues assessed in the ESI together with the ranking of the various potential sites, followed by the scoping assessment.

Prior to embarking on a full Environmental Impact Assessment, a scoping study has to be completed to identify a preferred site and any potential no-go sites. This report presents the results of the Social Impact Assessment (SIA) that was conducted as part of the Scoping Phase of the Environmental Impact Assessment (EIA), which precedes the full EIA. In order to conduct an informed desktop site selection, the Environmental Scoping Study included the following:

- Desktop site selection study based on the ESI and other information;
- Evaluation of the ESI report and identification of further information needs;
- Identification and evaluation of potential environmental impacts associated with the proposed project. The nature, extent and significance of the identified issues are valued; and
- Recommendations regarding further detailed studies required within the EIA phase of the project.

The ESI was not an environmental impact assessment and therefore additional information was needed for the Scoping Phase of the SIA. Information not shared in the ESI and which were identified to be addressed in the Scoping Phase was:

- Delineating the study area by identifying the communities, settlements and institutions likely to be affected by the project;
- Analysing the social and economic characteristics of the study area. Variables to be included in this analysis include population composition and density; economic activities; levels of income, unemployment and education; household sizes and types of housing; existing services and infrastructure; and the capacity of local municipalities;
- Preliminary assessment of social impacts by superimposing the description of the planned project on the profile of the socio-economic environment to obtain an indication of the possible impacts of the project;
- Based on the preliminary assessment of social impacts, identify issues that should be subjected to closer scrutiny during the EIA Phase. Data requirements and the methodology to be employed during these detailed investigations should be outlined.

The ESI concluded that overall Site A3 and C1 were the preferred sites. Based on the **social** impacts discussed in the ESI, Site A, then B, followed by Site C was the order of preference. In this Scoping Assessment as part of the SIA, Site B is preferred, followed by Site A. This is mainly because of the proximity of the sites to settlements, and the potential impact of construction activities on these settlements. Should Site B not be taken to EIA Phase, the proximity of the other alternatives to settlements should be considered, and the Environmental Management Plan should set out strict guidelines for conduct with inhabitants. For operation, safety aspects should be considered, and the potential economic gain for inhabitants (e.g. tourism activities) should the SPSS be located in close proximity of settlements. Agricultural land should be avoided.

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ACRONYMS

| | |
|------|--|
| DM | District Municipality |
| EIA | Environmental Impact Assessment |
| ESI | Environmental Screening Investigation |
| EMLM | Elias Motsoaledi Local Municipality |
| GSDM | Greater Sekhukhune District Municipality |
| I&AP | Interested and Affected Party |
| IDP | Integrated Development Plan |
| LM | Local Municipality |
| SIA | Social Impact Assessment |
| SPSS | Steelpoort Pumped Storage Scheme |

1. BACKGROUND

ESKOM is planning to construct a pumped storage power generation facility in the Steelpoort area. Environmental authorisation for the project comprises of two phases. Phase 1 entailed an Environmental Screening Investigation (ESI) with the objective of comparing and selecting possible sites for the facility. The ESI used readily available information to identify potential environmental (biophysical, socio-economic and enviro-legal) issues of concern. The ESI was not an environmental impact assessment and therefore does not quantify any environmental and social issues. The ESI is also not required by current legislation, but serves as a valuable tool to identify issues which could influence the outcome of the project. The ESI serves as input for Phase 2 of the project. Phase 2 entails the EIA regulatory process in terms of the Environment Conservation Act, and would then include the following:

3. A scoping phase of all the sites; and
4. A detailed investigation and assessment of potentially significant environmental impacts as identified within the Scoping Study for the nominated site/s.

This report forms part of the scoping phase for the EIA for the construction and operation of the proposed pumped storage generation facility. The report firstly lists the social issues assessed in the ESI together with the ranking of the various potential sites, followed by the scoping assessment.

2. THE PURPOSE OF THIS REPORT

Prior to embarking on a full Environmental Impact Assessment, a scoping study has to be completed to identify a preferred site and any potential no-go sites. This report presents the results of the Social Impact Assessment (SIA) that was conducted as part of the Scoping Phase of the Environmental Impact Assessment (EIA), which precedes the full EIA. In order to conduct an informed desktop site selection, the Environmental Scoping Study included the following:

- Desktop site selection study based on the ESI and other information;
- Evaluation of the ESI report and identification of further information needs;
- Identification and evaluation of potential environmental impacts associated with the proposed project. The nature, extent and significance of the identified issues are valuated; and
- Recommendations regarding further detailed studies required within the EIA phase of the project.

3. APPROACH AND METHODOLOGY

This section discusses the approach and methodology employed to do the SIA. A summary and evaluation of the ESI is given, followed by a discussion of the sources used to assess the study area and the social impacts.

3.1 SUMMARY AND EVALUATION OF THE ESI

To meet the objectives of the report, the ESI was evaluated and assessed, and further information needs identified.

3.1.1 Summary of the ESI

Three sites with alternatives were selected in the Site Selection Study. These are listed in Table 2-1. For a detailed map of the site positions, and the different options per site, please refer to map ????. Each site alternative has an upper dam and a lower dam.

Table 2-1: Potential Sites

| | Site A alternatives | Site B alternatives | Site C alternatives |
|---|--------------------------------|--------------------------------|--------------------------------|
| Potentially competitive layouts | A1, A2, A3 | B1, B5, B7 | C1 |
| Preferred option taking into account all the aspects considered in the ESI | A3 and C1 | | |

Socio-economic aspects which were considered in the ESI, and which are relevant to this report are listed in Table 2-2. Site C1 does not emerge as a preferred site in this table, because only the social aspects considered in the ESI is included in the table. Site A followed by Site B are the preferred sites.

The rating system used was as follows:

Positive Impact (rated at 5 points) – Sufficient information exists to consider a positive impact.

Favourable (rated at 4 points) – Sufficient information exists to make a considered rating that the overall environmental impact would not be significant.

Uncertain (rated at 3 points) – There is uncertainty on the nature and extent of the impact primarily due to a lack of information on site specific conditions.

Less Favourable (rated at 2 point) – Sufficient information exists to determine that the site will be negatively impacted.

Fatal flaw (rated at 1 point) – where there could be an impact which cannot be mitigated.

