

DU Preez Petroleum cc,

trading as **Puma, Service Station**



ENVIRONMENTAL ASSESMENT SCOPING REPORT

**Proposed PUMA Fuel Retail Station, ERF 1278, Rundu Light
Industrial Area, Kavango East Region, Namibia.**



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Report compiled by: **CONSERVER INVESTMENT CC**

No. 147 SAFARI, RUNDU P. O Box 2499, Rundu

Mobile: +24817637974 or +264 81 4087482E Mail:
hausiku2007@yahoo.co.uk tnyungu@gmail.com



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LIST OF ACRONYMS

MET:	MINISTRY OF ENVIRONMENT AND TOURISIM
EMP:	ENVIRONMENTAL MANAGEMENT PLAN
EIA:	ENVIRONMENTAL IMPACT ASSESMENT
SHE:	SAFETY HEALTH AND ENVIRONMENT
TOR:	TERMS OF REFERENCE
NSA:	NAMIBIA STATISTICS AGENCY
EAP:	ENVIRONMENTAL ASSESMENT PRACTITIONER
EA	ENVIRONMENTAL ASSESMENT
EMAct	ENVIRONMENTAL MANAGEMENT ACT
UNFCCC:	UNITED NATIONS CONVENTION OF CLIMATE CHANGE
GHGs	GREEN HOUSE GASES
GIS	GEOGRAPHIC INFORMATION SYSTEMS
BID	BACKGROUND INFORMATION DOCUMENT

ENVIRONMENTAL IMPACT ASSESSMENT

In compliance with the Environmental Management Act and Environmental Impact Assessment policy the project proponent is mandated to do an Environmental Impact Assessment (EIA) and develop an Environmental Management Plan (EMP) or Impact Management Plan (IMP) for listed activities. In compliance with the Act the project proponent should sub contract an Environmental Assessment Practitioner (EAP) with experience to prepare an Environmental Scoping report and draft EMP to be submitted relevant authorities or to the Ministry of Environment and Tourism (MET) for review. MET will review the scoping report and decide whether the Environmental Management plan in the EA scoping report is adequate or there will be need for further assessment on the project initiative or the management plan to effectively and efficiently protect the environment throughout the project's Life Cycle. This Environmental Assessment Report is submitted as a fulfillment to the Environmental Management ACT of 2007 and its regulations.

Part VII of the Environmental Management ACT no 7 of 2007, ENVIRONMENTAL ASSESSMENT gives a list of activities that cannot be undertaken without an Environmental Clearance certificate. This proposed project is a listed activity. The ENVIRONMENTAL MANAGEMENT ACT works hand in glove with other environmental Conservative legislations detailed in chapter 2.0 as POLICY, LEGAL & ADMINISTRATIVE FRAMEWORK in this report to ensure a Sustainable Project Development in The Republic of Namibia.

SUMMARY

“Under section 27 of the Environmental Management Act, 2007 (Act no. 7 of 2007), and after following the consultative process referred to in section 44 of that Act, I list in the Annexure to the Schedule, activities that may not be undertaken without an environmental clearance certificate”, N. NNDAITWAH, MINISTER OF ENVIRONMENT AND TOURISM Windhoek, 18 January 2012.

Following the highlighted statement released as the Government Gazette of the Republic of Namibia, the construction and operation of fuel retail stations should be done following appropriate Environmental regulatory frameworks. Motorists, long distance rovers and local residents benefiting from the use of non-renewable and hazardous substance in day to day in the country are ever rising. **Conserver Investment cc** was appointed by **DU Preez Petroleum cc** to carry out an **Environmental Impact Assessment (EIA)** and develop all-encompassing **Environmental Management Plan (EMP)** for the proposed fuel retail station thus adhering to the requirements of *Environmental Management Act (No 7 of 2007)*.

