**PROJECT: EECM 038** **Confidential**

# Draft Scoping Report (version2)
# for
# Sekoko Coal Mine
# at
# Lephalale, Limpopo

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# Table of Contents


**1. INTRODUCTION ..... 1**

**2. SCOPING: METHODOLOGY ..... 1**

**3. STUDY AREA ..... 1**

**4 EXISTING STATE ..... 4**

4.1 LAND USE ..... 4
4.2 DEMOGRAPHIC PROFILE ..... 4
4.3 WATER AND SANITATION ..... 5
4.4 AIR QUALITY ..... 5

**5. PRINCIPLES OF AND APPROACH TO THE HUMAN HEALTH IMPACT ASSESSMENT ..... 6**

5.1 POTENTIAL HEALTH-RELATED ISSUES ..... 6
5.2 METHODOLOGY ..... 7
*5.2.1 BASELINE DATA ..... 7*
*5.2.2 RISK ASSESSMENT ..... 7*
*5.2.3 HEALTH ACTION PLAN ..... 7*
*5.2.4 Monitoring and Evaluation ..... 7*
*5.2.5 Reporting ..... 7*

**6. REFERENCES ..... 8**


## List of Figures


**Figure 1. A map of the Limpopo Province, showing the location of the Waterberg District Municipality and the Lephalale Local Municipality (Source: StatsSA, 2009.) ..... 2**
**Figure 2. Focus areas (blue dotted lines) and affected residential areas (yellow) in the Lephalale LM. The proposed Sekoko mine is marked as a purple circle in the left-hand focus area. ..... 3**
**Figure 3. Proposed extension of Sekoko mine within the Lephalale LM ..... 4**

## 1. INTRODUCTION

Savannah Environmental Pty (Ltd) contracted the CSIR to conduct a Human Health Impact Assessment (HHIA) according to criteria set by the International Finance Corporation (IFC), for the proposed Sekoko coal mine, located about 5 km West of Grootegeluk coal mine in the Lephalale Local Municipality (LM). Specialist studies have been conducted for the proposed development on the farms Minnasvlakte, Smitspan, Massenberg and Hooikraal. However, additional farms (Vetleegte, Olieboomfontein, Duikerfontein and Swanepoelpan) are now being included within the Mining Right area and human health was not addressed in the initial specialist studies. A second Environmental Impact Assessment (EIA) was therefore deemed to be necessary. Sekoko Resources (Pty) Ltd appointed Savannah Environmental to manage the EIA process. Savannah Environmental requested CSIR to perform the HHIA. Appendix A shows where the HHIA fits into the EIA process.

The first steps in the HHIA involve screening and scoping. This scoping report describes the area of concern, the scoping methodology the data that were used, as well as some of the potential impacts to be assessed in the EIA and will be used as input to the EIA scoping report.

## 2. SCOPING: METHODOLOGY

The human health aspect of the scoping exercise has been conducted as a desk-top study. Determination of the status quo (baseline) of human health and the factors influencing human health and well-being in the area of the proposed development, is a comprehensive exercise that needs information from other specialist studies as well. Such a baseline study forms the bulk of the HHIA and addresses population characteristics including life style, social determinants of health including housing and infrastructure, transport and crime as well as environmental pollution (air and water). The baseline study will not form part of the scoping report but will be done later in the EIA process. In addition, the baseline study will put much emphasis on the health status in terms of the prevalence of existing acute and chronic diseases which will give a better understanding of the potential impact of the development on the surrounding communities. A full baseline assessment of health and well-being is therefore not possible at the scoping phase. This report will use readily available information to describe the communities that live in close proximity to the proposed development. This information was obtained from the specialist studies conducted during 2009 for the initial EIA of the proposed developement, Integrated Development Plans (IDPs), management plans and reports from StatsSA, including the 2007 Community Survey.

## 3. STUDY AREA

The rich coal reserves in the Steenbokpan Lephalale area have led to the establishment of a coal fired power station (Matimba) and the construction of a second (Medupi). Most of the development under consideration (more mines and power stations) will take place on greenfield (undeveloped) areas within the borders of the Lephalale LM.