Table 2-2: Rating of Site Options

| | Site A Option 1 | Site A Option 2 | Site A Option 3 | Site B Option 1 | Site B Option 5 | Site B Option 7 | Site C Option 1 |
|-----------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|
| Agricultural potential | 4 | 4 | 4 | 3 | 4 | 4 | 2 |
| Displacement of persons | 2 | 2 | 4 | 4 | 2 | 3 | 4 |
| Health and safety | 2 | 2 | 4 | 4 | 4 | 4 | 2 |
| Access routes | 4 | 4 | 4 | 2 | 2 | 2 | 4 |
| Infrastructural development | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| Employment creation | 5 | 5 | 5 | 3 | 3 | 3 | 5 |
| Loss of income | 2 | 4 | 4 | 4 | 4 | 4 | 2 |
| Total | 24 | 28 | 30 | 25 | 24 | 25 | 24 |

3.1.2 Evaluation of the ESI

The ESI was not an environmental impact assessment and therefore additional information is needed for the Scoping Phase of the SIA. Information not shared in the ESI and which were identified to be addressed in the Scoping Phase was:

- Delineating the study area by identifying the communities, settlements and institutions likely to be affected by the project;
- Analysing the social and economic characteristics of the study area. Variables to be included in this analysis include population composition and density; economic activities; levels of income, unemployment and education; household sizes and types of housing; existing services and infrastructure; and the capacity of local municipalities;
- Preliminary assessment of social impacts by superimposing the description of the planned project on the profile of the socio-economic environment to obtain an indication of the possible impacts of the project;
- Based on the preliminary assessment of social impacts, identify issues that should be subjected to closer scrutiny during the EIA Phase. Data requirements and the methodology to be employed during these detailed investigations should be outlined.

3.2 ASSESSMENT OF THE STUDY AREA

Communities, settlements and institutions likely to be affected by the project as well as analyses of the social and economic characteristics of the study area were subsequently done by conducting a desktop study. Information was sourced from:

- Census data which was sourced from the Municipal Demarcation Board website and Statistics SA;
- The Integrated Development Frameworks of the
 - Greater Groblersdal and Makhuduthamaga Local Municipalities, and the;
 - Greater Sekhukhune District Municipality.

The detailed assessment of the study area is in Section 4.

3.3 ASSESSMENT OF POTENTIAL SOCIAL IMPACTS

Potential social impacts were then identified, described and assessed. Please refer to Section 5 for a detailed assessment. Information sources for identification of potential social impacts were:

- Environmental Screening for Site Selection for Project Lima (rev 7), BKS (Pty) Ltd;
- Site Selection Study (Volume 1, Phase 1), BKS Palace Consortium;
- Assessment of comments and issues raised by Interested and Affected Parties (I&AP's) during the ESI Phase.

The Significance Rating Scales endorsed by Bohlweki was used to rate the potential impacts. A summary of these impacts can be viewed in section 6.

4. ASSESSMENT OF THE STUDY AREA

The study area is located within both the Limpopo and Mpumalanga Provinces.

4.1 Mpumalanga Province

Mpumalanga means "place where the sun rises". The province is located to the north eastern part of South Africa, and is links South Africa with Mozambique to the east and the Kingdom of Swaziland to the south and east. Mpumalanga Province is centrally located, with the province of Gauteng on its

western border is, with the Free State to the south west and KwaZulu-Natal to the south east.

The predominant population group is Black African (92.4%) followed by Whites (6.5%), Coloureds (0.7%) and Indian/Asian (0.4%). The most common used languages in the province are SiSwati (29.4%) and Zulu (24.15%).

4.2 Limpopo Province

The Limpopo Province is the northernmost province within the Republic of South Africa. The capital of the province is Polokwane, previously known as Pietersburg. The province was first called the Northern Province, but subsequently during 2003, the name officially changed to that of Limpopo Province, named after the Limpopo River that runs through the province.

The Limpopo Province is bordered by Botswana to the west and north-west, Zimbabwe to the north, and Mozambique to the east. The southern end of the province is bordered by the Gauteng Province, which makes the Limpopo Province the link between South Africa and other African countries. The province is therefore seen as at the centre of regional, national and international developing markets. Despite its location in terms of international trade, the Limpopo Province can still be regarded as one of the poorest provinces in South Africa.

Black Africans are the predominant population group (97.3%). This is followed by White (2.4%), Coloured (0.2%) and Indian/Asian (0.1%). Tsonga speakers account for 23% of the province's population, followed by Venda (12%). Afrikaans is spoken by 2.6% of the province's population, while English-speaking people account for less than half a percent. Several ethnic groups are found amongst the population groups. With close on 57%, the Sepedi ethnic group makes up the largest number of these groups.

Limpopo Province is divided into six municipal districts, of which the **Greater Sekhukhune District Municipality** is relevant to this report. All the proposed sites for the Steelpoort Pumped Storage Scheme fall within the boundaries of the Sekhukhune District, and therefore only this District Municipality, together with its affected Local Municipalities, **Elias Motsoaledi Local Municipality (EMLM)** (previously known as Greater Groblersdal Local Municipality) and **Makhuduthamaga Local Municipality (MLM)**, will be discussed in more detail in the following sub-sections. Several settlements within the EMLM would potentially be affected by the proposed Steelpoort Pumped Storage Scheme (SPSS), which are listed in Table 4-1.

Table 4-1

| Settlement | Ward | Site |
|--|----------------|--------|
| Elias Motsoaledi Local Municipality | | |
| Roosenekal | Ward 16 | Site A |
| Sehlakwane | Ward 16 | Site A |
| Mathula | Ward 17 and 19 | Site A |
| Nkosini, Hlogotlou | Ward 19 | Site B |
| Makhuduthamaga Local Municipality | | |
| Eenzaam, Lehlakong | Ward 6 | Site C |

Figure 4-1: Affected Communities



4.2.1 The Greater Sekhukhune District Municipality (GSDM)

The Greater Sekhukhune District Municipality (GSDM) is a category C Municipality, which means that it has a municipal executive and a legislative authority in an area that includes more than one municipality. The headquarters of the GSDM is currently situated in Groblersdal. The GSDM was established in 2002 and consists of five local municipalities, including Groblersdal, Marble Hall, Tubatse, Fetakgomo and Makhuduthamaga. The district comprises approximately 1 326 437ha and was known as a cross-provincial district municipality seeing as is located to the north west of the Mpumalanga Province and to the south of the Limpopo Province.

According to the Demarcation Board, the GSDM has officially been incorporated into the Limpopo Province in accordance with proclamation No 422, dated 27 December 2005. The areas of traditional authorities were part of the former homelands of Kwandebele and Lebowa. Areas in KwaNdebele were developed as resettlement areas for people forcefully removed from farms. The GSDM is still for the most part a rural district, with 94.7% of its total population residing in rural areas, and only 5.3% of the total population residing in urban areas.

