

# **Environmental Impact Assessment for Construction of Ethanol Plant in Bothaville**

**Report Prepared for  
Ethanol Africa**

**Report No: 349779**

**August 2005**



# **Environmental Impact Assessment for Construction of Ethanol Plant in Bothaville**

## **Ethanol Africa**

**SRK Project Number 349779**

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**August 2005**

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ENVIRONMENTAL IMPACT ASSESSMENT FOR CONSTRUCTION OF ETHANOL PLANT IN  
BOTHAVILLE

# 1 Introduction and Scope of Report

SRK Consulting (SRK) was commissioned by Ethanol Africa to undertake an Environmental Impact Assessment (EIA) for the proposed construction and operation of an ethanol plant in Bothaville, Free State Province. The proposed development is a listed activity in terms of the EIA Regulations promulgated in the Environmental Conservation Act (No. 73 of 1998) published in Government Notice No. 1182 (as amended). As such, a mandatory EIA application is required for submission to the relevant authority. The relevant authority in terms of the implementation of the EIA regulations in the Free State is the Department of Tourism, Environmental and Economic Affairs (DTEEA).

This report outlines the scoping process followed in terms of the above regulations, describes the receiving environment and the proposed development and the context in which it would take place. The report also details the public participation process followed for the study. In addition, potential environmental impacts and mitigation measures are identified. This information will assist the DTEEA in the decision making process for authorisation of the project.

Discussion with Mr David Mofokeng confirmed that environmental authorisation for the project could be granted at the end of scoping process provided that all the DTEEA requirements are considered in the scoping study.

## 1.1 Project locality

The proposed development is located in Bothaville, within the Nala Municipality in the Free State Province. The Nala Municipality is situated in the northwestern Free State, approximately 80 km north of Welkom and 200 km south west of Johannesburg. The proposed site is located on 2<sup>nd</sup> Street, Bothaville industrial area, in Bothaville. A locality is plan is presented on Figure 1-1.



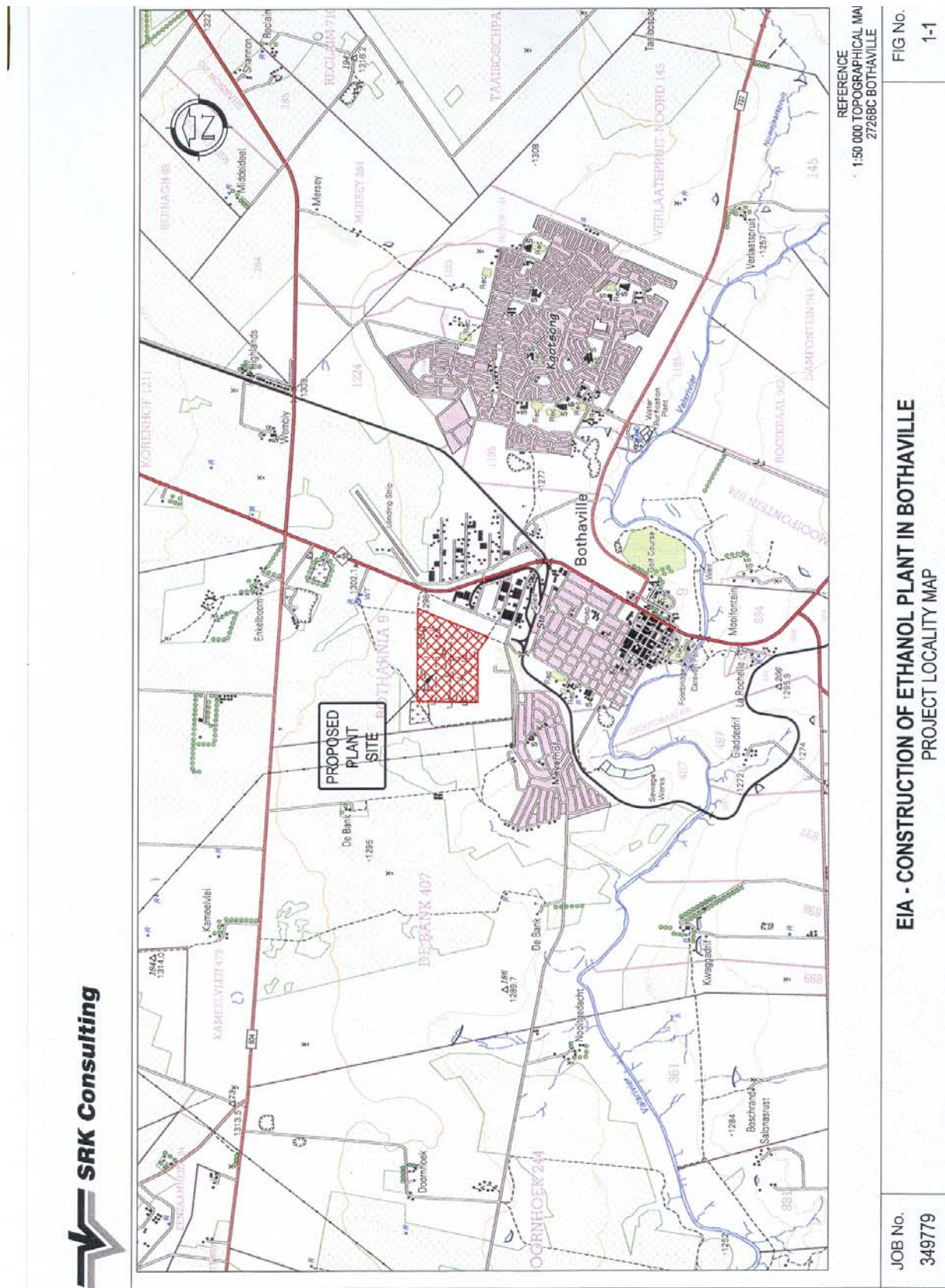
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The site is bordered by:

- Industries within the industrial area to the east
- Bothaville town to the south
- Meyershof residential area to the south-west
- Cemetery to the far north western corner of the site
- Kgotsong township located to the far south east. Kgotsong and the industrial area are divided by the R30 road between Orkney and Allanridge passing through Bothaville town

## 1.2 Project background

Ethanol Africa is driving a plan to create a new market for South Africa's struggling maize farmers that will lead to construction of eight new ethanol plants. The eight proposed ethanol plants located in South Africa's main maize producing region are planned at:

- Bothaville
- Lichtenburg
- Ventersdorp
- Schweizer-Reneke
- Middleburg
- Hoopstad
- Bultfontein
- Bethlehem

This development, is therefore one of the eight proposed ethanol plants. The project applicant is currently negotiating with liquid fuels producers in South Africa to secure a market for the planned output.

## 1.3 Motivation for the project

World demand for ethanol is growing as it can be blended with petrol to boost octane levels and produce cleaner-burning fuels. The South African Bureau of Standards (SABS) currently allows an ethanol content in petrol on a voluntary basis. By-products of processing maize into ethanol include bioethanol gel, a substitute for paraffin and Distiller's Dry Grain Solubles (DDGS), which has a high protein content suited to stock feed that can replace imported soyabean cake. Bioethanol gel can be used for domestic cooking as it offered a cleaner, safer and less smelly alternative to paraffin.

The project also offers an alternative market for grain farmers as they are currently sitting with a maize surplus of 6 million tons that had caused prices to plummet. Ethanol Africa hopes to process 3 millions tons of maize a year, producing 1.26 billion litres of ethanol, equivalent to about 12 percent to the domestic petrol market.

## **1.4 Terms of reference for the project**

The terms of reference for the study are based on the initial discussion with the DTEEA and were specifically defined to meet the requirements of the EIA regulations. In this regard, the terms of reference set out to:

- Identify environmental legislation, guidelines and standards with which the development must comply;
- Undertake necessary applications and consultations with the DTEEA as required;
- Gather all data regarding the bio-physical and socio-economic environments prior to construction activities;
- Undertake a public involvement programme which informs interested and affected (IAPs) of the proposed development and identifies their issues and concerns;
- Compile a Draft Scoping Report (this report) identifying the environmental impacts and mitigation measures;
- Circulate the Draft Scoping Report for comment to IAPs;
- Include these comments into a Final Scoping Report for submission to the DTEEA for a decision on whether the project may proceed.

An Environmental Management Plan to manage and mitigate against potential environmental impacts during the construction phase of the project will be compiled and included with the EIA

## **1.5 Approach to the study**

The approach followed for the study is presented in Figure 1-2. The activities undertaken for the study are the following:

- Pre-consultation discussion and visit with the DTEEA official to the site and surrounds to gain an understanding of the project and receiving environment to identify potential issues and concerns. Notes of discussion with DTEEA official are provided in Appendix A;
- Identification of, and informing IAPs of the proposed development which included placement of adverts/notices on local newspapers; and
- Compilation and distribution of a Draft Scoping Report for comment by IAPs.

Comment received on the Draft Scoping Report will be incorporated into a Final Scoping Report for submission to the relevant authorities for a decision on whether the project may proceed.