The absence of a fuel service station where it can be very convenient to the residents and travelers in the north western part of Rundu urban emerged as a business opportunity for **DU Preez Petroleum cc** which intends to establish a new service station and a convenience shop. The main aim is the lucrative automobile business which is on a peek rise. The scope of development will result in the development of proposed features on a virgin land allocated to **Du Preez Petroleum Cc** to trade as **Puma Service station** pledging a wide range of opportunities for all Namibians. This Environmental scoping report has detailed information gathered by dedicated EAPs to determine suitability of the project site and the surrounding environs, for fuel retailing purposes and associated outdoor activities. It further on highlighted the applicability of different legislations to the study conducted, the methodology that was followed, the public consultation that was conducted, and the receiving environment's sensitivity, any potential ecological, environmental and social impacts. An EMP was therefore

designed to combat/reduce all the potential positive impacts that the proposed project might directly or indirectly cause during all phases of the project life cycle.

Namibia Statistics Agency (NSA) outlined that; the population of the Kavango East Region as indicated by the *2011* census is approximately *90,100 people*. More so, the number of people living in rural areas is expected to gradually shrink while those living in urban areas are projected to increase sharply by *2041*. More people will find their way into town, since it is both where the administrative and economic centers are found.

1.0. CHAPTER ONE: INTRODUCTION

1.1. Project Description

DU Preez Petroleum Cc intends to establish a new fuel retail station and a convenience shop on **ERF 1278, EXTENSION 4 of the Industrial area of Rundu townlands**. The industrial area of Rundu townlands is located to the North western direction of the Central Business District (CBD) and has a total allocated land of **2757 square meters (m²)**. Due to a high demand of land for housing purposes, the town Council approved the development of newly established Sauyemwa suburbs, extension 31 and 32 to the Northern part of the CBD. The portion in question has a capacity to support the proposed fuel retail station as well as a convenience shop for easy availability of fuel and other related services leaving out the three quarters (¾) of ERF 1278 vacant for other future purposes.

1.2. Objectives of the Project

The aim of this project is to establish a new fuel retail station and a convenient shop on portion 1278, Extension 4 of Rundu townlands. The objectives of the project by DU Preez Petroleum Cc are to:

- (a) Address the increase in demand of fuel by motorists and to service, rovers and residents.*
- (b) Improve the living standards of local people by creating new opportunities for business agglomeration since tourism industry is lucrative in the region, and*
- (c) Ensure a sustainable project development and increase profitability.*

1.3. Objective of the study

This Environmental Assessment scoping report has been undertaken in compliance with the **Environmental Management Act No.7 of 2007** and the Environmental Impacts Regulations (GN 30 in GG 4878 of 6 February 2012). It is a prerequisite by the law to have an Environmental Impact Assessment carried out before the implementation of the activities elaborated in the Environmental Impacts Regulations (GN 30 in GG 4878 of 6 February 2012). The main objectives are as follows:

- ✓ To **identify** and **mitigate** the impact caused by establishing a fuel retailing station on the proposed piece of land.
- ✓ To **brief the Project Proponent** of the **legal framework** in which the intended project falls under.
- ✓ To **identify** the possible changes on **physical and biological environment** that might be as a result of **Project implementation** in the area.
- ✓ To **reveal** various **public** and **stakeholders concerns** which can help the National Environmental Action Planners, economist and concerned stakeholders **to make decisions**.
- ✓ To come up with **preventive** and **precautionary measures** to physical and biological **environmental negative impacts**.
- ✓ To **structure** an **effective environmental management plan** for the **construction** and **operation phases** of the proposed project.

By submitting this report DU Preez Petroleum Cc subscribed to sustainable business development and environmental sensitiveness to maintain a balance in social development, economic sustenance and bio-physical environment.

1.4. Project Location

Rundu is the administrative capital of Kavango East region., northern Namibia, on the border with Angola on the banks of the Kavango River about 1,000 metres (3,300 feet) above sea level. The oldest houses in Rundu are located in the Katutura area. There are mainly two bedroomed houses with large backyards even though they are situated next to the Central Business District (CBD).

On the west is Tutungeni, which means "let's build". This area was previously occupied by executives of the white-dominated business place, but now it is open for any willing buyer in

need of a quiet neighborhood. On the East is Safari. There are the middle-priced houses built in the 1970s.

These three main localities dominated Rundu residential life until the turn of the millennium in 2000, when new housing projects by O'B Davids Properties built a new residential area called Millennium Park. After which two others have been built by the NHE, Queens and Kings Parks respectively. Recently a new formal location was added called Rainbow.