According to the current year projections, the total population of the GSDM is estimated at approximately 1 024 748 in 217 000 separate households, an average of 4.7 people per household. Census 2001 puts the total population at approximately 967 144 people living in 204 699 separate households. The Sekhukhune District is one of the highest populated and poorest district municipalities in the country. According to the Bureau for Market Research at UNISA, the population growth rate is expected to drop by approximately 1% per annum until the year 2008, due to HIV/AIDS. The predominant population group by far is Black African (99.1%), followed by White (0.8%). According to Census 2001 data, just over half of the total population (55%) are aged 19 years and younger. Women account for the majority of the total population at 55.3%, and most households are headed by a female (58.7%). Almost half (42.7%) of the adult population reported having had no schooling, whilst a quarter (24.7%) reported having completed at least some secondary schooling. Most of the households consist of at least four people per household (14.3%), followed by one and five persons (13.6%), three persons (12.7%) and six persons (11.2%). Most houses have at least four rooms (16.1%), followed by 3-roomed houses (15.2%) and 2-roomed houses (13.2%).

The population in this municipal area can further be regarded as the "poorest of the poor" with an increased dependency ratio, high unemployment levels and low income rates. The average monthly income figures for most of the residents in Sekhukhune are far less than the national average for a minimum sustainable income which is set at R1 100 per month. Two in five of households (39.3%) reported having no income, followed by a quarter (24.8%) with an average household income of between R4 801 and R9 600 per month. The low levels of household income also imply that there are generally low levels of disposable income within the municipality and thus low levels of business investments. This indicator is being supported by the Northern Province Growth and Development Strategy (1997).

Only 13.7% of the adult population is employed, and economic activities mostly occur in the community services sector (54%), mining (20%) and trade (17%). This would imply that most of the economic activities are based

on government service delivery, whilst the rest of the economic activities are limited. However, between 1995 and 2000, the community services sector showed a decline in employment rates while the mining, trade and agricultural sectors showed an increase in employment. Although agriculture accounts for 14.6% of the local economy, only 0.3% of the farmers are large scale commercial farmers, whilst 71% are subsistence farmers. Shortage of water has prevented the use of 64 800ha of arable land from being put into good use. Complicating the matter further is pending land claims.

Mining is an important economic sector in the district. Currently mining is the second biggest contributor to the local economy (GDP) and the third biggest employer after government and trade. This is likely to change in the near future as more mines are in the process of being opened. The district has high mining potential in the form of deposits of kaolin clay, red granite, slate, marble, magnetite, vanadium, andalusite and asbestos. Currently there are 22 mines in operation with a further 5 mines planned at an estimated investment in excess of R5 billion in the next five years. Most of the mine ores are extracted and exported in their raw form, limiting job opportunities and exposing the area to high capital investment in the form of infrastructure with little benefits except in employment. Mining activities have tended to create infrastructure that is not shared by the broader communities and at best with limited access, i.e. recreation facilities. The new mining initiatives will on the one hand create employment opportunities, but will on the other hand place a high demand on (already insufficient) services like water and electricity.

The district seems to be under serviced in terms of infrastructure development and municipal services. Most of the households make use of wood for cooking (53.7%) and for heating (54.2%), despite the fact that two thirds (63.5%) make use of electricity for lighting purposes. Three quarters of all the households (74.8%) make use of their own refuse dump for refuse removal. For most households sanitation services only entails a pit latrine without a vent (64.6%). A large proportion of the households (16.9%) have no access to sanitation services. The majority of households also have no access to piped water (20.9%), followed by 13% who's only access to water is through a nearby river or stream.

Access to health facilities within Sekhukhune District Municipality is poor. There is 1 clinic for every 17 000 people on average. Looking at the district as a whole there is approximately 97 500 people per the three hospitals.

There is no spatial development plan available for this area, and use zones are not clearly identified. The development to the east and west of the district should link up with the neighbouring provinces. The major roads of concern are the R33, R555 and the R579.

As identified in the IDP, the socio-economic patterns shown above reveal a number of dynamics of the Sekhukhune development character. These dynamics are translated into the following issues:

- More than half (56%) of the Sekhukhune population is under the age of 20, thus economically inactive resulting in high and unsustainable dependency ratios.
- A total of 6% of the population are pensioners who play a major role in the economy of the area.
- Sekhukhune is 94.7% rural, meaning that the very small economic base of the area is dependant on the urban towns. It also means that Sekhukhune has to address the disparities between the urban and rural capacities to support the economy.
- The unemployment rate is very high requiring the creation of jobs, which should be a priority issue to ensure a sustainable society.
- About 77.4% of households live below the minimum sustainable level of R1 100 per month - a fact that extends the poverty cycle.
- The majority of households (58.6%) are headed by females and yet jobs are still male focused.
- The majority of the population are concentrated in 529 separate villages with scant facilities and services.
- The education levels are very low as 31% of the population do not have any formal education.
- The provision of health services is not satisfactory due to functional inadequacies.
- A high level of crime rate.

Amongst the issues identified by the GSDM as priority issues to be addressed, were:

- Poverty Alleviation;
- Gender inequality;
- Bulk water supply / reticulation;
- Roads;
- Refuse Removal;
- Sanitation;
- Emergency Services and Municipal Policing;
- Cemeteries;
- Health Delivery, and more so focused on HIV prevention;
- Community Facilities : Sport and Recreation;
- Economic;
- Tourism; and
- Land Tenure Upgrading / Land Reform.

4.2.1.1 Elias Motsoaledi Local Municipality (EMLM)

The Elias Motsoaledi Local Municipality (EMLM) lies to the south and southwest of the GSDM, on the western banks of the Olifants River. The town of Groblersdal lies north east of Pretoria and is situated approximately 32km from Loskop Dam.

According to the Municipal Demarcation Board the total population of the EMLM is estimated at approximately 221 638 people living in 48 925 separate households, an average of 4.5 people per household. The projected growth rate for the period 2001 to 2010 is 1% per annum.

The EMLM has a profile similar to that of the GSDM. The predominant population group is Black African (98.9%), followed by White (1.0%). In total, 12.5% of the total population are under the age of 19. Just over half of the total population is female (55.1%). Almost a half (45.7%) of the adult population reported having had no schooling, whilst a quarter (22.4%) completed some secondary schooling. Most of the households are headed by a female (57.7%). Most households consist of a single person (15.9%), followed by households consisting of two and three people (both at 12.9%). The majority of houses have at least four rooms (16.2%). Slightly more than half (50.3%) of the properties are owned and fully paid for by their owners.