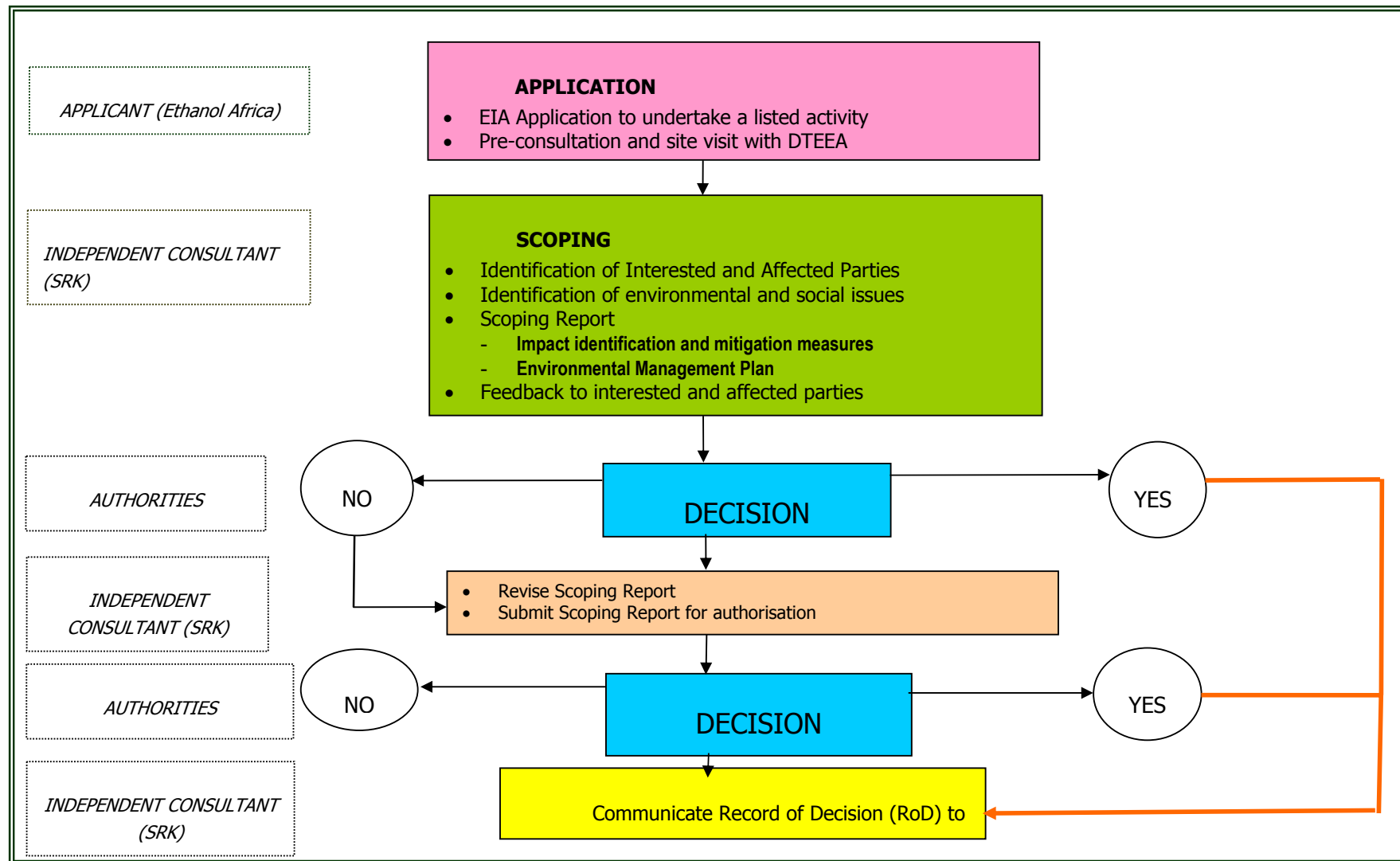


Figure 1-2: EIA process followed for the study

## **2 The receiving environment**

This section of the report provides a description of the relevant environmental (bio-physical and socio-economic) components within Bothaville and the surrounding areas prior to the construction and operation of the plant.

### **2.1 Land use**

The proposed site is an unoccupied piece of land located adjacent to the Bothaville industrial area on 2nd Street in Bothaville. There is currently no infrastructure on the proposed site with an exception of an old dilapidated church building located to the far north-eastern corner of the site. The vegetation on site is significantly disturbed by grazing activities. There are no residential properties in the immediate vicinity of the site. A number of industries are existent to the east of the proposed site. No watercourses or agricultural activities exist on site. Photographs depicting land uses on site and surrounding environment are provided in Figure 2-1.

### **2.2 Topography**

Topographically, the Free State Province is flat in the west, south and north, undulating in central and eastern areas. There is an escarpment at the eastern border. The gradient throughout the study area is very even – 1: 100 and the average altitude is 1280m above sea level. Drainage occurs gradually from the Vaals River in the north to the Vet River in the south. The moderate slope and the direction of drainage lead to the forming of small pans south east of Bothaville and south of Wesselsbron.

### **2.3 Geology and Soil**

The study area is underlain by deeply weathered basic to intermediate lavas of the Ventersdorp Super-group. They are characterised by an extensive cover of residual red soils. The central and south western portions are underlain by basal sediments of the Transvaal sequence that comprise alternating red and green shales, with intercalated bed of quartzite.

### **2.4 Vegetation**

The study area falls within the Free State province that is predominantly a grassland biome, and specifically the Dry Sandy Highveld Grassland. The term Biome can be defined as a unit which represents a large natural, reasonably homogenous area of the Earth's biotic and abiotic surface mantle. The Grassland Biome is limited to the summer rainfall regions, areas that receive between 400mm and 2000mm of rain, annually.

It is located mainly on the high central flat and rolling plateau of South Africa, the inland areas of KwaZulu Natal and the Eastern Cape. A single layer of grasses dominates the Grassland Biome. The amount of canopy cover is dependent on the rainfall and degree of grazing. Trees are only found in a few localised habitats and frost, fire and grazing maintain the grass dominance and help to prevent the establishment of trees.



**Figure 2-1: Photographs depicting land uses on site and surrounding environment**

It is a moderately dense grassland dominated by Bushveld Turpentine grass *Cymbopogon plurinodis*, Redgrass *Themeda triandra*, Small Creeeping Foxtail *Setaria sphacelata*, *Elionurus muticus* and *Eragrostis curvula*.

Typical grasses include Ngongoni Bristlegrass *Aristida junciformis*, Heartseed Lovegrass *Eragrostis capensis*, Hairy Tridentgrass *Tristachya leucothrix*, *Andropogon appendiculatus*, *Helictotrichon turgidulum*, *Microchloa caffra* and *Eragrostis plana*. Prominent forbs include: *Kein jakkalster* *Anthospermum rigidum*, Veld Everlasting *Helichrysum rugulosum*, *Hermania geniculata*, *Senecio erubescens*, *Conyza podocephala*, *Berkheya onopordifolia* and *B. pinnatifida*.

Invasion of Karoo bushes, such as Bitterkaroo, *Pentzia globosa* and Bloublommetjie *Felicia muricata*, may occur in some areas.

The natural vegetation of the catchment area has drastically been altered due to extensive cultivation of grain in the area. The areas of natural vegetation that remain are isolated and the conservation status is low.

## **2.5 Climate**

The climate of the area is typical of the Southern African Highveld climatic zone. The summers are predominantly warm to hot (November to February), and the area falls within the summer rainfall area.

Rainfall is predominantly in the form of thunderstorms with associated lightning and occasional hail. The annual rainfall for the Free State ranges from 80mm to 800mm, occurring mainly in summer. Occasional heavy rainfall events of 125mm to 150mm transpire in short periods of time, usually a couple of hours, due to intensive thunderstorms or clouds bursts, resulting in floods that cause extensive environmental , economical and social damage. The region experiences severe frost, but little snow. Temperatures vary between 13°C and 35°C, with an average of 14°C.

## **2.6 Pollution**

The pollution (dust) is at its highest during the winter months. Smog is found in the winter over the townships of Kgotsong and Monyakeng, due to wood and coal burning. Water pollution in the form of the nitrification of water bodies, can be found in the smaller water systems such as farm dams and boreholes. This is mainly caused by adding fertiliser to the soil to enhance crop yields.

## **2.7 Air quality**

A separate air quality study is being undertaken and will be submitted to the DTEEA to be reviewed and approved with the Scoping Report.

## **2.8 Socio- Economic**

The Nala municipal area is an area of agricultural significance. The urban centres provide services, mainly to the surrounding large rural area in support of the agriculturally dominated economy.

### 2.8.1 Housing and Settlement

Urban settlement in the Nala Municipal area is concentrated in the urban centres of Bothaville/Kgotsoong and Wesselsbron/Monyakeng. Settlement occurs in the form of formal, but not necessarily legal residential townships. Non-residential facilities supporting settlement are provided in varying degrees of adequacy. The inadequacy of sufficient educational and social facilities is quite prominent, especially in the Kgotsoong and Monyakeng settlement areas.

Recent settlements are perceived to originate as a result of retrenchments of farm labourers, which caused rapid urbanisation. Settlement on the surrounding and rural periphery can mainly be characterised as farm residences with ancillary agricultural uses. Housing typologies in the urban area mainly consist of dwelling houses in Wesselsbron/Monyakeng. In Bothaville/Kgotsoong housing typologies in the urban area consist of single residential and to a limited extent flats and townhouses. In both urban centres housing is provided, ranging from low-density high-income residential buildings to high-density affordable subsidy housing and to a lesser extent shacks. The affordable housing component constitutes 90% of the residential fabric.