Outside the formal suburbs, shanty towns symbolize the rapid urbanization of the town and high unemployment rates. Kehemu, Kaisosi (also known by the locals as Cali), Sauyemwa, and Ndama are the most informal areas while a fourth, Donkerhoek (Dark Corner), is rapidly becoming formal since the start of the Build Together Campaign in 1992

The proposed project site is on the light Industrial zoned portion along Independence Avenue adjacent to Queenspark and Sauyemwa. The proposed project location is a strategic site for the fast growing urban population. The development will be done on Portion 1278, Extension 4 of Rundu light Industrial townlands. The total allocated land has 2757m² at which 1757 m² will be unutilized with the proposed development.

Plate 1 overleaf portrays a Google Map locality of ERF 1278 (in black) and the proposed project site highlighted in red.



Plate 1: Project site (Source: Google Earth; 2020)

Table 1: The table below shows the proposed project site coordinates.

Coordinate number	Latitude	Longitude	Accuracy (m)	Time and Date corded
A	-17 ⁰ 55337265	19,45099805	4.0	09:11 am 21/02/20
B	-17 ⁰ 5530 72381	19,455 06675	6.0	09:11 am 21/02/20
C	-17 ⁰ 552576994	19,45246632	4.0	09:11 am 21/02/20
D	-17 ⁰ 55287647	19,445826492	4.0	09:11 am 21/02/20
E	-17 ⁰ 552990503	19,445791419	6.0	09:11 am 21/02/20

1.5. Terms of Reference

The Environmental Impact Assessment to be completed by Conserver Investments cc will provide a comprehensive evaluation of the proposed project producing an EIA and EMP documenting the following:

- ✓ Objectives of the project
- ✓ A complete description of the existing site proposed for development will be done.
- ✓ Significant environmental issues of concern that based on the baseline data compiled by the EIA Team, this will take into consideration social, cultural and heritage information. An assessment of the public perception of the proposed development will be done through public consultations and the use of social survey instruments such as questionnaires.
- ✓ Identification of Policies, Legislation and Regulations relevant to the project.
- ✓ Prediction of the likely short, medium and long term impact of the development on the environment, including direct, indirect and cumulative impacts, and their relative importance to the design of the development's facilities.
- ✓ Identify any mitigation action to be taken to minimize predicted adverse impacts and provide associated costs where applicable and practical.
- ✓ Develop an environmental monitoring plan which will ensure that the mitigation measures are adhered to during the implementation phase.
- ✓ Describe the alternatives to the project that were considered, including the consideration of alternative sites.
- ✓ Come up with a conclusion and recommendations that will be given to the project proponent on an advisory note.

1.6. The Environmental Assessment (EA) Process

The **Environmental Management Act No 7 of 2007**, no one (including private bodies and Government bodies) can carry out any listed activity without an environmental clearance certificate. If an environmental clearance certificate is required, the Environmental Commissioner may first require an environmental assessment. In some cases, an environmental clearance certificate can be issued without an environmental assessment depending on the minister's decision.

Environmental assessments serve the following purposes:

- ❖ *Ensure that activities which may have a significant effect on the environment follow the principles of environmental management planning and development process;*
- ❖ *Analyze the possible environmental impacts of activities, and look at ways to decrease negative impacts and increase positive ones;*
- ❖ *Make sure that the environmental effects of activities are given adequate consideration before the activities are carried out and*
- ❖ *Provide an opportunity for public participation in considering the environmental impact of a project.*

This Environmental Assessment (EA) scoping report was compiled for the project under discussion because the proposed development falls under listed activities that cannot be undertaken without a clearance certificated as stated in the **EMACT No 7 of 2007-Part (VII) of No 27: and its regulations**. In summary of these activities involves projects relating to; land use transformation, any activity entailing a scheduled process referred to in the **Atmospheric Pollution Prevention Ordinance, 1976**, the manufacturing, **storage, handling** or processing of **Hazardous Substance (HS)** defined in the **HS Ordinance 1974**, the **storage** and **handling** of a **dangerous good** including **petrol, diesel, liquid petroleum gas or paraffin**, in containers with a combined capacity of **more than 30 cubic meters at one location and construction of filling stations or** any other facility for the underground and above ground storage of

dangerous goods, **including petrol, diesel, liquid, petroleum , gas or paraffin**. In addition to this, the proposed project involves various activities associated with the pre- planning, construction and operational phases as follows:

- ❖ *Construction of a six pump fuel retail station with a steel canopy*
- ❖ *Construction of underground tanks for fuel storage*
- ❖ *Construction of a convenience shop*
- ❖ *Operation of a fully registered service station*

These listed activities form part of the Scope of Works of the EA and are considered in all the phases of the project.