A quarter (24.1%) of all households reported an average household income of between R4 801 and R9 600 per month. However, a third of all households (37.9%) reported having no monthly household income. Only 16.9% of the adult population are employed (63.1% are not economically active), mostly in the community services sector (3.2%).

The local economy of the EMLM is largely dominated by agriculture, which contributes 25.2% of the local economy, mostly due to commercial farming. Subsistence farming only has a negligible contribution. The trade sector (21.2%) is the second highest contributor and Government (20.6%) is the third highest contributor.

As far as infrastructure development and municipal services are concerned, it would appear that more than a quarter of the households make use of coal for cooking (26.5%) and heating (34.0%). Despite this, by far the majority make use of electricity for lighting (84.1%). The EMLM does not seem to have an effective and operational refuse removal system, since three quarters (72.8%) of the households make use of their own refuse dump for this purpose. Also, three quarters (75.9%) only have access to a latrine pit

without ventilation. Close on one fifth (19.6%) have no access to piped water, followed by piped water within the yard (13.4%).

Roads and storm water management in rural areas fall under the control of the province. However, this is largely confined to storm water control on the provincial main roads. Most roads are in a state of disrepair, with the provincial roads largely in need of resealing. This has a negative impact on the local economy.

The area has two hospitals supported by health centres and clinics. The hospitals are in Groblersdal and Philadelphia (Moutse). These facilities are inadequate as the norms prescribe that one clinic is required for every 10 000 people.

The settlements within the EMLM that could potentially be affected by the proposed project are Roosenekal and Sehlakwane in Ward 16, Matula in wards 17 and 19, and Nkosini and Hlogotlou in ward 19. These wards are discussed in more detail in the following sub-section.

Ward 16 of the EMLM

Although the settlement Roosenekal is not indicated on the Municipal Demarcation Board, it would be safe to assume that it does form part of Ward 16 of the EMLM due to its close proximity to Sehlakwane, which does form part of Ward 16 of the EMLM.

The ward consists mostly of young people, i.e. people under the age of 19 (60.8%). The total population of this ward is estimated at approximately 8 835 people living in 1 867 separate households, an average of 4.7 people per household. The predominant population group is Black African (99.9%) with the remainder 0.1% being Coloured. Just over half (54.9%) of the total population is females.

As far as the educational profile of this ward is concerned, over half (58.6%) of the adult population have had no schooling. Every one in five (20.0%) have completed some secondary schooling. Three quarters of the adult population (77.9%) are not economically active. Of the 7.5% employed, most are in the community services (30%).

Half (49.9%) of all the households in this ward have no income. A quarter (22.3%) has a monthly household income of between R4 801 and R9 600. Most of these households (64.3%) are female-headed. Households tend to be quite large, with a third (32.9%) having six or more people, followed by four people (16.6%). It follows then that most of the houses (56.0%) have at

least four or more rooms. In this ward, most of the residents occupy their property rent-free (60.2%).

Coal is a popular source of energy, with two thirds and more of all households using coal for cooking (61.2%) and for heating (67.0%). More than three quarters (76.8%) make use of electricity for lighting. The majority of households (88.6%) make use of their own refuse dump for refuse removal. For most households (77.9%) a pit latrine without ventilation is the only form of sanitation services. Almost a quarter (22.6%) has no access to water, whilst 18.3% obtain their water from a pipe more than 200m away from their dwelling.

- **Development plans**

The EMLM IDP identifies the following priority developments for Roossenekal: A council office, primary school, pension payment facility, purification plant, bridges to link the area with main roads, road construction and repair, water pipes, tourism centre (Ekgoleni Magopo Caves). Agricultural and poverty alleviation projects need to be initiated.

Poverty alleviation and agricultural projects are planned for Sehlakwane.

Ward 17 of the EMLM

The Mathula settlement partially falls within Ward 17 of the EMLM and therefore this ward will be discussed in more detail. The ward consists mostly of people under the age of 19 (60.8%). Three quarters (74.5%) of the population is not economically active. The predominant population group is Black African (99.8%). The total population consists of approximately 10 746 people living in 2 113 separate households, an average of 5.1 persons per household. Females dominate at 56.5%.

More than half of the adult population (56.5%) have had no schooling, and a fifth (21.1%) have completed some secondary schooling. Of the 5.7% of the adult population who are employed, most are employed in the community services sector (31.9%).

Most households (43.1%) have no income, although a fairly large proportion (27.3%) reported having an average household income of between R4 801 and R9 600 per month, followed by 13.3% who have a household income of between R9 601 and R19 200 per month. Again most of these households are headed by a female (64.9%). Households consist mostly of six or more people (37.6%). The average size of a house seems to have at least four or

more rooms (68.4%). The tenure status for most is to occupy their property rent-free (72.5%).

Although the majority of households make use of electricity for lighting (86.4%), they still make use of coal for cooking (69.9%) and heating (72.2%). Most households (75.1%) make use of their own refuse dump for waste removal. By far the majority of households' (93.5%) only access to sanitation services is a pit latrine without ventilation. More than a quarter (27.6%) have no access to water and for those that do have access to water, 16.3% obtain their water from a river or stream and 14.7% make use of borehole water.

- **Development plans**

A primary school is planned for Mathula, together with housing development and the upgrading of roads and sanitation.

Ward 19 of the EMLM

The settlements of Nkosini, Hlogotlou and a part of Mathula form part of Ward 19 of the EMLM. According to Census 2001 there are approximately 6 091 people residing in this ward in 1 266 separate households, at an average of 4.8 people per household. Most of the residents (57%) are 19 years or younger. Slightly more than half (55.8%) of the total population is female. The predominant population group is Black African (99.9%), with the remainder 0.1% being Coloured.

Two thirds of the adult population (62.0%) have had no schooling. The majority who has some form of education reported that they attended school (81.4%). The employment rate of the adult population is fairly low at 4.9% of which the majority (20.5%) are employed in the private household sector.

A third (37.2%) of all households reported having no income. Also, close on a third (30.5%) of all households has an average monthly income of between R4 801 and R9 600. Again most of these households are headed by a female (64.8%). Most of the households consist of at least 4 people (17.2%) followed by households consisting of five (15.7%) and two people (12.0%). Most houses have five rooms (18.8%), closely followed by houses consisting of four rooms (18.3%). Close on two thirds (60.3%) occupy their property rent-free.