### 2.8.2 Population

Bothaville and Kgotsoong have the largest urban population, with Wesselsbron having the smallest urban population. Table 2-1 provides the population figures in the study area. The population for the rural hinterland was calculated by taking into account that there are seven houses for every four farms, with an average household size of four. The size of the rural population confirms that farm workers are concentrating around the urban areas due to retrenchment and the natural agricultural cycles.

**Table 2-1: Population of the study area**

Settlement Areas	Occupied Stands	No. of Households per stand	Household Size	Population
Bothaville	1 088	1	3.5	3 808
Kgotsoong	9 747	1.2	4.8	56 143
Wesselsbron	400	1	3.4	1 360
Monyakeng	5 538	1.3	4.7	33 837
Rural hinterland	1 250	1.75	4	8 750
<b>TOTAL</b>				<b>103 898</b>

The socio-economic profile of the Nala Municipal District, using the information supplied from the Demarcation Board (2001) described in Table 2-2 below.

**Table 2-2: Socio-economic profile for the Nala Municipal District**

INCOME BRACKETS	ANNUAL INDIVIDUAL INCOME		ANNUAL HOUSEHOLD INCOME	
	No. of Total Population	Percentage of Total Population	No. of Total Population	Percentage of Total Population
None	67 845	65.3	13 818	13.3
R1 – 2 400	7 169	6.9	11 429	11.0
R 2 401 – 6 000	11 533	11.1	27 221	26.2
R 6 001 – 12 000	3 533	3.4	17 455	16.4
R12 001 – 18 000	2 182	2.1	8 416	8.1
R18 001 – 30 000	1 766	1.7	6 442	6.2
R 30 001 – 42 000	1 039	1.0	3 117	3.0
R42 001 – 54 000	727	0.7	2 390	2.3
R54 001 – 72 000	519	0.5	2 182	2.1
R72 001 – 96 000	208	0.2	1 559	1.5
R96 001 – 132 000	208	0.2	1 559	1.5
R132 001 – 192 000	103	0.1	727	0.7
R192 001 – 360 000	103	0.1	416	0.4
Over R360 000	37	0.0	208	0.2
Unspecified	6 338	6.1	7 065	6.8

- A large percentage (65.3) of the population does not earn any income
- 11,1% of the population receives a basic salary of R500-00 per month, which is still below the breadline of R800-00 per month
- The biggest percentage of households (26,2%), still lives below the breadline
- An income pattern cannot be established as it is perceived that the majority of the economically active population's income is seasonal
- The unemployment rate in Nala is perceived to be very high and is influenced by the agricultural cycles

## 2.8.3 Water

Urban Municipalities (Bothaville/Kgotsoeng & Wesselsbron/Monyakeng)

The Urban Municipalities (including Nala Municipality) are the retail water service providers and Sedibeng Water is the bulk water service provider. The bulk water is pumped from the Vaal River and treated by Sedibeng at their treatment plant at Balkfontein. The water quality complies with the SABS standards according to the Water Service Development Plan 2000.

The capacity of the bulk water infrastructure has been improved by the addition of the new water pressure tower and reservoir, which serve as temporary alleviation of the bulk capacity problem in the Kgotsoeng area. In future a construction of a new 5 MI reservoir and the upgrading of the bulk supply pipeline will be needed.

## 2.8.4 Sanitation

All existing erven in Bothaville have access to a waterborne sewerage. A total of 4 436 erven of Kgotsoeng are connected to waterborne sewerage and 5 574 erven are not connected but are serviced by means of night soil removal.

### **2.8.5 Electricity**

Bothaville and Kgotsong, except the new Meyerhof extension, are provided with access to electricity network. Power failures occur after strong wind and lightning in Kgotsong. There is inadequate maintenance of electrical infrastructure.

## 3 The process development

The ethanol plant will be designed to industrial grade ethanol (IGE) using corn as the primary feedstock. Example of a typical ethanol plant is provided in and. The following sections describe the production of ethanol and co products.

### 3.1 Process description

#### *Grain Receiving and Storage*

Grain is received at the plant in trucks or rail cars and is unloaded into dump pits. The dump pits are fitted with conveyors which feed the grain to a grain cleaner. The cleaner removes sticks, cobs, and other unusable debris from the grain. A discharge conveyor from the grain cleaner transfers the grain to grain storage silos. The dump pits and cleaning equipment are located inside of a building to facilitate dust control.

#### *Milling*

Grain is fed from the grain storage silos to the process by a grain transfer elevator and conveyor. This grain supply is transferred to a surge bin to ensure continuous operation of the downstream milling and mashing process. The flow of grain out of the surge bin is controlled by a weigh feeder. The grain moves past a magnetic separator and into one of the hammer mills that grind the grain into a grain meal. Each hammer mill is fitted with a baghouse for dust control.

#### *Mashing, Cooking and Liquefaction*

The meal is transferred by conveyor to a mixer called the mash mingler. Inside the mingler, the meal is mixed with water and recycled process solutions to form meal slurry. The meal slurry is then discharged by gravity from the mash mingler to a mash mix tank. The mash mix tank provides surge capacity in the cooking system, allows for pre-liquefaction of the starch, and enables viscosity control of the mash. Also, caustic or anhydrous ammonia may be added to the mash mix tank for pH control, if required.

Mash from the mash mix tank is pumped by a cooker feed pump into a jet cooker, where steam is injected into the mash. Injection of steam provides sterilising of the mash and gelatinization of starch. The mash is cooled by flashing in liquefaction tanks. The flash vapour is recovered as a source of energy for stillage evaporation.

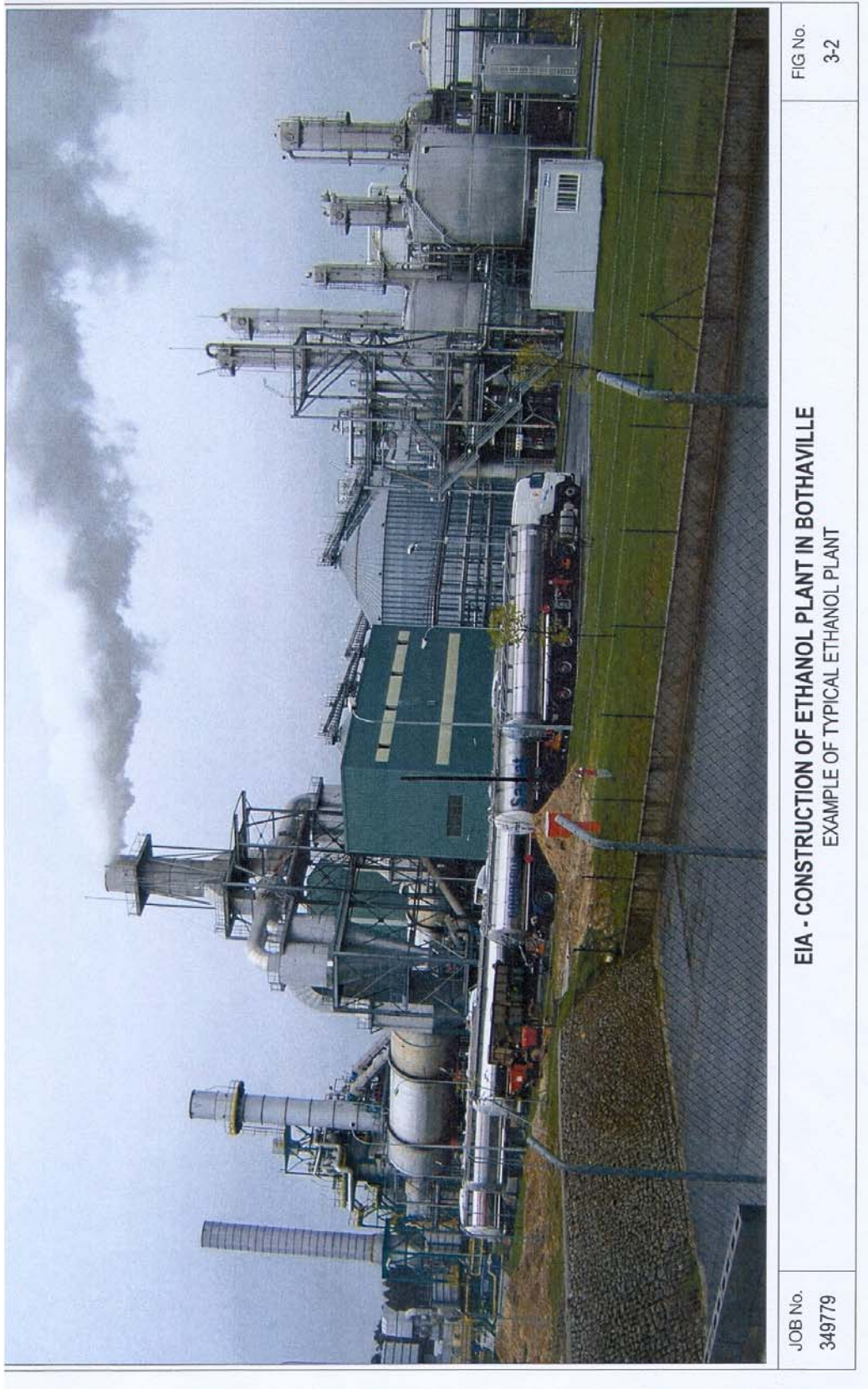
Liquefying enzyme is added to the mash in the liquefaction tank to begin the hydrolysis of the previously gelatinised starch. After liquefaction, recycled thin stillage (backset) can be added to dilute the mash to a target solids concentration and to lower the pH.