Lephalale LM, one of six LMs within the Waterberg District Municipality (DM), lies within the Limpopo Province. Figures 1 and 2 put the study area in regional context. Figure 1 is a map of Limpopo showing the Waterberg District Municipality and Lephalale Local Municipality, with the so-called “focus areas” and residential areas in the Lephalale LM indicated in Figure 2. Figure 3 depicts the proposed extension of the mine area to include the additional farms (in purple).

The Lephalale LM, located in the north-western part of the Limpopo Province, comprises an area of about 20 000 $m^2$ (IDP, 2009/10). The north-western border of Lephalale LM forms part of the South African/Botswana international border (IDP, 2009/10). The main town, Lephalale (previously named Ellisras), is situated about 40 km from the Botswana border, next to the Mokolo River, which is a branch of the Limpopo River (IDP, 2009/10). The name "Lephalale Town" is inclusive of the Onverwacht and Maropong residential areas, although these areas are relatively far apart, which makes service delivery difficult (IDP, 2012/13). The proposed Sekoko mine area is about 7 km north of the Steenbokpan settlement and about 35 km north north-west of "Lephalale Town" (Fig. 2).

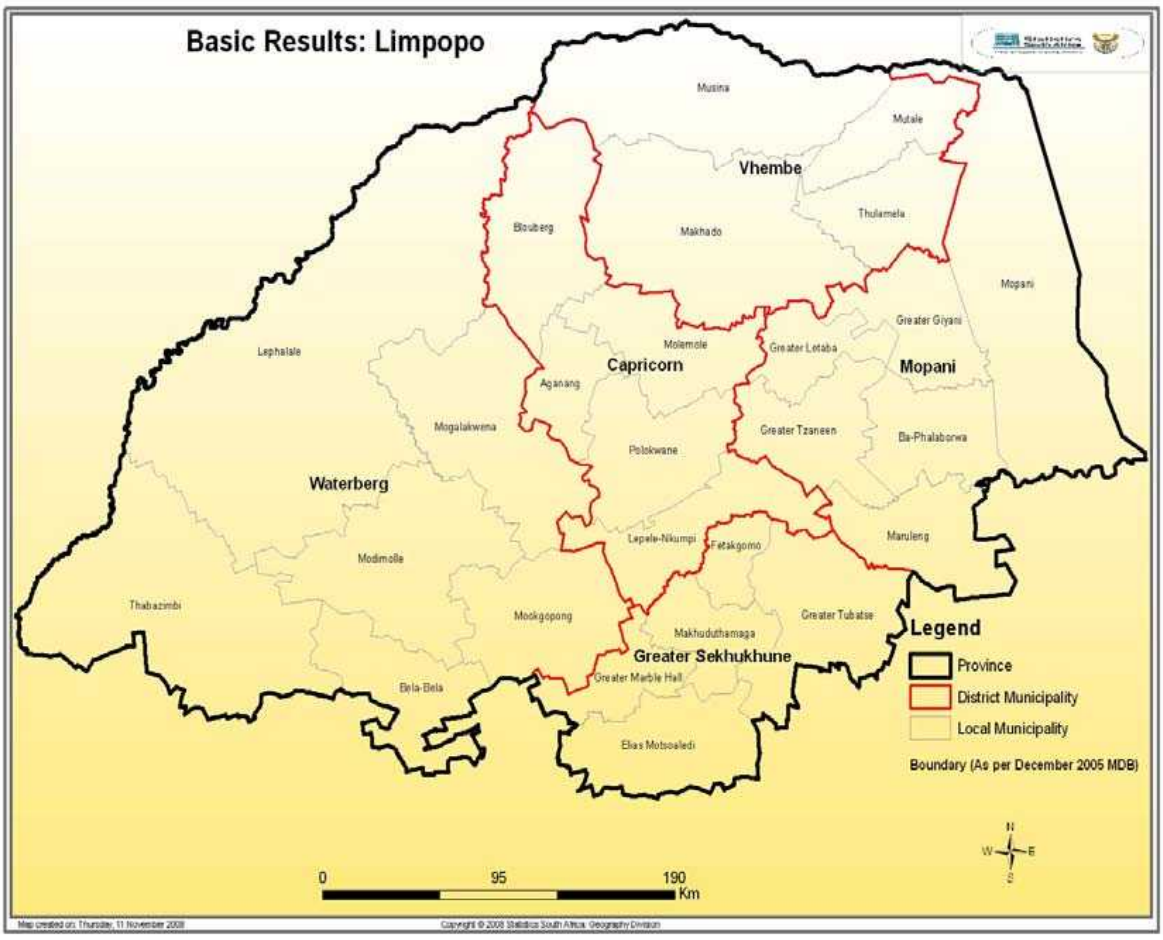


**Figure 1. A map of the Limpopo Province, showing the location of the Waterberg District Municipality and the Lephalale Local Municipality (Source: StatsSA, 2009.)**

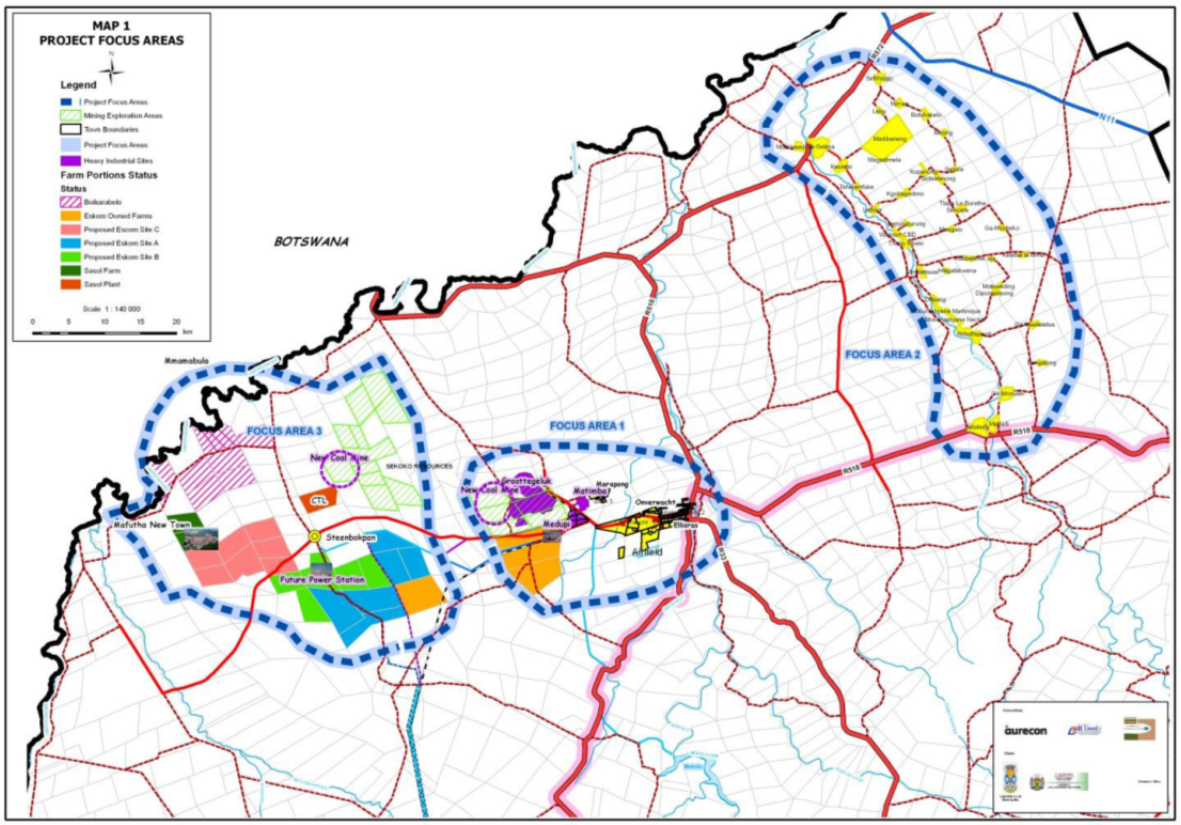


**Figure 2. Focus areas (blue dotted lines) and residential areas (yellow) in the Lephalale LM. The proposed Sekoko mine is marked as a purple circle in the left-hand focus area. Source: Lephalale Integrated Development Plan (2012/13).**