The majority of households (71.7%) makes use of their own refuse dump for waste removal. By far the majority (95.3%) only has access to a pit latrine without ventilation. Almost a third (31.8%) has no access to water. Of those who do have access, 17.3% obtain their water from a river or stream and 16.7% from a borehole.

- **Development plans**

A pre-school and electricity provision to the greater area is planned for Hlogotlou.

4.2.1.2 Makhuduthamaga Local Municipality (MLM)

The Makhuduthamaga Local Municipality (MLM) is one of the potentially affected local municipalities situated in the Sekhukhune District of the Limpopo Province. The MLM was established in the year 2000 in terms of the Local Government Municipal Structures Act.

According to Census 2001 data, there are approximately 261 996 people living in the MLM in 54 017 separate households, an average of 4.9 persons per household. Most of the total population (55.9%) are aged 19 or younger. The predominant population group is Black African (99.9%). Females dominate at 56.3%.

Close on a half of the adult population (44.3%) have had no schooling. Of those who did receive an education, 4 in 5 adults (79.4%) reported having attended school of which a quarter (24.1%) has completed some secondary education. The area has a fairly low employment rate of 7.9% of the adult population (68.4% are not economically active), of which 2.3% are employed in the community services sector. The MLM does not contribute significantly towards agriculture, largely as a result of acute water shortages that only allows for a small percentage of the arable land to be irrigated. Large areas are cultivated for semi-commercial and subsistence dry land farming in the areas of Nebo and Jane Furse.

Two thirds (64.4%) of all households are headed by a female. Most of the households reported no income (41.5%), followed by households with an average household income of between R4 801 and R9 600 per month (26.9%). Households mostly consist of four people (15.1%), followed by households consisting of five (14.8%) and six (12.5%). Most houses have at least four rooms (17.3%), followed by houses consisting of three rooms (16.5%). More than a half (57.3%) not only own their property, but have also paid for it in full.

The majority of households (88.1%) dispose of their waste at their own refuse dump. More than two thirds of the population (70.3%) only have access to a pit latrine without ventilation. Most do not have access to water (26.9%), followed by 16.2% who obtain their water from a river or stream. More than half of all the households make use of wood for cooking (56.0%)

and heating (56.4%). Electricity is the most popular form of energy for lighting, with 62.4% of households having access to and making use of electricity for this purpose. The other third (32.1%) still make use of candles for lighting.

The settlements within the MLM that could potentially be affected by the proposed project are Eenzaam and Lehlakong. Both these settlements form part of Ward 6 of the MLM and therefore this ward will be discussed in more detail in the following sub-section.

Ward 6 of the MLM

There are approximately 9 163 people residing in 1 697 separate households within this ward, with an average of 5.4 persons per household. The majority (58.7%) are aged 19 years or younger. There are slightly more females (56.0%) than males in the area. The predominant population group is Black African at 99.9%.

The majority of the adult population (43.1%) reported having had no schooling. Of those who attended school (80.4%), only a quarter (25.0%) completed some secondary education. By far the majority of the adult population (84.2%) are not economically active. Of the 2.2% who are employed, almost a half (42.0%) is employed by the community services sector.

Most of the households (62.3%) are female-headed and have no household income (54.4%). More than a quarter (28.7%) of all households has a monthly income of between R4 801 and R9 600. There is an equal split (14.7%) between households consisting of four and five people. This is followed by households consisting of six people (13.2%). Most houses have at least four rooms (22.2%), followed by houses consisting of five rooms (15.0%). The majority of residents (60.1%) own their property and have paid for it in full.

Wood is the most popular form of energy and is used by 44.2% of all households for cooking, and 45.4% for heating. By far the majority (95.5%) make use of candles for lighting. Most households (81.8%) have to make use of their own refuse dump for waste removal. More than a half (55.7%) makes use of a pit latrine without ventilation, whilst a third (33.4%) has no access to sanitation services. The majority of households (38.4%) do not have access to water. For those who do have access to water, 16.7% obtain their water from a river or stream.

- **Development plans**

The identification and implementation of housing projects were identified as a priority by the local municipality.

4.2.1.3 Greater Tubatse Local Municipality

The Greater Tubatse Local Municipality (GTLM) forms part of the Greater Sekhukhune District Municipality. The total population of the GTLM is estimated at 270 116 people, residing in 56 231 separate households (with an average of 4.8 persons per household). Almost all of the residents are Black African (99.0%), followed by White (0.8%). The predominant languages spoken are Sepedi (90.2%) and SiSwati (4.1%).

Close on half of the total population (55.8%) are aged 19 years or younger. There are more females (55.0%) than males (45.0%) in the area. Four in ten of the adult population (40.0%) reported having had no schooling. Of those who have had some form of education, the three quarters (74.9%) reported that they attended school. Only 13.3% of the total adult population are employed, mostly in the Community Services Sector (2.3%). Four in ten of all the households (42.8%) have no household income, followed by households with an average monthly income of between R4 801 and R9 600 (22.3%).

Most of the households are headed by a female (55.8%), and consist of at least four people per household (14.3%). This is followed by households consisting of 5 people per household (13.6%) and single person households (13.1%). Most of the houses (16.1%) have four rooms, closely followed by houses consisting of three rooms (15.7%). Half (53.9%) of the houses have paid for it in full.

It seems as if the majority of households do not have access to proper municipal services. Two thirds of the households make use of wood for cooking (67.0%) and heating (69.5%). There is an almost 50-50 split between energy sources for lighting purposes: 47% make use of electricity, whilst 46.7% still make use of candles. Two thirds (65.4%) make use of their own refuse site for refuse removal, whilst a quarter (26.4%) has no access to refuse removal facilities. Half of the households (53.8%) only have access to a pit latrine without ventilation. Two in ten households (18.5%) have no access to water, followed by 14.6% of the population whose only access to water is through a communal stand some 200m or more away from their place of residence.

5. DESCRIPTION AND ASSESSMENT OF POTENTIAL IMPACTS

This section summarises the planned construction activities and the potential impacts that can be expected as a result thereof. Table 5-1 describes the activities that can be expected, and Tables 5-2 discuss and assess the potential impacts.