Mash cooler pumps transfer the mash from the liquefaction tanks through a set of heat exchangers known as “mash coolers”. Cooling tower water provides for primary cooling to reduce the mash temperature.





**Figure 3-1: Example of typical Ethanol Plant**



**Figure 3-2: Example of typical Ethanol Plant**

***Fermentation and CIP System***he cooled mash flows to one of several fermenters. Previously hydrated and actively growing yeast as well as saccharifying enzymes, nutrients and industrial antibiotics are added to the mash in the fermenter during filling. In the fermenters, enzymes and yeast convert fermentable carbohydrates in the cooked mash into an alcoholic intermediate called beer and carbon dioxide. Fermenter pumps circulate the contents of the fermenters through coolers to remove heat generated by fermentation. The carbon dioxide generated during fermentation is vented through the ethanol absorber to recover ethanol. When fermentation is complete, the fermenter pumps transfer the beer to a beerwell.

Efficient fermentation requires sanitary equipment. Cleaning and sterilizing the fermenters, fermenter coolers, mash coolers and related process piping is accomplished by an automated clean-in-place (CIP) system.

### ***Distillation and Dehydration***

The beerwell serves as a surge tank connecting the simultaneous saccharification/fermentation system with distillation. The contents of the beerwell are kept circulated by circulation pumps.

The beer, which consists of approximately 10 wt % ethanol, is pumped by the distillation beer feed pump through the beer preheaters to beer strippers. The beer strippers use heat to separate an ethanol/water mixture from the residual grain solids solution. The residual grain solids solution, known as stillage, is sent to the whole stillage tank. This stillage is further processed and will be discussed in the Centrifugation and Drying and the Evaporation sections.

Hot vapor from the beer strippers is used to pre-heat the incoming beer. The dilute ethanol from the beer strippers is further concentrated to about 92 wt % ethanol in a rectification process. In addition, trace amounts of unwanted organics (heads) are separated in this rectification process. Heads are collected in a tank and transferred to a heads storage tank. Uncondensed vapors from the distillation process are vented to the ethanol absorber for recovery of residual ethanol.

Concentrated ethanol vapor from the rectification process is superheated by steam as it flows into the molecular sieve units for a process known as dehydration. The dehydration process is used to increase the ethanol concentration from approximately 92 wt % to 99.3 wt %.

The molecular sieve units are cycled so that one is regenerating while the other is absorbing water from the vapor stream. The regeneration is accomplished by applying a vacuum to the bed undergoing regeneration which causes water to desorb from the molecular sieve material. Simultaneously, a portion of the anhydrous ethanol vapor stream is directed up through the bed as a carrier gas stream to remove the water from the molecular sieve units. From the molecular sieve units, the anhydrous ethanol product flows through a cooler and into the product shift tanks.



### ***Centrifugation and Drying***

Stillage is pumped from the whole stillage tank to the stillage centrifuges. The stillage centrifuges split the stillage feed into two streams called cake and centrate respectively. The cake consists of approximately 30 wt % to 35 wt % solids (mostly suspended solids) and 65 wt % to 70 wt % water. The centrifuge is positioned to discharge the cake onto a conveyor that transfers the wet cake directly to the DDGS dryer.

The centrate, also known as thin stillage, contains approximately 8 wt % to 10 wt % total solids. The majority of these solids are dissolved solids. The thin stillage is stored in the centrate surge tank, located adjacent to the centrifuge units. A centrate surge tank pump circulates the contents in the centrate surge tank to ensure a well-mixed solution. Some of the thin stillage is pumped from the centrate surge tank to the mash coolers where it is used as backset. The balance of the thin stillage is pumped to the evaporator where it is concentrated into syrup.

Wet cake from centrifugation and syrup from evaporation are mixed in a blender located at the inlet of the DDGS dryer. The mixture is conveyed into a natural gas fired rotary dryer where the solids concentration of stillage increases to approximately 90 %. The resulting animal feed product, known as DDGS, is stored until it is shipped off site by truck or rail.

### ***Evaporation***

Evaporation, the process used to remove water from the thin stillage, utilizes a backward feed, multiple-effect evaporator that operates on a continuous steady-state basis. The evaporator system removes water from the thin stillage, concentrating the total solids fraction to approximately 34 wt % solids in the concentrated dissolved solids syrup.

The evaporator condensate is recycled back to the process as dilution water for the mashing process and CIP rinses.

The syrup is recovered from the first effect flash drum by a product pump and stored in a syrup tank. The syrup is then pumped to the DDGS dryer using a syrup transfer pump where it becomes part of the DDGS product.

### ***Product Storage***

The ethanol product is transferred from the product coolers, into one of two product shift tanks. When a shift tank becomes full, it is checked for quality before transferring to final storage. In the event the product is “off-spec,” it is directed to a recycle product tank. Off-spec product is gradually pumped back to the process for recovery of ethanol.

A schematic description of ethanol production is provided in below.

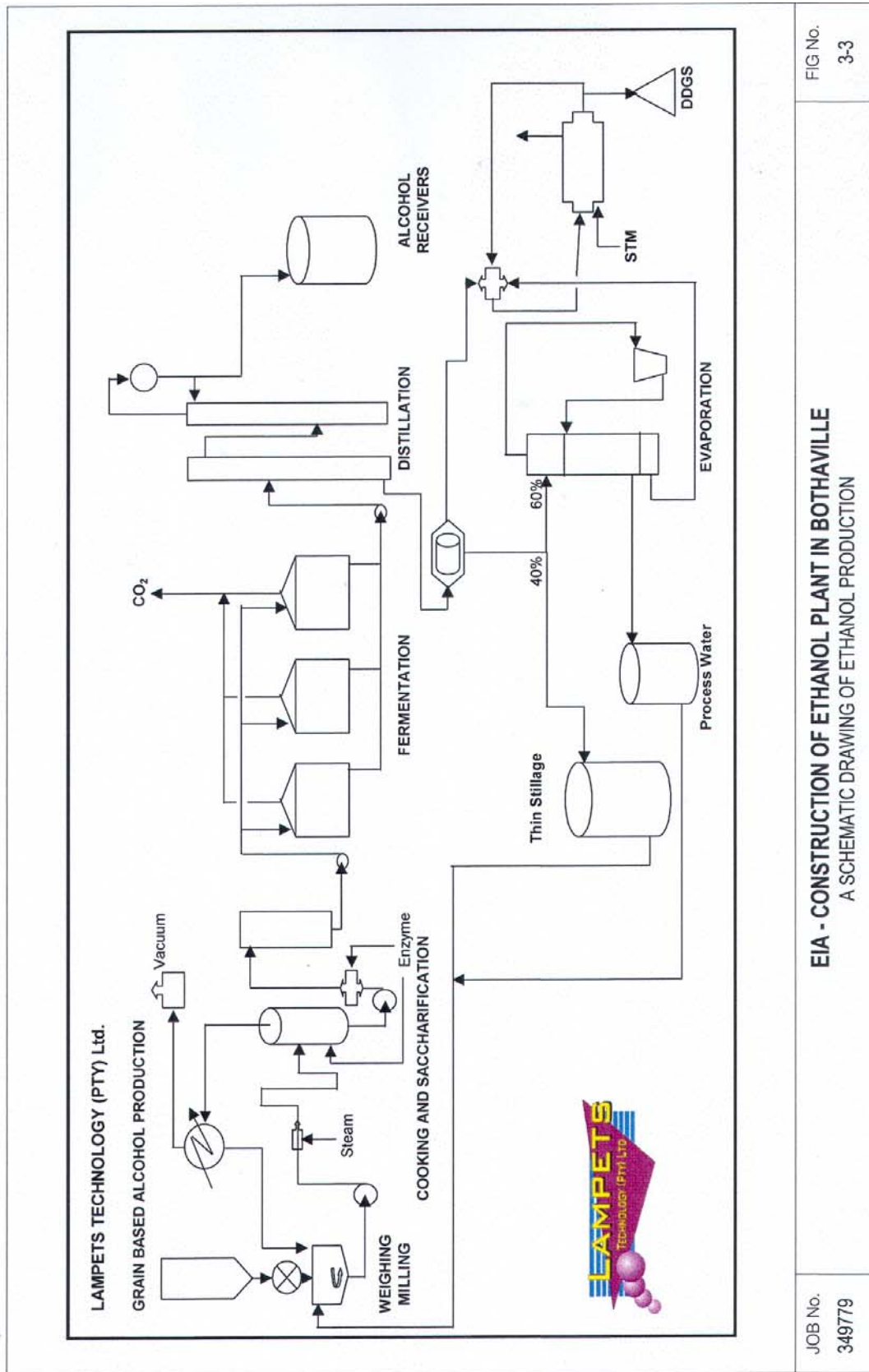


Figure 3-3: A schematic drawing of ethanol production

## 4 Public Involvement Process (PIP)

### 4.1 Introduction

This section provides an overview of the public involvement programme (PIP) that was conducted as part of the environmental impact assessment for the construction and operation of the plant.