1.6.1. The Environmental Consultant

Conserver Investment cc Environmental consultants have been appointed by *DU Preez petroleum Cc* as independent environmental consultants to conduct the required Environmental Assessment (EA). Hausiku Paulus Mpoko is the Environmental Assessment Practitioner (EAP) who conducted this EA. (see Appendix A for CV).

1.6.2. Approach to EA process

The EA process was executed following the Terms of Reference (ToR) as highlighted by the EMA Act of 2007. The screening phase was done by experienced assessment team. In the case of this study the experts concluded that there is no need for any specialist study. Building trust on the requirements of the *Environmental Management Act (Act 7 of 2007)*, the EA includes three phases, namely:

Phase 1: Screening Phase was initiated in early February 2020 with the main objective to consult with the various affected parties or Ministries/Authorities to establish their concerns and recommendations regarding a strategy for implementation. During the screening process sensitive issues were identified across the proposed project site assessment namely:

- ✓ Overall site investigations (soil type, flora and fauna)
- ✓ Mapping and
- ✓ Identification of key sensitive issues like affected parties, wetlands, cultural heritage and protected ecosystems

Phase 2: Scoping Phase started during the mid-February 2020. A review of baseline information was included for the study including information about the legislative framework, the receiving biophysical and social environment and any other information that could be used to elaborate on or substantiate the current baseline conditions. The main objective of scoping is to identify key issues of concern that should be addressed in the assessment of the Plan and the appropriate level of detail to which they should be considered. The scoping exercise should answer the following questions:

- ✓ What are the relevant significant issues to be addressed by the EA;
- ✓ Evaluation of potential Environmental Concerns and
- ✓ Reduction or mitigation measures for potential impacts/ Environmental concerns through EMP design.

Phase 3: Detailed Assessment Phase requires an in-depth analysis of the impacts related to the moderate to highly sensitive issues. Using the information collected during the scoping report, other literature available of the area of study and after collecting information from key informants, the primary aim will be to perform a detailed EA. A full description of the approach followed for the EA attached in the list of **Appendices**, (ToR).

Stakeholder Consultation will be undertaken during all phases of the project to ensure a focused and effective public consultation process as required by the EMA Act and its regulations. Stakeholder consultations will form the basis of the entire EA process ensuring that all Namibians are informed and have an opportunity to participate in the process.

1.7. Project Desirability

Urbanisation and urban expansion

According to AFDB Report, (2012), "The proportion of the world's urban population is expected to increase to about 57% by 2050 from 47% in 2000. More than 90% of future population growth will be accounted for by the large cities in the developing countries. In the developing world, Africa has experienced the highest urban growth during the last two decades at 3.5% per year and this rate of growth is expected to hold into 2050. Projections also indicate that between year 2010 and 2025, some African cities will account for up to 85% of the total population. In 2010 the share of the African urban population was about 36% and is projected to increase to 50% and 60% by 2030 and 2050 respectively. Surging down to national level, Namibia like any other developing countries, it is becoming increasingly urbanised owing to migration and natural population increase. With current population projections, the Namibia Statistics Agency (NSA) estimates that the country's population will increase from 2.1 million in 2011 to 3.4 million by 2041, representing an increase of 63 percent.

Tapering down to regional level, according to the latest NSA report, the population of the Kavango East Region where Rundu is the regional capital, will increase from 90,596, as indicated by the 2011 census, to 183,000 by 2030, representing an increase of 91,000 people. It is further stated that the number of people living in rural areas is expected to gradually shrink while those living in urban areas are projected to increase sharply by 2041.