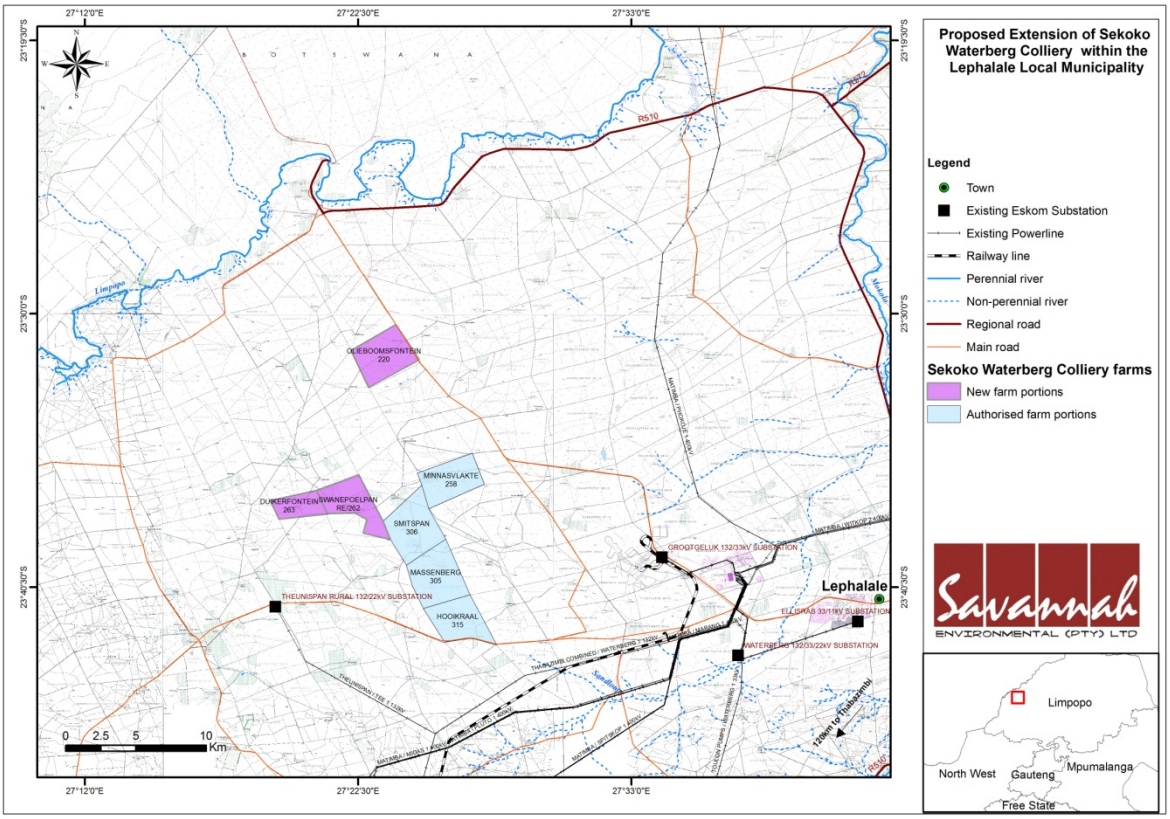


**Figure 3. Proposed extension of Sekoko mine within the Lephalale LM.**

## 4 EXISTING STATE

The proposed project will affect air and water quality in close proximity to the mine. However settlements in the other development nodes (Fig. 2) in the Lephalale LM may also be affected by activities related to the proposed development. The description of the existing state in this scoping report will therefore consider these aspects.

### 4.1 Land use

The vegetation in the area is primarily bushveld, with vegetation that varies from open tree savannah to short, dense bushveld (IDP, 2009/10). There is therefore a risk of allergies to people from wind-blown pollen.