This PIP for the proposed construction of ethanol plant was undertaken based on the guidelines and regulations as detailed in the EIA Regulations.

The broad objective of the PIP were to identify and notify interested and affected parties (IAPs) of the proposed development and to provide IAPs with the opportunity to comment on the proposed activity and raise issues and concerns. The sections below outlines the activities undertaken as part of the PIP.

#### 4.1.1 Pre-Consultation Discussion with the DTEEA

A pre-consultation meeting and site visit with Mr David Mofokeng from the DTEEA was conducted in Bothaville. The objectives of the pre-consultation meeting and site visit were the following:

- to familiarise the DTEEA with the proposed site and the surroundings;
- to clarify the legal requirements for the proposed study;
- to present the proposed study approach and get confirmation of the DTEEA based on the conditions of the site observed;
- to present and obtain approval of the proposed PIP for the project;
- to identify specialists that may be required for the project based on the observation made on site; and
- to obtain clarification and confirmation of the time frames for the review process to obtain authorisation for the project.

During the pre-consultation meeting and site visit, the DTEEA official confirmed that based on the fact that the site is located within an existing industrial area and there is no residential area in the immediate vicinity of the proposed site, it was decided that advertisements on local newspapers would be sufficient to inform IAPs about the project and to invite comments and issues of concern.

#### 4.1.2 Compilation and distribution of information

Advertisement providing details about the project and the EIA process were placed on the following local newspapers:

- *Noordwester* – published on the 1<sup>st</sup> August 2005
- *Skreeubek* – published on the 5<sup>th</sup> August 2005
- *Nala News* – July 2005 edition

In all the publications, IAPs were afforded a two week period to register as IAPs and to raise their comments and concerns regarding the project. Copies of the adverts are presented in Appendix 2.

## 4.2 Summary of key issues and concerns

The key issues and concerns regarding the proposed development identified during the PIP are listed below in Table 4-1 below.

**Table 4-1: Summary of issues and concerns**

IAP	Issue	Response
Jonel Taljaard – Environmental student	<ul style="list-style-type: none"> <li>Currently studying nature conservation at Technikon SA and would like to observe how an environmental impact assessment is undertaken</li> <li>Request contact details of person responsible for undertaking the EIA for the project</li> </ul>	Contact details of the project co-ordinator from SRK were provided and informed that the report will be made available for review and comment
Palo Mohlalisi – Point of Departure Inc. (Environmental Club)	<ul style="list-style-type: none"> <li>An environmental club requesting to participate in/register in the future process of the Ethanol Plant</li> </ul>	Informed that the report will be made available for review and comment by all interested and affected parties

Copies of written comments received are provided in Appendix 3.

## 4.3 Comment on the Scoping Report

The draft Scoping Report will be available for review and comment by IAPs and authorities. The reports will be placed in public places (e.g. library and municipal offices) where people could have access to review the document. IAPs will be notified through the media (local newspapers) when the draft report is available. Comments received will be incorporated into the Final Scoping which will be submitted to the DTEEA for a decision on whether the project may proceed or additional information is required.

## 5 Impact identification and assessment

### 5.1 Introduction

The objective of this section of the report is to describe and evaluate the expected anticipated impacts of the proposed development on the relevant environmental components, identify applicable mitigation measures and evaluate the significance of the impact once the proposed mitigation measures have been implemented.

Each potential impact is discussed in the following manner:

#### ***Impact identification***

The potential impact of the development on the environment

#### ***Impact mitigation***

Identifies mitigation measures to minimise the potential impact

#### ***Impact significance***

Rates each potential in terms of its significance i.e. low, medium or high significance as defined below:

- ❖ Low – where each impact would not have an influence on the project or associated designs
- ❖ Medium – where the impact could have a significant influence on the environment and would require a revision to the project or mitigation
- ❖ High – where the impact could terminate the project if it is not reduced to a low or medium significance

### 5.2 Potential impact related to the project

#### **5.2.1 Impact: Increase in employment opportunities and income generation**

The construction and operation of the plant is expected to be associated with a number of positive economic benefits which could contribute to the generation of improved economic and job opportunities at local and regional level. It is presently estimated that the construction of the plant will provide 375 temporary employment opportunities and 40 permanent jobs during operation. The plant will, at least partly, draw the required labour from surrounding communities. Further opportunities exist through the employment of local contractors (using local labour) where possible, during construction phase.

The new jobs would result in an increase in annual per capita and household income of these workers and their families. This in turn would contribute positively towards local income stability, increased buying power and improved standards of living. Apart from employment opportunities there could also be a demand for goods, supplies and services by construction teams which may be met from local providers. The plant will require coal to be used in the boilers to produce steam. The coal fired boilers utilises approximately 200 tons of coal per day to generate the steam requirements of the plant. The required coal can be purchased locally if the suppliers can meet the demands of the plant. This is likely to supplement local income sources from formal sector services. The significance rating of the impact is likely to be **HIGH** positive.



### ***Impact mitigation***

The following mitigation will be implemented to enhance the positive impact:

- Recruitment will favour local employment and skills development at construction and operation
- Labour intensive mechanisms will be employed where possible during construction to maximise job opportunities
- During construction and operation, the contractor and operator of the plant will where possible, support and source local services and expertise (sub-contractors and local small businesses) to support local income generation opportunities

## **5.2.2 Impact: accelerated regional economic growth and development**

The economic contribution related to the operation of the plant includes the payment of rates and taxes to the provincial and national governments which will filter through to the Nala Municipality through payment of services provided by the municipality. The operation of the plant will also have economic multiplier effect linked to the creation and support of service-sector businesses and jobs, the procurement of large quantities of consumables annually and the outsourcing of service provision to local service providers. The significance rating of the impact will be **HIGH** positive on the local, provincial and national economy. Implementation of measures such as participation in Local Economic Development Forums and additional measures proposed below will ensure that the high positive significance of the impact is enhanced.

### ***Impact mitigation***

The following mitigation measure will be implemented to enhance the positive significance of the impact:

- Actively participate in provincial and local economic development forums and establish appropriate communication mechanisms to promote sub-regional and local empowerment partnerships
- Actively pursue existing opportunities for public-private partnerships with the local municipalities to contribute towards local community development through corporate social investment programmes
- Underlying the above broad management objectives, is the fundamental prerequisite to uphold and develop constructive relationships with neighbouring communities

## **5.2.3 Influx of potential job seekers**

The construction activities associated with the expansion will be apparent to surrounding residents. Consequently it may be inferred that potential job seekers will be attracted to the area. The associated impacts of the potential for employment are numerous and complicated. On the one hand the availability of positions during construction and operating periods will temporarily help to address unemployment in the area. it will also provide the positive spin-off of marginally increasing spending power of people in the area, which would in turn improve the financial position of some of the formal and informal businesses in the area. However, on the flipside, the potential for employment may attract additional people to the area. The increase in people in the area which cannot be accommodated by the project may result in an increase in social problems. The problem

may be exacerbated if the contractor brings his own workers from elsewhere and locals do not get employment at the plant site. Locals may see outside contractors as foreigners denying them job opportunities. If not managed properly, this will have significant **MEDIUM** to **HIGH** negative impact.

The successful implementation of the following mitigation measures will reduce the significance rating of the impact to **LOW**.

***Impact mitigation***

Mitigation measures include the following:

- Preference for employment will favour locals
- Labour intensive mechanisms will be employed where possible in order to maximise opportunities or employment
- Recruitment will be done off-site and through open and transparent process

**5.2.4 Impact: Increased noise and traffic during construction of the plant**

During construction, increased noise and traffic levels will be realised through heavy construction vehicles to and from the site. Increased traffic will be as a result of trucks to and from the site for construction material deliveries and site clearing. Noise that will be generated will be through site clearing activities using soil scrappers and construction workers on site. It is anticipated that construction will take approximately 14 months. Due to the limited construction period and the fact that there are no residential areas in the immediate vicinity of the site, the significance of the impact is considered **LOW**. However, the impact will be managed through the implementation of the mitigation measures provided below.

***Impact mitigation***

The following mitigation measures will be implemented to manage the potential impact:

- Noise generating activities will be restricted to normal working hours to limit noise levels during the night which affect the nearest residential area of Meyershof
- The contractor will ensure that construction equipment and vehicles is in a good state of maintenance
- Construction vehicles and delivery trucks will use the shortest possible route to the construction site without major disruption to the traffic flow in Bothaville. This issue is already under the consideration of the Nala Municipality who are assessing the realignment of the access route into the Bothaville industrial area.

Through the implementation of the proposed mitigation measures, the significance rating of the potential will be maintained as **LOW**.