The population of Kavango East Region has been growing steadily since the 2001 Census and indicates a population increase and annual growth rates between 2001 and 2011. The annual growth rate for Kavango Region between 2001 and 2011 was 1.0 percent. Furthermore, the annual growth rate for urban areas was 2.5 percent, which is significantly higher than that of rural areas (0.8%). At constituency level, Kavango Urban has recorded the highest growth rate of (2.2%) between the 2001 and 2011 period. The continued increase in the number of people living in urban areas without corresponding infrastructural growth results in demand overstripping the supply of goods and services. In turn, this exerts pressure on the available goods

and services. The continued pressure results in physical, economic, societal and environmental challenges. Overcrowding, housing shortages, water shortages, sewer bursts are some of the physical manifestation of continued pressure on the existing infrastructure should urban expansion is not given a priority.

Globalisation/ increase in automobiles

Globalization and increase in petrol and diesel driven automobiles are major drivers of the development. Globalization pressure from developed to developing countries is also a cause for concern. Continuous flow of import automobiles in Namibia is increasing daily. Hence the need for well-maintained road infrastructure and service stations is essential for development.

Rundu town council is on a position to service its townlands for residential purposes. The newly expanded Sauyemwa suburb, Extension 31 and 32 and newly proposed townships along B10 / Nkurenkuru road and Queens park residential suburbs will be in favour of the proposed project. Absence of a fuel retail station in the North Western part of Rundu urban is most likely to help the vast populace settled within the proposed project's jurisdiction. This then means that it is a great business set up to take over the existing, non-functional Sauyemwa Total fuel retailing

station. Plate 2 below shows the existing non-functional service station within the same locality.



Plate 2: Non-functional Sauyemwa Total filling station

Addressing the Challenges

The existing service station has not been functional for more than three (3) years due to incapacitation. This

has strained the residents to access convenient fuel purchases, wheel attention services, quick

shops among other services to be rendered by the proposed project. Hence, the Need and Desirability of the proposed project.

1.8. Land Ownership

ERF 1278, EXT 4 of the Industrial area was allocated to DU Preez Petroleum Cc, it has a total area of **2757 square meters (m²)** which also has future plans to support the erection of a shopping mall. Table 2 below shows the total allocated land to DU Preez Petroleum cc where the proposed development will be established.

Table 2: Project proponent total allocated land

PORTION IDENTIFICATION NO.	Area (sq. meters)	LOCATION
ERF 1278	2757	EXT 4 Light Industrial Area

1.9 Review of Existing Evidence

The first site visit made on the 5th of February and reviewed the following:

1. A vast cleared and undeveloped land 2757m²with eighteen (18) big trees
2. A 100-meter trench for bulky water connection (75 x 75 cm deep)
3. Convenience shop foundation trench (160 x 100 cm in depth)
4. Six built pillars to delineate the boundary corner pegs

1.10. Project Location Alternative

Alternative 1: Without Project Scenario

Without the project DU Preez Petroleum cc has to look for another business to contribute to the Gross Domestic Product (GDP) of the country. Increase in traffic within the CBD will still cause slow traffic since service stations are only accessible in town at the moment along one major road. Increased illegal storage and retailing of dangerous goods in Sauyemwa formal and

informal settlements, in some other parts where small garages also re trade fuel in twenty-five liter containers will also be the order of the day.

There will be no possibilities of employment creation in the region affecting the economically active group. There will be no development and ERF 1278 EXT 4 Rundu light industrial area will remain under developed.

There is no other alternative site allocated to DU Preez Petroleum cc in the industrial area other than the site under study. More so the development area was correctly chosen since the expansion will be done extending northwards which is favorable for the future development in Rundu town.

Alternative 2: With Project Scenario – establishment of a new fuel retail station on ERF 1278 EXT 4 Rundu light industrial area.

With the project scenario, the development will promote employment creation, increased GDP per capita income with business agglomeration and increased infrastructural development within Rundu urban, Kavango East at large.