Most of the land in the Lephalale area is owned by private individuals (that is, not by the state or tribes). Since the early 1990s, cattle and crop farming in the LM have largely been replaced by game farming for eco-tourism and hunting. The area earmarked for development of Sekoko mine consists mostly (96%) of grazing land (ESS, 2009).

### 4.2 Demographic profile

Assuming a population of 112 296 in 27 756 households (IDP, 2012/13) over an area of 20 000 km$^2$, results in a population density of 5.6 individuals per km$^2$ and 4.05 individuals per household for Lephalale LM. This does not suggest overcrowding (IDP, 2012/13).

About 36 196 (32%) of the population in Lephalale LM was below 15 years and 6 600 (6%) above 60 years of age in 2011 (IDP, 2012/13), implying that 38% of the population may be considered vulnerable to stressors such as environmental pollution due to their age. According to a recent IDP, as many as 60% of the population in the Lephalale LM are unemployed (IDP, 2009/10), which further increases the population's vulnerability. In addition, the latest IDP indicates that more than 4 300 households (15.5%) do not

have any income and that about 78 000 (70%) of people in the area lived in poverty in 2010 (IDP, 2012/13).

### 4.3 Water and sanitation

Lephalale falls within a water-scarce region. Already the demand for water cannot be met by the available water resources in the area (Schachtschneider et al., 2010). Augmentation of the water supply from the Mokolo Dam, and transfer of water from the Crocodile River (West) to the Lephalale area will be necessary before considering further development in the area (IDP, 2012/13).

The majority of people in Lephalale live in scattered settlements, which puts a burden on provision of services including water, electricity and refuge removal (IDP, 2009/10).

The rural areas of the Lephalale LM are dependent on groundwater sources for their drinking water, and at least 23% of the rural population is more than 200 m from a water source. In urban areas, 97.9% of households have access to municipal water (IDP, 2012/13)

Samples that were taken from boreholes in the area where Sekoko mine will be developed showed elevated concentrations of fluoride, aluminium, manganese and mercury (Future Flow, 2010).

Lephalale LM obtained 92.84% in the 2012 “Blue Drop” evaluation which is used as an indicator of the quality of drinking water (IDP, 2012/13). However, only 19.1% was obtained in the “Green Drop” evaluation (indicator of water governance), because of shortcomings in incident-response management, enforcement of by-laws and asset management (IDP, 2012/13).

About 1 700 households (6%) in the Lephalale LM do not have access to a toilet, while 45% of households use pit toilets without ventilation (IDP, 2012/13).

The Paarl sewage treatment works, which receives sewage discharged from the Onverwacht/Ellisras area has been expanded and currently has spare capacity. However, sewage from Marapong is discharged to an oxidation pond which has theoretically already reached capacity (IDP, 2012/13).

### 4.4 Air quality

The Waterberg area had been declared a National Priority Area in terms of the Air Quality Act (Act 39 of 2004) on 15 June 2012, which implies that ambient air quality in the area may exceed national ambient standards in the near future and therefore requires specific national air quality management action. In addition, there may be trans-boundary air pollution between the Waterberg District Municipality and Botswana (DEA, 2012).

The main industrial sources of pollution in the Lephalale LM are the Matimba coal-fired power station and the Grootegeluk coal mine. Other sources are motor vehicles, and domestic fuel burning. Most of the households (88.6%) in the Lephalale LM have access to electricity (IDP, 2012/13).

Previous (2006 to 2009) air quality monitoring results in the Lephalale LM showed that concentrations of gaseous pollutants (sulphur dioxide, nitrogen dioxide and ozone) were within the South African standards (uMoya-NILU, 2012). Particulate matter equal to or smaller than 10 micrometre also complied with current national standards but not with proposed (from 2015) standards. Dust fall-out rates monitored at the proposed Sekoko site showed values well below residential guidelines (uMoya-NILU, 2012).