**5.2.5 Impact: Increased traffic during operation**

As a result of the proposed plant, it is anticipated that there will be an increase in related traffic on the R30 road and roads within the industrial area. Based on the information provided by the project engineers, steam generation for the plant is done using coal. There will be approximately 8 trucks

(30 ton trucks) per day for delivery of coal. In addition to the coal delivery trucks, there will be a further 16 trucks per day taking alcohol out of the plant and a further 11 trucks taking animal feed. In total, the proposed development will result in approximately 35 additional trucks in and out of the plant. This increased traffic may result in congestion and increased potential for fatalities on the roads in the Bothaville industrial area and through the town. The significance rating of the impact is therefore considered to be **HIGH** as these may result in accidents and possible loss of lives.

#### ***Impact mitigation***

The municipality has indicated the intention for the realignment of the road from the R30 straight into the industrial without trucks going into Bothaville town. This proposal will assist in reducing congestion of traffic in Bothaville town. The re-alignment will allow trucks to enter the industrial area from the northern side of the town from the R30 turning left into the industrial area and into the plant on 2<sup>nd</sup> Street which will be upgraded to a double carriage way. Speed reduction measures from the R30 into the new entrance to the industrial area will also assist in reducing the risk of accidents for trucks entering and leaving the industrial area. Heavy trucks movements should, as far as possible be scheduled outside of commuter peaks. Detailed designs to improve the entrance exit to the site will be approved by the local traffic and transportation authorities prior to being implemented. All these measures will reduce the impact of traffic congestion and fatalities on the roads and thus reducing the significance rating of the impact to **LOW – MEDIUM**.

### **5.2.6 Impact: Increased air pollution**

The plant will use a coal fired boiler to produce steam, primarily because alcohol production requires a continuous supply of steam. Should the supply of steam be interrupted, this would result in product loss, the extent of which would depend on the duration of the interruption. However, even a limited interruption could result in the loss of a day's production as the alcohol would not meet the required specification.

The coal fired boiler will utilise approximately 200 tons of coal per day to generate steam requirements of the plant. Typical emissions from such a boiler would constitute particulate matter, sulphur oxide, nitrogen oxides, carbon dioxide and carbon monoxide. A detailed air quality study is currently being undertaken to determine the current air quality baseline data of the area and possible emissions during operation of the plant. This report will be submitted as a separate document to the DTEEA identifying the possible air pollution impacts and proposed mitigation measures. The significance rating of the impact is therefore not provided in this report but will be included in the Air Quality report.

### **5.2.7 Impact: Waste disposal**

General domestic waste envisaged from the plant will include glass, paper, plastic etc. generated on-site. Additional waste generated on site is ash from the boilers. Although the significance rating of these waste materials is considered LOW, mitigation measures to manage the impact are provided below.

#### ***Impact mitigation***

- All general waste will be disposed at a registered landfill site

- Details concerning the disposal of ash have not been finalised yet, but the intention is to provide ash generated from the boilers to the neighbouring communities for brick making as part of the company's community development project

### 5.2.8 Impact: Increased effluent generation and disposal

Effluent from the plant includes boiler blow down and cooling water blow down. Other effluents associated with ethanol plant are carbon dioxide and DDGS.

#### *Impact mitigation*

- Boiler blow down and cooling water blow down will be discharged into the municipal sewage system via the effluent treatment plant.
- Impact of carbon Dioxide and possible mitigation measures will be provided in the air quality study report

### 5.2.9 Impact: Increased risks associated with the plant operation

The plant will be producing alcohol, a hazardous substance which is highly flammable. As a result, a potential exists for an on-site fire or explosion which could put the lives of people in the vicinity of the plant at risk. It is therefore critical that the risk associated with handling of hazardous material needs to be undertaken in terms of the Major Hazard Installation Regulation as promulgated in terms of the Occupational Health and Safety Act (Act No. 85 of 1993). In terms of these Regulations the aim is to establish the level of risk to which individuals located outside of a particular site would be exposed in worst case scenario i.e. catastrophic accident. In this case, a worst case scenario is defined as an accident associated with the delivery or offloading of flammables on-site or a fire involving flammables on-site. Any of these incidents happening could have detrimental effects including loss of life. The significance rating of the impact is therefore considered to be **HIGH**.

#### *Impact mitigation*

The measures to be put in place to manage the impact are the following:

- Delivery of flammables will be supervised by adequately trained and qualified staff at all times
- Fixed fire protection around the flammables offloading/delivery facility that meets levels adequate for this type of facility will be provided
- Installed fixed fire protection will be tested at least every six months
- The emergency plan to be developed for during operation of the plant will be adapted to take account of a major emergency and ensure that regular liaison with neighbouring industries takes place

## 5.3 Summary of impacts and mitigation measures

A summary of impacts and proposed mitigation measures to manage the impacts are provided in Table 5-1 below.

**Table 5-1: Summary of impacts and mitigation measures**

<b>Impact</b>	<b>Mitigation measures</b>
Increase in employment opportunities and income generation	<ul style="list-style-type: none"> <li>Recruitment will favour local employment and skills development at construction and operation</li> <li>Labour intensive mechanisms will be employed where possible during construction to maximise job opportunities</li> <li>During construction and operation, the contractor and operator of the plant will where possible, support and source local services and expertise (sub-contractors and local small businesses) to support local income generation opportunities</li> </ul>
Accelerated regional growth and development	<ul style="list-style-type: none"> <li>Actively participate in provincial and local economic development forums and establish appropriate communication mechanisms to promote sub-regional and local empowerment partnerships</li> <li>Actively pursue existing opportunities for public-private partnerships with the local municipalities to contribute towards local community development through corporate social investment programme</li> <li>Underlying the above broad management objectives, is the fundamental prerequisite to uphold and develop constructive relationships with neighbouring communities</li> </ul>
Influx of potential job seekers	<ul style="list-style-type: none"> <li>Preference for employment will favour locals</li> <li>Labour intensive mechanisms will be employed where possible in order to maximise opportunities or employment</li> <li>Recruitment will be done off-site and through an open and transparent process</li> </ul>
Increased noise and traffic during construction of the plant	<ul style="list-style-type: none"> <li>Noise generating activities will be restricted to normal working hours to limit noise levels during the night</li> <li>The contractor will ensure that construction equipment and vehicles are in a good state of maintenance</li> <li>Construction vehicles and delivery trucks will use the shortest possible route to the construction site without major disruption to the traffic flow in Bothaville</li> </ul>
Increased traffic during operation	<ul style="list-style-type: none"> <li>Re-alignment of the road from the R30 straight into the industrial area without going into Bothaville town</li> <li>Enforcement of speed reduction measures from the R30 into the new entrance to the industrial area</li> <li>Heavy truck movements will, as far as practically possible, be scheduled outside of commuter peaks</li> </ul>
Increased air pollution	<b><i>Mitigation measures will be provided in the Air Quality study report</i></b>
Waste disposal	<ul style="list-style-type: none"> <li>All general waste will be disposed off at a registered landfill site</li> <li>Details concerning the disposal of ash have not been finalised yet, but the intention is to provide ash generated from the boilers to the neighbouring communities for brick making as part of company's community development project</li> </ul>
Increased effluent generation and disposal	<ul style="list-style-type: none"> <li>Boiler blow down and cooling water blow down will be discharged into the municipal sewage system via the effluent plant</li> <li><b><i>Impact of carbon dioxide and possible mitigation measures will be provided in the air quality study report</i></b></li> </ul>

Impact	Mitigation measures
Increased risks associated with the plant operation	<ul style="list-style-type: none"><li>▪ Delivery of flammables will be supervised by adequately trained and qualified staff at all times</li><li>▪ Fixed fire protection around flammables off-loading/delivery facility that meets levels adequate for this type of facility will be provided ensured</li><li>▪ Installed fixed fire protection will be tested at least every six months</li><li>▪ Emergency plan to be developed during operation of the plant will be adapted to take account of a major emergency and ensure that regular liaison with neighbouring industries and communities takes place</li></ul>

## **6 ENVIRONMENTAL MANAGEMENT PLAN**

In addition to the mitigation measures proposed in section 5, the following management measures will be implemented to provide a plan to manage the environmental impacts, issues and risks associated with the proposed development.

### **6.1 Objectives of the environmental management plan**

The main objectives of the environmental management plan (EMP) are to ensure that

- ❖ The contractor/developer is well acquainted with environmental responsibilities;
- ❖ Mitigation measures are implemented to avoid or minimise the expected negative environmental impacts;
- ❖ Communication channels to report on environment related issues are in place.

### **6.2 Specifications for pre-construction, construction and post construction phases**

#### **6.2.1 Pre-construction phase**

##### **Educational programmes**

An environmental education programme should be followed to ensure that the construction workers are well aware of relevant environmental issues such as:

- ❖ the purpose of conservation of the natural environment
- ❖ the restriction on cutting of firewood
- ❖ pollution control
- ❖ waste management

##### **Construction site**

- ❖ The sensitive location of the construction site with regards to aesthetics and rehabilitation of the site should be identified in co-operation with the neighbouring landowners and the contractor;
- ❖ The location of the construction site must be negotiated with the relevant landowners and specifications of the landowner must be adhered to;
- ❖ The site must be fenced off for access control;
- ❖ Sufficient ablution and proper cooking facilities must be provided at the construction site;
- ❖ Storage facilities for construction equipment must be provided for.