2.0. CHAPTER TWO: POLICY, LEGAL AND ADMINISTRATIVE FRAMEWORK

2.1. Introduction

Combined, policy, legal and administrative frameworks, facilitates sustainable development. Mentioned below are acts and policies that have relevance to the establishment of a new service station and its convenient shop. These pieces of legislation include the environmental Management Act of 2007, Environmental Impact Assessment Policy, Water Act and many other Occupational Health, Safety and Environmental Management Statutory instruments and legislations.

The Environmental Management Act 7 of 2007 is the principal defender to the environment aiming to:

Promote the sustainable management of the environment and the use of natural resources by establishing principles for decision making on matters affecting the environment; to establish the Sustainable Development Advisory Council; to provide for the appointment of the Environmental Commissioner and environmental officers; to provide for a process of assessment and control of activities which may have significant effects on the environment; and to provide for incidental matters.

The fruits of sustainable development are conducted by a comprehensive statutory framework which was used in this section. All the relevant legal instruments and prescribed procedures have been acknowledged.

2.2.1 Environmental Impact Assessment Regulations and Listed activities in terms of the Act No.7 of 2007.

2008	South Africa National Standard		x							x		x	
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Relevant provisions

Section 56 of the Environmental Management Act, 2007 (Act No.7 of 2007), the Minister has made the protocols for Environmental Impact Assessment as set out in the Schedule of Government Notice No. 30 (2012). These protocols necessitate that all developments/projects that have a detrimental effect on the environment must be accompanied by an EIA Under section 27 of the Environmental Management Act, 2007 (Act No. 7 of 2007), and after following the consultative process referred to in section 44 of that Act, the Minister lists in the Annexure to the above-mentioned Schedule, activities that may not be undertaken without an environmental clearance certificate. In both the Environmental Management Act and its guidelines, all activities that may not be undertaken without an environmental clearance are listed. The proposed project entails the following listed activities:

- ✓ *land use transformation, any activity entailing a scheduled process referred to in the Atmospheric Pollution Prevention Ordinance, 1976,*
- ✓ *the manufacturing, storage, handling or processing of Hazardous Substance (HS) defined in the HS Ordinance 1974, the storage and handling of a dangerous good including petrol, diesel, liquid petroleum gas or paraffin, in containers with a combined capacity of more than 30 cubic meters at one location and*
- ✓ *construction of filling stations or any other facility for the underground and above ground storage of dangerous goods, including petrol, diesel, liquid, petroleum, gas or paraffin.*

These regulations are very important in the implementation of the Project because this project fall under prescribed projects that has to have an Environmental Impact Assessment undertaken before the project is given a green light for implementation. This Act and its regulations should enlighten and guide this EIA process. Cost and benefits analysis of the project are weighed systematically to find suitability of the project in terms of economic, social and bio-physical environmental.

These regulations also make it possible that both negative and positive environmental impacts are identified and weighed in their significance and relentlessness to determine whether the project will be given a permission to be carried out. This is attained through the appointment of a qualified and experienced EAP whom the project proponent chooses to do the preliminary Environmental Assessment and compilation of scoping report submitted accordance to the regulations. It mandates the Assessment process to be done in accordance with the EMA Act and its regulations.

In short this policy makes all other polices, legal and administrative framework to be considered before the project can be allowed to be implemented. The Environmental Impact Assessment (EIA) regulatory framework was published on the 18th of January 2012.

Relevance to the project

This Act and its regulations should enlighten and guide this EIA process.

2.2.2. Environmental Management Act (2007)

This act is the most powerful in the country when it comes to environmental management. Environmental Management Act supersedes all other environmental laws. The act was enacted to supervise, monitor, audit, control and govern the entire environment sector as well as to disseminate environmental awareness to the public. The Act is set, (To promote the sustainable management of the environment and the use of natural resources by establishing principles for decision making on matters affecting the environment; to establish the Sustainable Development Advisory Council; to provide for the appointment of the Environmental Commissioner and environmental officers; to provide for a process of assessment and control of activities which may have significant effects on the environment; and to provide for incidental matters)