Table 5-1: Construction and Operations activities

| Construction period: 2009-2014 |
|--|
| Traffic |
| Heavy duty trucks will be used. The details of the number and size of construction vehicles need to be determined for the EIA phase. |
| Access roads |
| Please refer to the Draft Environmental Screening Report Ref7 for detail on the access roads. Temporary access and site roads will be required. Access roads to Site C will bypass settlements. Access roads to Site A and B will pass through settlements. |
| Employment creation |
| An estimated 300-400 jobs at the upper dam. An estimated 1 700-3 000 jobs at the lower dam. It is estimated that 1 000 jobs will be created for local people. The level of skills required for these are not available, and need to be identified. Skilled labour will be needed for excavation and mechanics. |
| Construction villages |
| One at upper dam and one at lower dam will have to be constructed. These will not be on site, although housing might be constructed on site for security purposes. Details of construction villages need to be assessed for the EIA phase. |
| Construction method |
| Cut to fill will be used and excavated material will be used for construction purposes, e.g. the wall. Drilling will have to be done. Details will have to be assessed to assess potential impacts. |
| Land loss |
| Approximately 50-80ha will be occupied by the dams. The portion of land which will be used for construction purposes is not known, and will have to be provided for the EIA phase. |
| Operation |
| Traffic |
| The traffic numbers will be dependent on tourism numbers, employees' mode of transport, and the maintenance activities. The heavy duty vehicles of the construction phase will not be present during operation. |
| Land loss |
| The size of land occupied by the dams will be 50-80ha each, excluding an administrative building of 1000m ² for 40 odd people, and probably a visitor centre to view the power station and visit archaeological sites. Confirmation of this information will be available for the EIA phase. |

| |
|---|
| Access roads |
| Please refer to the Draft Environmental Screening Report Ref7 for detail on the access roads. Permanent access and site roads during construction. Access roads to Site C will bypass settlements. Access roads to Site A and B will pass through settlements. |
| Employment creation |
| A total of 40 people will be employed during operation. The level of skills required for these need to be determined for the EIA phase. |
| Housing |
| No permanent houses will be left behind, maybe 1 or 2 houses close to the administration building. Permanent staff will probably be housed at Roosenekal where undeveloped serviced stands are available. |

Table 5-2 assesses the identified impacts. The impact ratings do not distinguish between sites, but it gives an overall assessment of each site.

Table 5-2: Rating of Impacts

| RATING OF IMPACT: AGRICULTURAL POTENTIAL/LOSS OF INCOME | | |
|--|---|---|
| Although farming is not the main sector of income in the area, land with agricultural potential should be preserved. Subsistence farming does have an important role to play in providing for families. Agricultural land therefore needs to be protected and developed, and the disruption of farming activities should be avoided. Longer access roads imply more loss of land. | | |
| <u>Dimension</u> | <u>During construction</u> | <u>During operation</u> |
| Duration | Short term | Long term |
| Extent | Localised | Localised |
| Intensity | Severe (if agricultural activities are impacted upon) | Severe (if agricultural activities are impacted upon) |
| Probability | Will definitely occur | Will definitely occur |
| Significance | High | High |
| Confidence | Probable | Probable |
| Rating of sites (1 = not suitable, 5 = ideal): | | |
| Site A and B: | | |
| From the ESI it is not clear whether Site A and B will impact on agricultural activities. According to the agricultural potential assessment, the impact of the upper dam of Site A is of low significant impact for agricultural activities as no agricultural activities are currently taking place there. According to the assessment on potential loss of income, at Option A1 the dam will inundate existing farm land resulting in a loss of income to the farmer. At Option A3, some 25% of the farm portions would be lost for winter grazing purposes, potentially dropping below the break-even point for sustainable economic cattle farming. | | |
| Site C: The construction of a dam will have a medium significant impact as portions of the area are currently being cultivated. Some portions that have been cultivated in the past are not under cultivation any more probably because these portions do not yield a | | |

| | | |
|--|------------------|------------------|
| good crop. According to the ESI the potential loss of income is significant, as the current land use is agricultural crops that provide both food and cash to the farmers. | | |
| Site A: 4 | Site B: 4 | Site C: 2 |
| Recommended studies for EIA phase: More detailed information about land use and planned land use. | | |

| RATING OF IMPACT: DISPLACEMENT OF PERSONS | | |
|--|----------------------------|-------------------------|
| The impact of relocation depends on the level of attachment to a place, and this will have to be assessed to get an indication of the possible effect. Level of attachment is linked to variables such as age and number of years spent in that particular area. Displacement should be avoided. | | |
| <u>Dimension</u> | <u>During construction</u> | <u>During operation</u> |
| Duration | Long term | Long term |
| Extent | Household | Household |
| Intensity | Very severe | Very severe |
| Probability | May occur | May occur |
| Significance | Very high | Very high |
| Confidence | Definite | Definite |
| Rating of sites (1 = not suitable, 5 = ideal): Site A2: A number of people may be displaced. Site A3: A weekend farmhouse and worker dwelling will be affected. Site B: There are a number of dwellings at the lower reservoir option 5 and these occupants will be displaced. Site C: Relocation at the lower site might be necessary. | | |
| Site A: 3 | Site B: 3 | Site C: 4 |
| Recommended studies for EIA phase: More detailed information required on numbers of people who will have to be displaced, and level of place attachment. | | |

| RATING OF IMPACT: DISRUPTION OF COMMUNITY ACTIVITIES | | |
|--|----------------------------|-------------------------|
| The disruption of recreational and daily activities could potentially be a problem where heavy duty traffic occurs and roads are being built. | | |
| <u>Dimension</u> | <u>During construction</u> | <u>During operation</u> |
| Duration | Short term | Long term |
| Extent | Localised | Localised |
| Intensity | Moderately severe | Slight |
| Probability | Will definitely occur | Unlikely to occur |
| Significance | Moderate | Low |
| Confidence | Definite | Definite |
| Rating of sites (1 = not suitable, 5 = ideal): Access roads to Site C bypass settlements. Access roads to Sites A and B pass through settlements. | | |

| | | |
|---|------------------|------------------|
| Site A: 3 | Site B: 4 | Site C: 2 |
| Recommended studies for EIA phase: | | |
| More detailed information is required on the movement patterns of the affected communities. | | |

| RATING OF IMPACT: INFLUX OF WORKERS | | |
|---|-----------------------------------|--------------------------------|
| The influx of a large number of outsiders is likely to result in a number of social ills such as prostitution/stock theft, other security problems and an increase in sexually transmitted diseases, particularly HIV/AIDS. | | |
| <u>Dimension</u> | <u>During construction</u> | <u>During operation</u> |
| Duration | Short term could become long term | Long term |
| Extent | Localised | Localised |
| Intensity | Could be severe | Could be severe |
| Probability | Will definitely occur | Will definitely occur |
| Significance | High | Moderate |
| Confidence | Definite | Definite |
| Rating of sites (1 = not suitable, 5 = ideal): | | |
| At Site A the most favourable option is Option 3. The proximity of Sehlakwane makes this a less favourable option. | | |
| Site B is most favourable since the location is remote. | | |
| Site C is located in close proximity to existing communities and thus presents the less favourable option. | | |
| Site A: 3 | Site B: 4 | Site C: 2 |