#### **6.2.2 Construction phase**

##### **Water quality**

- ❖ Under no circumstances must surface or groundwater be polluted

- ❖ Adequate oil containment precautions must be taken
- ❖ All storm water runoff must be managed efficiently so as to avoid storm water damage and erosion
- ❖ All hazardous substances spills must be reported, recorded and investigated
- ❖ No workers will be allowed to use any river or stream for any kind of activity. Drinking water and water for ablution and cooking facilities must be provided to all construction workers on the construction site
- ❖ If pollution of any surface or groundwater occurs, the regional office of the Department of Water Affairs and Forestry (DWAF) and the DTEEA should be informed within 24 hours of the spillage occurring

### **Waste management**

- ❖ Littering or illegal dumping of any waste material is prohibited. No waste disposal holes may be made on site
- ❖ Provision must be made for temporary storage and collection of all waste material
- ❖ The using of the open veld for toilet requirements is prohibited
- ❖ All hazardous substances at the site must be adequately stored and accurately identified, recorded and labelled. All hazardous substances should be disposed off at a licensed Class H site
- ❖ Rubbish bags must be provided on the construction site to prevent littering
- ❖ All waste material must be removed to a registered dumping site

### **Veld protection**

- ❖ Excavated soil heaps have to be used for backfilling and the excess must be flattened and shaped in natural forms
- ❖ Access roads and site ground must be monitored for deterioration and erosion
- ❖ No fires may be made for the burning of vegetation and waste
- ❖ Fire fighting equipment must be readily available on site during all times

### **Environmental supervision**

The contractor should communicate on a regular basis with the project manager to report on environmental performance, problems and priorities. In addition, it is recommended that an environmental officer be appointed to inspect the construction site on regular basis to ensure that the mitigation and rehabilitation measures are applied as specified in the EMP.



### 6.2.3 Post construction phase

#### **Construction site**

After construction all building material, signs of excess concrete, equipment, houses, ablution facilities, building rubble, refuse and litter must be removed and cleaned up from the construction site.

#### **Monitoring programmes**

The environmental officer must sign-off after construction that the contractor has complied with the specifications of the EMP.

## 6.3 Conclusions and recommendation

It is anticipated that the proposed ethanol plant will have significant positive impact for the local communities in terms of employment opportunities that will be created during construction and operation of the plant. In addition to employment opportunities, the project will have economic spin-offs for the local farmers, regional and local economy in terms of rates and taxes that will be paid by the operators of the plant as well increased business opportunities for local businesses to provide services to the plant.

No objection or negative concerns were received from the interested and affected parties (IAPs) from the newspaper adverts placed on the local newspapers to inform them about the proposed development. All other identified potential negative impacts can be managed and the significance ratings reduced to **LOW** depending on the successful implementation of the management and mitigation measures provided. A separate air quality study to be submitted separately with the Scoping Report will identify potential air quality impacts and proposed mitigation measures to manage the impacts identified. There are a number of on-going environmental management commitments which Ethanol Africa will need adhere to ensure that the environmental performance of the plant, both during construction and operation is acceptable and improves in the long term.

## 7 References

Free State185, Nala Integrated Development Plan, Final Review.

SRK, Final Scoping Report for the Upgrade of the Alcohol Plant in Sea Cow Lake Road, NCP Alcohols, (December 2001)

# Appendices

## **Appendix 1: Notes of discussion with DTEEA official**



SRK House  
265 Oxford Road, Illovo  
2196 Johannesburg  
PO Box 55291  
Northlands  
2116 South Africa  
e-Mail: johannesburg@srk.co.za  
URL: http://www.srk.co.za  
Tel.: +27 (0) 11 441 1111  
Fax: +27 (0) 11 880 8086

## Notes of site meeting concerning the Environmental Impact Assessment for the construction of Ethanol Plant in Bothaville

**Date :** 22 July 2005  
**Venue :** Proposed construction in Bothaville  
**Present:** David Mofokeng (**DM**) – DTEEA  
Johan Haasbroek (**JH**) – Ethanol Africa  
Willie Prinsloo (**WP**) – Ethanol Africa  
Felix Motsiri (**FM**) – SRK Consulting  
Kelebogile Mogajane (**KM**) – SRK Consulting

### 1 Introduction

**FM** explained to **DM** of the Department of Tourism, Environment and Economic Affairs (DTEEA) that SRK was appointed by Ethanol Africa to conduct an environmental impact assessment for the construction of an ethanol plant in Bothaville. He further explained that the objectives of the site meeting were the following:

- to provide more details about the project to the DTEEA and familiarise the responsible officer with the proposed site
- to identify the departmental regulatory requirements for the study
- to identify the specialists studies required based on the condition of the site
- to determine the level of consultation with interested and affected parties that would be acceptable to the DTEEA
- agree on the project review time frame and way forward

### 2 Description of the proposed site

The meeting was held on-site for the DTEEA official to familiarise himself with the proposed area and the surrounding environment. The proposed site is located in the Bothaville industrial area.



**Partners** MJ Braune, JM Brown, AC Burger-Pintér, IS Cameron-Clarke, JAC Cowan, M Harley, T Hart, PR Labrum, RRW McNeill, HAC Meintjes, BJ Middleton, MJ Morris, SG Muller, GP Murray, PN Rosewarne, PE Schmidt, PJ Shepherd, AA Smithen, OKH Steffen, RJ Stuart, AH Swart, PJ Terbrugge, KM Uderstadt, D van Bladeren, DJ Venter, HG Waldeck, DW Warwick, A Wood  
**Directors** AJ Barrett, PR Labrum, H Lachoria, BJ Middleton, E Moloi, PE Schmidt, PJ Terbrugge  
**Associates** JCJ Boshoff, FM Cressford, CD Dalglish, NM Holdcroft, SA McDonald, LGA Maclear, GP Nel, VS Reddy, JM Stanway, AC White  
**Consultants** JH de Beer PrSci Nat MSc, GA Joriss PrEng PhD, WD Ortlepp PrEng MEng, K Owen MSc Eng, DIC, RP Plasket PrEng MSc, TR Stacey PrEng DSc  
**Corporate Shareholder:** Kagiso Enterprises (Pty) Ltd  
**Steffen, Robertson and Kirsten (South Africa) (Pty) Ltd**



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Harare +263 (0) 4 496 182  
Johannesburg +27 (0) 11 441 1111  
Pietermaritzburg +27 (0) 33 345 6311  
Port Elizabeth +27 (0) 41 581 1911  
Pretoria +27 (0) 12 361 9821  
Rustenberg +27 (0) 14 594 1280

There are no residential areas within the immediate proximity of the site. Bothaville town is located to the south and Meyershof residential area to the south-west of the site.

The total size of the site is approximately 17 hectares (ha) and the proposed development is estimated to occupy 14 ha. The remaining 4 ha will be available for future extensions of the plant. The site located on a piece of vacant land which is currently owned by the Nala Municipality. The municipality has indicated the willingness to make the land available for the proposed development. *WP* provided a letter from the municipality indicating their support for the proposed development.

### 3 Discussion

Based on the observation made on site, and due to the fact that the site was an already disturbed vacant piece of land within an existing industrial, with no residential properties in the immediate vicinity, it was confirmed that the following conditions will be sufficient for the study:

- Approval could be provided at the end of scoping provided all the requirements of the DTEEA are met;
- Air quality assessment is the only specialist study required for the project unless;
- As part of the public participation process, notices to be placed on local newspapers to inform interested and affected parties about the proposed project, to provide them with an opportunity to participate in the study process and raise any issues of concern that needed to be considered in the study. It was agreed that the notices to be placed on the *Noordwester* and *Skreeubek*
- It requested that the Department of Minerals and Energy in the Free State need to be informed about the proposed development. It was agreed that the DME will be provided an opportunity to comment on the report to be submitted for authorisation.

### 4 Way forward and conclusion

It was agreed with *DM* that due to the fast tracked nature and urgency of the project, the project review process will commence immediately after submission of the report and will be given priority for decision making. *DM* confirmed his commitment to prioritise the decision making process and *FM* indicated that SRK will assist where possible to expedite the process.

The notes of the meeting were compiled by Felix Motsiri (*FM*)



**FELIX MOTSIRI**  
SRK Consulting

## **Appendix 2: Copies of Newspaper adverts**





**NOTICE OF PROPOSED ENVIRONMENTAL IMPACT ASSESSMENT (EIA)  
AS PART OF THE CONSTRUCTION OF AN ETHANOL PLANT IN THE BOTHAVILLE AREA FREE STATE  
PROVINCE**

Notice is given in terms of Section 21 of the Environmental Conservation Act (No. 73 of 1989), Regulation 1182 (as amended), of intent to carry out an activity which may have a detrimental effect on the environment as prescribed in Schedule 1 of the Act.

The proposed activity involves construction of an Ethanol Plant. The proposed plant will be constructed on 2<sup>nd</sup> Street, Bothaville Industrial Area, Free State Province. The proposed development is one of eight Ethanol Plants proposed to be constructed by Ethanol Africa which are motivated by the growing demand for ethanol as it can be blended with petrol to boost octane levels and produce cleaner-burning fuels.