PART II of the ACT provides the Principles of environmental management

1. Principles of environmental management:

- (a) Renewable resources must be used on a sustainable basis for the benefit of present and future generations;
- (b) Community involvement in natural resources management and the sharing of benefits arising from the use of the resources must be promoted and facilitated;
- (c) The participation of all interested and affected parties must be promoted and decisions must take into account the interest, needs and values of interested and affected parties;
- (d) Equitable access to environmental resources must be promoted and the functional integrity of ecological systems must be taken into account to ensure the sustainability of the systems and to prevent harmful effects;
- (e) Assessments must be undertaken for activities which may have significant effects on the environment or the use of natural resources;
- (f) Sustainable development must be promoted in all aspects relating to the environment;
- (g) Namibia's cultural and natural heritage including, its biological diversity, must be protected and respected for the benefit of present and future generations;
- (h) The option that provides the most benefit or causes the least damage to the environment as a whole, at a cost acceptable to society, in the long term as well as in the short term must be adopted to reduce the generation of waste and polluting substances at source;
- (i) The reduction, re-use and recycling of waste must be promoted;
- (j) A person who causes damage to the environment must pay the costs associated with rehabilitation of damage to the environment and to human health caused by pollution, including costs for measures as are reasonably required to be implemented to prevent further environmental damage;
- (k) Where there is sufficient evidence which establishes that there are threats of serious or irreversible damage to the environment, lack of full scientific certainty may not be used as a reason for postponing cost-effective measures to prevent environmental degradation; and

(l) Damage to the environment must be prevented and activities which cause such damage must be reduced, limited or controlled.

PART VII of the Act section 27: Projects for which environmental impact assessment required

The proposed development falls under listed activities and prohibition in respect of listed activities mentioned in Subsection 2 of the ACT. The following may include activities in respect of the proposed development of a new service station and its convenience services:

Relevance to the proposed project

In relation to the proposed project development This Act and its regulations will be observed as a guide this EIA process.

2.2.3. Climatic Change Polices: National Climate Change Strategy & Action Plan 2013 – 2020

The climate change action plan which identifies Climatic Change as a critical threat to sustainable development. Therefore, it must be addressed in a holistic and multisector manner.

Relevance to the project

There are several activities to be done as a result of project development. In respect to the Climate Change strategy, appropriate measures to combat climate change have been implemented from the initial stages of project designing.

(a). Deforestation

The project activities will try by all means not to cut down existing eighteen tree species on the ERF 1278 and around the project site. Awareness was already done to the contractor on the proposed site. Basing on the conclusion drawn during the site visit, the EIA team observed that inevitable targeted trees will be replaced as soon as possible.

(b). Making use of green fuels

The proposed project will strive to retail green fuels with less carbon being emitted in the atmosphere.

(c). Emissions of Green House Gases (GHGs)

There are four main types of forcing greenhouse gases: carbon dioxide, methane, nitrous oxide and fluorinated gases. The main feedback greenhouse gas is water vapor. The general physical layout of the proposed project minimizes all possible activities contributing to global GHGs emissions in either way.

2.2.4. United Nations Framework Convention on Climate Change

Relevant provisions

It is also vital to note that there are international conventions which aim to protect the environment. Namibia is a signatory to some of the conventions for example the 1992 United Nations Framework Convention on Climate Change (UNFCCC). The UNFCCC was adopted to regulate levels of greenhouse gas concentration in the atmosphere, so as to avoid the occurrence of climate change on a level that would impede sustainable economic development, or compromise initiatives in food production. The Parties are to protect the climate system for present and future generations. The developed country Parties (and International Environmental Law from a Namibian Perspective 54 other Parties listed in annex I) commit themselves to take special measures to limit their anthropogenic emissions of greenhouse gases (GHGs), and to enhance the capacity of their sinks and reservoirs for the stabilization of such gases.

Relevance to the proposed project

All anthropogenic emissions of GHGs to be used during all phases will be strictly very limited.

2.2.5. National Heritage Act 27 of 2004

Relevant provisions

Section 48(1) states that "A person may apply to the Namibian Heritage Council (NHC) for a permit to practice any activities which might directly or indirectly disturb protected areas or National heritage

Relevance to the proposed project

In respect to the proposed project development site, there are no National Heritage values on the project area and its nearby environs.