## 5. PRINCIPLES OF AND APPROACH TO THE HUMAN HEALTH IMPACT ASSESSMENT

The final HHIA report will evaluate the different types of evidence from the various specialist studies, as well as that from other readily available information, in order to assess the combined contribution of the determinants of health and well-being associated with the proposed development on the health of the population of concern. These determinants will be assessed during the impact assessment which will include a risk assessment, as well as an assessment of cumulative risks. The project will adhere to the relevant provisions contained in the Equator Principles, the International Finance Corporation (IFC)'s Performance Standards.

The HIA approach is a practical and multi-disciplinary process, combining a range of qualitative and quantitative evidence in a decision-making framework (Lock, 2000). The International Council on Mining and Metals indicates that HIA 'help mining and metals managers and health and safety advisors address the public health impacts of their activities on the communities near their operations to better manage their responsibilities' (ICMM, 2010).

The role of an HIA is not to make decisions but for generating recommendations to be used by decision-makers and stakeholders, with the purpose of maximizing a proposed development's positive health effects and minimizing its negative health effects (WHO, 2011).

The outcomes of the Impact Assessment will inform the development of a health action plan (HAP). The HAP will include a description of the risks, assessment of impact significance and prioritisation or risk ranking. The factors of concern may then be used to determine required mitigation options.

### 5.1 Potential health-related issues

The baseline assessment and impact assessment will address a more comprehensive list of issues of and impacts on human health. This scoping report addresses only the most likely impacts (given available information) that the proposed development are envisaged to have on the surrounding communities, which include the following:

- Influx of contractors and job seekers. An influx of people will increase the burden on infrastructure and increase the demand for services and jobs. This influx may also contribute to an increase the prevalence of communicable diseases such as HIV/AIDS. In Lephalale, the population has already grown by about 17% between 2001 (when it was reported as 96 103) and 2011 (reported as 112 296) (IDP, 2012). Water and sanitation service-provision is nearing capacity. This indicates that any development in the area which will inevitably lead to an increase in the demand for water and an increase in the generation of sewage, may result in an exceedance of capacity.
- Employment opportunities. It is believed that as many as 60% of the population in the Lephalale LM are unemployed (IDP, 2009/10). Education levels in the Waterberg DM population are however generally low, with the majority of people having only primary and some having secondary education (EMF, 2010). The same is true for Lephalale, with 36.5% of the population having primary education, 33.3% secondary education and only 0.5% a university or technical university education (StatsSA, 2007).
- Relocation. As the area earmarked for development of Sekoko mine currently consists mostly of grazing land, no major relocation of people is envisaged.
- Environmental pollution. Dust generation and emissions from vehicles from activities at the mine and during construction are the most likely expected sources of environmental pollution. Although the current air quality may be acceptable, the area has been declared as an air quality priority area, based on current and planned developments and the potential for cross-boundary pollution. Abstraction of water in

a water scarce area such as Lephalale LM is envisaged to have an impact on human health and the environment.

## 5.2 Methodology

### *5.2.1 Baseline data*

The community profiling step will develop an understanding of the communities potentially affected by the project. This will be followed by a desk-top profiling process to do a baseline health assessment and to identify the potential impacts of the proposed development on health and well-being. This will include the review of relevant literature, collecting information from different stakeholders such as relevant government departments (Environmental Health and Population) and other specialist studies. The results which includes potential health determinants and impacts will then be tabulated. Evidence on health impacts will be gathered iteratively throughout the process, including identification of actual effects or outcomes by means of health data (if readily available), or other known factors that may affect the health, well-being and quality of life of the population of concern (WHO, 2011).

### *5.2.2 Risk assessment*

The results of the risk assessment process undertaken as part of the EIA, will be a description of the risks, assessment of impact significance and prioritisation or risk ranking. The factors of concern can be used to determine required mitigation options.

If quantitative data (predicted concentrations in water and air) and reliable associated reference values are available, an evaluation of the cancer and or non-cancer risks to human health from exposure to compounds of concern will be undertaken according to the United States Environmental Protection Agency (USEPA) human health risk assessment approach. This approach provides for maximum community protection when making assumptions on human exposure. The results of this quantitative human health risk assessment informs the HHIA.