SRK Consulting has been commissioned to undertake the necessary environmental studies as part of an Environmental Impact Assessment (EIA) and preparation of an Environmental Management Programme (EMP).

Section 2 (4) and (g) of the National Environmental Management Act (Act 107 of 1998) requires the promotion of participation of stakeholders in environmental governance and that the interests, needs and value of stakeholders be taken into account in decision making.

If you have an interest in or are affected by the project and you wish to be registered as a stakeholder, and if you would like to communicate your views and suggestions about the proposed project, please contact **Felix Motsiri** at SRK Consulting on or before **Friday 12 August 2005**.

Tel number: (011) 441 6157  
Fax: (011) 441 1210  
Postal address: P O Box 55291, Northlands, 2116  
Email: [fmotsiri@srk.co.za](mailto:fmotsiri@srk.co.za)

Please contact **Felix Motsiri** for further details should you wish to participate in the project.



02/08 2005 TUE 8:45 [JOB NO. 9843] 002

*Volksraad Maandag, 1 Augustus 2005*

**KENNISGEWING VAN OMGEWINGSIMPAKSTUDIE (OIS)  
EN OMGEWINGSBESTUURSPROGRAM (OBP) AS DEEL  
VAN DIE OPRIGTING VAN 'N ETANOL-AANLEG IN DIE  
DISTRIK BOTHAVILLE - VRYSTAAT PROVINSIE**

Kennis word hiermee gegee in terme van Artikel 21 van die Omgewingsbewaringswet (No. 73 van 1999) Regulasie 1192 (soos gewysig), van die voorneme om 'n handeling uit te voer wat 'n nadelige gevolg vir die omgewing mag inhoud soos voorgeskryf in Skema 1 van die Wet.

Die voorgestelde handeling sluit die oprigting van 'n Etanolplant in. Die voorgestelde aanleg sal in 2de Straat, Bothaville, Vrystaat Provinsie opgerig word. Die voorgestelde ontwikkeling is deel van die oprigting van 'n Etanol-aanleg soos voorgestel deur Ethanol Africa. Die voorstel word geregtig deur die toename in die vraag na etanol omdat die produk by petrol ingemeng kan word om oksaanvrae te verbeter en brandstof te produseer wat skoner verbrand.

SRK Consulting is aangestel om die joodige omgewingsimpak as deel van die Omgewingsimpakstudie (OIS) te ondersoek en 'n Omgewingsbestuursprogram (OBP) voor te stel.

Artikel 24(1) en (2) van die Nasionale Omgewingsbestuurswet (Wet No. 107 van 1999) vereis dat die name van belanghebbendes in omgewingsbestuur aangemoedig word en dat die belanghebbendes, benoemdes en waardes van belanghebbendes gedurende besluitneming in ag geneem word.

Indien u as 'n belanghebbende wil registreer en/of ons wil meedeel van u menings of voorstelle aanpaande die voorgedone projek, kontak asseblief vir Felix Motsiri voor Vrydag, 12 Augustus 2005 by SRK Consulting.

Telefoon (011) 441 6157  
Faks (011) 441 1210  
Posadres: Posbus 552 91, Northlands, 2116  
E-pos: f.motsiri@srk.co.za

Skakel asseblief vir Felix Motsiri vir verdere besonderhede indien u graag wil deel neem aan die voorgestelde projek.

#1902 P.002 /002

AUG.02.2005 08:37

Att. Felix

## KENNISGEWING VAN OMGEWINGSIMPAKSTUDIE (OIS) EN OMGEWINGSBESTUURSPROGRAM (OBP) AS DEEL VAN DIE OPRIGTING VAN 'N ETANOL - AANLEG IN DIE DISTRIK BOTHAVILLE - VRYSTAAT PROVINSIE

Kennis word hiermee gegee in terme van Artikel 21 van die Omgewingsbewaringswet (No. 73 van 1998) Regulasie 1182 (soos gewysig), van die voorneme om 'n handeling uit te voer wat 'n nadelige gevolg vir die omgewing mag inhou soos voorgeskryf in Skedule 1 van die Wet.

Die voorgestelde handeling sluit die oprigting van 'n Etanol-aanleg in. Die voorgestelde aanleg sal in 2de Straat, Bothaville Nywerheidsgebied, Vrystraat Provinsie opgerig word. Die voorgestelde ontwikkeling is deel van die oprigting van agt Etanol-aanlegte soos voorgestel deur Ethanol Africa. Die voorstel word gemotiveer deur die toename in die vraag na etanol omdat die produk by petrol ingemeng kan word om oktaanvlakke te verbeter en brandstof te produseer wat skoner verband.

SRK Consulting is aangestel om die nodige omgewingsstudies as deel van die Omgewingsimpakstudie (OIS) te onderneem en 'n Omgewingsbestuursprogram (OBP) voor te berel.

Artikel 2(4)(f) en (g) van die Nasionale Omgewingsbestuurswet (Wet No. 107 van 1998) vereis dat deelname van belanghebbendes in omgewingsbestuur aangemoedig word en dat die belange, behoeftes en waardes van belanghebbendes gedurende besluitneming in ag geneem word.

Indien u as 'n belanghebbende wil registreer en/of ons wil meedeel van u menings of voorstelle aangaande die voorgename projek, kontak asseblief vir **Felix Motsiri** voor **Vrydag, 19 Augustus 2005** by SRK Consulting.

Telefoon: (011) 441-6157  
Faks: (011) 441-1210  
Posadres: Posbus 55291, Northlands, 2116  
E-pos: [fmotsiri@srk.co.za](mailto:fmotsiri@srk.co.za)

Skakel asseblief vir **Felix Motsiri** vir verdere besonderhede indien u graag wil deel hê in die voorgestelde projek.



Publikasiedatum: Vrydag 5 Augustus 2005.

## **Appendix 3: Written comments received from IAPs**



Page 1 of 1

**Felix Motsiri**

**From:** Jonel Taljaard [jonell@telkomsa.net]

**Sent:** 11 August 2005 09:16 PM

**To:** fmotsiri@srk.co.za

**Subject:** Kennisgewing van omgewingsimpakstudie en omgewingsbestuursprogram as deel van Etanol Bothaville

Beste Felix Motsiri

Ek het in ons plaaslike koerant die deel geles van die "Kennisgewing van omgewingsimpakstudie (OIS) en omgewingsbestuursprogram (OBP) as deel van die oprigting van 'n Etanol - aanleg in die distrik Bothaville - Vrystaat provinsie." Ek studeer Natuurbewaring deur die Technikon SA, is in Bothaville en stel belang om te sien hoe so 'n impakstudie gedoen word, en wat dit alles behels. Kan u dalk vir my die persoon wat daarvoor verantwoordelik sal wees se kontak besonderhede gee, dan kan ek uitvind of ek toegelaat sal word om te sien hoe dit gedoen word.

Met dank

Jonel Taljaard  
jonell@telkomsa.net

05/09/2005

2414 MACHATOLA CRES  
KGOTSONG TOWNSHIP  
BOTHAVILLE 9660  
FREE-STATE PROVINCE  
05 - August 2005

ATT: MR FELIX MOTSIRI  
SRK CONSULTING  
P.O. BOX 55291  
NORTHLANDS 2116

Sir

APPLICATION TO PARTICIPATE / REGISTER AS A STAKEHOLDER  
IN A PROPOSED ETHANOL PLANT IN KGOTSONG  
BOTHAVILLE:

WE ARE AN ENVIRONMENTAL CLUB IN BOTHAVILLE  
DEALING WITH ENVIRONMENTAL EDUCATION AROUND  
VALA MUNICIPALITY.

THEREFORE WE WOULD LIKE TO PARTICIPATE IN/  
REGISTER IN THE FUTURE PROJECT OF ETHANOL  
PLANT IN BOTHAVILLE.

WE HOPE OUR INPUTS WOULD BE VALUABLE  
AND THIS REQUEST WOULD BE HIGHLY  
APPRECIATED.

YOURS IN CLEAN ENVIRONMENT.

MR PALO MOHLALISI  
CHAIRPERSON - POINT OF DEPARTURE INC.  
Cellphone - 0733652079

### MOTIVATION:

IN RESPONSE TO THE WORLD SUMMIT ON SUSTAINABLE DEVELOPMENT THAT WAS HELD DURING 2002 IN JOHANNESBURG, THE UN GENERAL ASSEMBLY HAS DECLARED THE NEXT TEN YEARS (2005 TILL 2014) AS THE "DECADE OF EDUCATION FOR SUSTAINABLE DEVELOPMENT". MANY GOALS HAVE BEEN SET TO BE REACHED BY THE END OF 2014, AMONGST THEM TO ENSURE ACCESS TO CLEAN WATER, PRIMARY EDUCATION FOR ALL YOUNG CHILDREN, CUTTING POVERTY BY HALF. THE MAIN AIM OF THIS DECADE IS TO FOCUS OUR ATTENTION ON THE IMPORTANCE OF SUSTAINABILITY. WHATEVER WE DO OR IMPLEMENT OR USE FROM THE ENVIRONMENT MUST BE SUSTAINABLE TO ENSURE OUR CHILDREN AND FUTURE GENERATIONS WILL HAVE THE SAME OPPORTUNITIES AND ENVIRONMENT AS US.

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