| RATING OF IMPACT: SAFETY HAZARD OF WATER | | |
|---|-----------------------------------|--------------------------------|
| Due to rapid movement of water and fluctuation in water levels the dam will be a safety hazard for local populace. | | |
| <u>Dimension</u> | <u>During construction</u> | <u>During operation</u> |
| Duration | Short term | Long term |
| Extent | Localised | Localised |
| Intensity | Severe | Severe |
| Probability | May occur | May occur |
| Significance | High | High |
| Confidence | Possible | Possible |
| Rating of sites (1 = not suitable, 5 = ideal): | | |
| At Site A the most favourable option is Option 3. The proximity of Sehlakwane makes this a less favourable option. | | |
| Site B is most favourable since the location is remote. | | |
| Site C is located in close proximity to existing communities and thus presents the less favourable option. | | |

| | | |
|--|------------------|------------------|
| Site A: 3 | Site B: 4 | Site C: 2 |
| Recommended studies for EIA phase: Feedback from relevant specialists is necessary to better assess this impact. | | |

| RATING OF IMPACT: SAFETY HAZARD OF TRAFFIC | | |
|---|----------------------------|-------------------------|
| An increase in the number of vehicles using the road during the construction may result in a higher incidence of road injuries and/or deaths. | | |
| <u>Dimension</u> | <u>During construction</u> | <u>During operation</u> |
| Duration | Short term | Short term |
| Extent | Localised | Localised |
| Intensity | High | High |
| Probability | May occur | May occur |
| Significance | Severe | Severe |
| Confidence | Probable | Probable |
| Rating of sites (1 = not suitable, 5 = ideal): At Site A the most favourable option is Option 3. The proximity of Sehlakwane makes this a less favourable option. Site B is most favourable since the location is remote. Site C is located in close proximity to existing communities and thus presents the less favourable option. | | |
| Site A: 3 | Site B: 4 | Site C: 2 |
| Recommended studies for EIA phase: More detailed information required on numbers and size of vehicles. | | |

| RATING OF IMPACT: DUST | | |
|--|----------------------------|-------------------------|
| Transportation of material and construction activities could result in increase in dust, which could impact on the appearance of the area, and visibility. The upgrading of the existing gravel road R6-R5-R7 linking Roads R555 and R579 should be upgraded to a tarred road, which might reduce the impact of dust. Dust will not impact on health as health impacts are typically caused by dust particles of 10 microns and less. Dust caused by construction activities is greater than 10 microns and will not impact on health. | | |
| <u>Dimension</u> | <u>During construction</u> | <u>During operation</u> |
| Duration | Short term | Long term |
| Extent | Localised | Localised |
| Intensity | Slight | Slight |
| Probability | Will definitely occur | Will definitely occur |
| Significance | Low | Low |
| Confidence | Definite | Definite |
| Rating of sites (1 = not suitable, 5 = ideal): At Site A the most favourable option is Option 3. The proximity of Sehlakwane makes | | |

| | | |
|---|------------------|------------------|
| this a less favourable option. Site B is most favourable since the location is remote. Site C is located in close proximity to existing communities and thus presents the less favourable option. | | |
| Site A: 3 | Site B: 4 | Site C: 2 |

| RATING OF IMPACT: VEHICLE EMISSIONS | | |
|---|----------------------------|-------------------------|
| Vehicle emissions can impact on health. Especially primary pollutants can be of concern where people are concerned. | | |
| <u>Dimension</u> | <u>During construction</u> | <u>During operation</u> |
| Duration | Short term | Long term |
| Extent | Localised | Localised |
| Intensity | Slight | Slight |
| Probability | Will definitely occur | Will definitely occur |
| Significance | Low | Low |
| Confidence | Definite | Definite |
| Rating of sites (1 = not suitable, 5 = ideal): At Site A the most favourable option is Option 3. The proximity of Sehlakwane makes this a less favourable option. Site B is most favourable since the location is remote. Site C is located in close proximity to existing communities and thus presents the less favourable option. | | |
| Site A: 3 | Site B: 4 | Site C: 2 |
| Recommended studies for EIA phase: More detailed information is required on numbers and size of vehicles. | | |

| RATING OF IMPACT: NOISE | | |
|---|----------------------------|-------------------------|
| Noise levels could have an effect on the sense of place experienced during construction. | | |
| <u>Dimension</u> | <u>During construction</u> | <u>During operation</u> |
| Duration | Short term | Long term |
| Extent | Localised | Localised |
| Intensity | Slight | Slight |
| Probability | Will definitely occur | Will definitely occur |
| Significance | Low | Low |
| Confidence | Probable | Probable |
| Rating of sites (1 = not suitable, 5 = ideal): At Site A the most favourable option is Option 3. The proximity of Sehlakwane makes this a less favourable option. Site B is most favourable since the location is remote. Site C is located in close proximity to existing communities and thus presents | | |

| | | |
|--|------------------|------------------|
| the least favourable option. | | |
| Site A: 3 | Site B: 4 | Site C: 2 |
| Recommended studies for EIA phase: | | |
| The findings of a noise specialist should be consulted to make an informed assessment. | | |

| RATING OF IMPACT: INFRASTRUCTURAL DEVELOPMENT | | |
|--|-----------------------------------|--------------------------------|
| <p>Infrastructural development will be necessary, e.g. upgrading of roads. The building of construction camps should benefit local communities. A social responsibility initiative should be part of the project.</p> | | |
| <u>Dimension</u> | <u>During construction</u> | <u>During operation</u> |
| Duration | Short term | Long term |
| Extent | Localised | Localised |
| Intensity | Beneficial | Beneficial |
| Probability | Will definitely occur | Will definitely occur |
| Significance | Moderate | Moderate |
| Confidence | Definite | Definite |
| <p>Site A upper New gravel: 0.5 km. Gravel reinstate/upgrade: 4.2 km. Upgrade to tar: 9.0 km.</p> <p>Site B upper New gravel: 1.0 km. Gravel reinstate/upgrade: 4.0 km. Upgrade to tar: 9.0 km.</p> <p>Site C upper: New gravel: 3.0 km. Gravel reinstate/upgrade: 12.5 km. Upgrade to tar: 15.5 km.</p> | | |
| Site A: 5 | Site B: 4 | Site C: 5 |
| Recommended studies for EIA phase: | | |
| More detailed information about the planned infrastructural developments and how it might benefit the affected communities. The extent and possibility of social investment initiatives should be assessed. | | |