### *5.2.3 Health Action Plan*

A Health Action Plan (HAP), based on identified risks, their public health significance, and priorities will be developed and used to provide input to the overall mitigation strategy of the company. Identification of potential mitigation options will be based on analysis of the significance of the potential health impacts. Indicators for monitoring and evaluation will be recommended as part of this step.

### *5.2.4 Monitoring and Evaluation*

The HAP provides inputs to the overall monitoring and evaluation programme and will include a plan for monitoring and evaluation, using a realistic suite of key performance indicators which takes data availability into consideration. This process will consider impacts on both the project and the community. A verification system, allowing for review of the progress of mitigation efforts will be established as part of this process.

### *5.2.5 Reporting*

An HHIA report will be prepared and finalised. The HHIA will be prospective, so that steps can be taken at the planning stage to maximise positive health impacts and to minimise negative effects (WHO, 2011).

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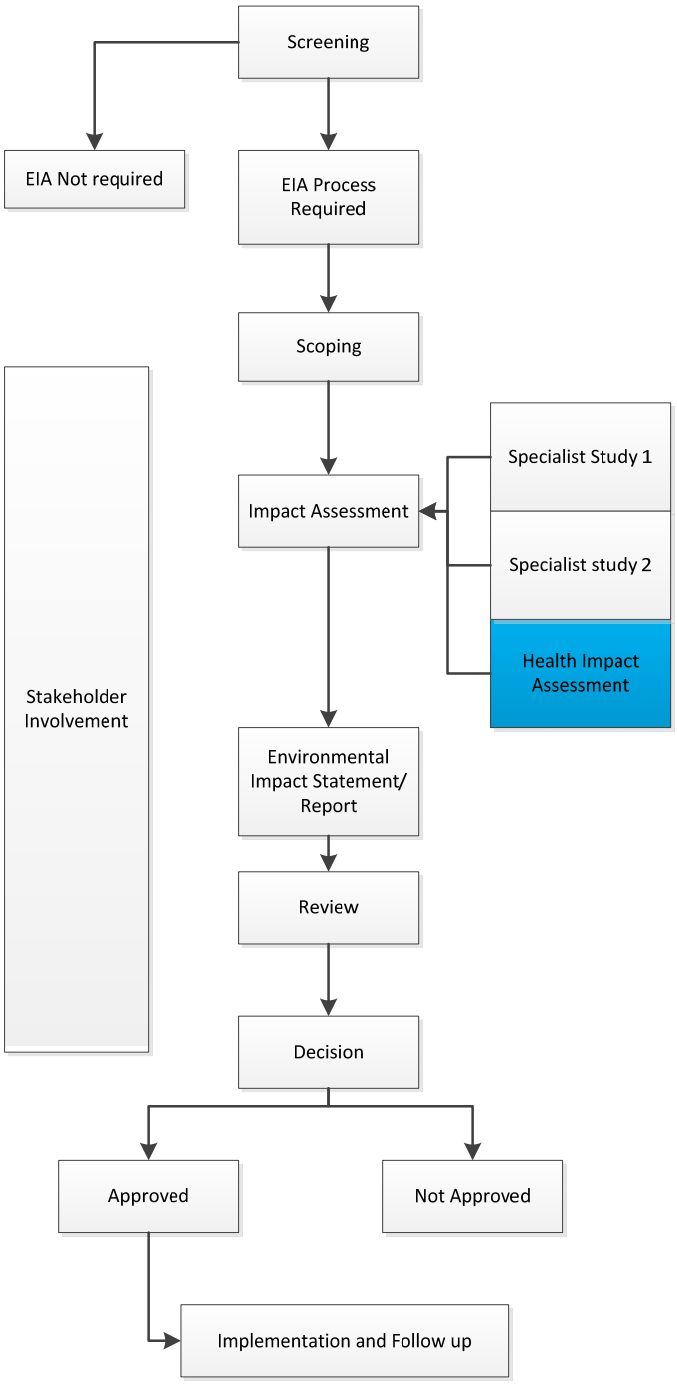
# APPENDIX A

**Diagram of where the Human Health Impact Assessment fits into the EIA process.**




http://wildroute.co.za/?page_id=87