| RATING OF IMPACT: CREATION OF EMPLOYMENT OPPORTUNITIES | | |
|--|-----------------------------------|----------------------------------|
| <p>The use of local labour could boost the local economy, and empower people. A project such as this gives opportunity for training and development. The presence of contract workers could boost local businesses.</p> | | |
| <u>Dimension</u> | <u>During construction</u> | <u>During operation</u> |
| Duration | Short term | Long term |
| Extent | Localised (if local people used) | Localised (if local people used) |

| | | |
|--|--|-----------------------|
| Intensity | Very beneficial | Very beneficial |
| Probability | Will definitely occur | Will definitely occur |
| Significance | Very high | High |
| Confidence | Definite | Possible |
| Rating of sites (1 = not suitable, 5 = ideal): | | |
| Site A: 5 | Site B: 4 (distance from settlements) | Site C: 5 |
| Recommended studies for EIA phase: More detailed information required on numbers and skills levels of possible employment opportunities. | | |

The results of the Visual and Heritage impact assessments need to be interpreted from a social perspective in the EIA phase. Decommissioning impacts should be scrutinised in the EIA Phase. Table 5-3 summarises the ranking for each site overall per potential impact.

Table 5-3: Summarised Ranking of Alternative Sites

| Impact variable | Ranking of sites (1 = not suitable, 5 = ideal) | | |
|---------------------------------------|--|------------------|------------------|
| | Site A | Site B | Site C |
| Agricultural potential/loss of income | 4 | 4 | 2 |
| Displacement of persons | 3 | 3 | 4 |
| Disruption of activities | 3 | 4 | 2 |
| Influx of job seekers | 3 | 4 | 2 |
| Safety hazard of water levels | 3 | 4 | 2 |
| Safety hazard of traffic | 3 | 4 | 2 |
| Dust | 3 | 4 | 2 |
| Vehicle emissions | 3 | 4 | 2 |
| Noise | 3 | 4 | 2 |
| Infrastructural development | 5 | 5 | 5 |
| Employment opportunities | 5 | 4 | 5 |
| Total: | <u>38</u> | <u>54</u> | <u>30</u> |

6. CONCLUSION

The table below contains the site preference ratings for the three proposed sites. These ratings were obtained by averaging the totals presented in the table above.

Table 6-1: Site Preference Ratings for the Proposed Sites

| Site | Score (1 = not suitable, 5 = ideal) | Site preference rating |
|--------|-------------------------------------|------------------------|
| Site A | 3.5 | Second choice |
| Site B | 4.9 | First choice |
| Site C | 1.7 | Third choice |

The ESI concluded that overall Site A3 and C1 were the preferred sites. Based on the **social** impacts discussed in the ESI, Site A, then B, followed by Site C was the order of preference. In this Scoping Assessment as part of the SIA, Site B is preferred, followed by Site A. This is mainly because of the proximity of the sites to settlements, and the potential impact of construction activities on these settlements. Should Site B not be taken to EIA Phase, the proximity of the other alternatives to settlements should be considered, and the Environmental Management Plan should set out strict guidelines for conduct with inhabitants. For operation, safety aspects should be considered, and the potential economic gain for inhabitants (e.g. tourism activities) should the SPSS be located in close proximity of settlements. Agricultural land should be avoided.

Table 6-3 below summarises the identified social impacts discussed in the previous section, as well as the ratings assigned to them in terms of duration, extent, severity, etc. The symbols employed in the table to indicate the ratings are explained in Table 6-2.

Table 6-2: Symbols of Rating Impacts

| Dimension | Ratings |
|--------------|--|
| Duration | Short term: - Medium term: 0 Long term: + Permanent: ++ |
| Extent | Individual: -- Household: - Localised: 0 Regional: + National: ++ International: +++ |
| Intensity | Very severe: H- Severe: M- Mod. severe: L- Slight: 0- Very beneficial: H+ Benef.: M+ Mod. benef.: L+ Slightly benef.: 0+ Undetermined: 0 |
| Probability | Very unlikely: - Unlikely: 0 May occur: + Definitely occur: ++ |
| Significance | None: -- Low: - Moderate: 0 High: + Very high: ++ |
| Confidence | Unsure: - Possible: 0 Probable: + Definite: ++ |

Table 6-3: Summary of Impact Ratings

| | Duration | Extent | Intensity | Probability | Significance | Confidence |
|---------------------------------------|----------|--------|-----------|-------------|--------------|------------|
| CONSTRUCTION IMPACTS | | | | | | |
| Agricultural potential/loss of income | - | 0 | M- | ++ | + | + |
| Displacement of persons | + | - | H- | + | ++ | ++ |
| Disruption of activities | - | 0 | L- | ++ | 0 | ++ |
| Influx of job seekers | - | 0 | M- | ++ | + | ++ |
| Safety hazard of water levels | - | 0 | M- | + | + | 0 |
| Safety hazard of traffic | - | 0 | H- | + | H- | + |
| Dust | - | 0 | O- | ++ | - | ++ |
| Vehicle emissions | - | 0 | O- | ++ | - | ++ |
| Noise | - | 0 | O- | ++ | - | + |
| Infrastructural development | - | 0 | M+ | ++ | 0 | ++ |
| Employment opportunities | - | 0 | H+ | ++ | ++ | + |
| OPERATIONS IMPACTS | | | | | | |
| Agricultural potential/loss of income | - | 0 | M- | ++ | + | + |
| Displacement of persons | + | - | H- | + | ++ | ++ |
| Disruption of activities | + | 0 | O- | 0 | - | ++ |
| Influx of job seekers | - | 0 | M- | ++ | + | ++ |
| Safety hazard of water levels | - | 0 | M- | + | + | 0 |
| Safety hazard of traffic | - | 0 | H- | + | H- | + |
| Dust | - | 0 | O- | ++ | - | ++ |
| Vehicle emissions | - | 0 | O- | ++ | - | ++ |
| Noise | - | 0 | O- | ++ | - | + |
| Infrastructural development | - | 0 | M+ | ++ | 0 | ++ |
| Employment opportunities | + | 0 | H+ | ++ | ++ | + |

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