2.2.6. Soil Conservation Act 76 of 1969

Relevant provisions

The soil Conservation Act makes provision for the prevention of soil erosion. It promotes the protection and up keeping the soil structure and vegetation and all natural resources in the soil of the Republic of Namibia

Relevance to the proposed project

Tar and concrete paving would be done to avoid further disturbance. However, the landscaping will be done to make sure the drained water will join other municipal designed waterways. Reforestation, planting of lawns and flowers will also conserve the soil structure if done on open spaces.

2.2.7. Water Act 54 of 1956

Relevant provisions

Certification in terms of Sections 21(1) and 21(2) of the Water Act is required for the disposal of industrial or domestic wastewater and effluent. Prohibits the pollution of underground and surface water bodies (S23) (1) and Accountability for costs to be met in remedying the environment as soon as project abandonment (S23) (2).

Relevance to the proposed project

The protection of ground and surface water resources should guide the project construction phase. No Hazardous substances should be disposed in any case for example spillages.

2.2.8. Labor Act (No 11 of 2007) in concurrence with Regulation 156, 'Regulations Relating to the Health and Safety of Employees at a working place'.

Relevant provisions:

The section 135 (f) of the Ministry of Labor and social Welfare specifies that "the steps to be taken by the owners of premises used or intended for use as factories or places where machinery is used, or by occupiers of such premises or by users of machinery about the structure of such buildings of otherwise to prevent or extinguish fires, and to ensure the safety in the event of fire, of persons in such building.

This act emphasizes and regulates basic terms and conditions of employment, it guarantees prospective health, safety and welfare of employees and protects employees from unfair labor practices.

Relevance to the proposed project

The project will offer a number of jobs to both semi-skilled and skilled locals and it will be the proponent or the contracted company's responsibility to ensure that the workplace is safe from Hazards. Occupational Safety and health practitioners should be hired to provide adequate safety and health trainings to key personnel. This will comprise put on suitable hazard management plans.

2.2.9. Public Health Act, 36 Of 1919

The Public Health Act makes provision for the control of activities and situations that have potential to affect public health. It establishes powers of health officials, local authorities and has several regulations made subservient to it, including the following regulation below. Part 4 of the Public Health Act (section 82) states that no person shall cause a nuisance or other condition liable to be injurious or dangerous to health. It shall be the duty of the general manager the local authorities, workers to make sure the place is kept tidy and clean and prevent nuisance. If satisfied of the existence of a nuisance the local authority shall serve a notice on the author of the nuisance to remove it within the time specified. If the author of a nuisance fails to comply

with any of the requirements thereof within the specified time the court may by such order impose a fine on the person as per the provisions of subsection (3) of section 87.

Relevance to the project:

All waste generated subsequently from every operation of the project shall be disposed safely and no activities that can cause nuisance to be tolerated on site. The owner should engage into reducing recycling and reusing activities which promotes a prolonged life cycle of PET packaging, reusing of metal containers and other cordial technologies of the environment to be engaged. All waste to be collected in accordance to town council waste collection procedures and disposed at the municipal dumping sites.

2.2.10. Pollution and Waste Management Bill (draft)

Relevant provisions

The draft of Pollution and waste management bill clearly defines different types of pollution. It also notifies on how the Government intends to control different types of pollution to uphold a clean and safe environment for all.

The bill expresses the mandatory for everyone to comply with waste management to reduce pollution in any form. The failure to comply with the obligatory is considered as an offense which is punishable.

Relevance to the proposed project

The operations of the project should be done in accord with the pollution and waste management bill to reduce all types of pollution within the vicinity of the project site during construction and operation phases. Existence of a fenced dumpsite will ensure adequate solid waste management if correctly used.

During operation phase of the proposed development activities, the municipality will be entitled to under taking refuse collections and provisions for solid waste receptacles to be put in place.

2.2.11. Waste Management Regulations: Local Authorities ACT (1992)

Relevant provisions

Waste Management Regulation: Local Authorities of 1992 provides guidelines on waste management, it mandates the occupier of properties must provide a secure, hygienic, adequate and readily accessible waste storage place or area on the premises.

Relevance to the project

The waste management on site will be executed in an environmentally sound manner through the use of a registered existing dumping area. All solid waste generated during construction and operational phase will be handled and disposed using recommended skip plastic bins, bin liners and to make sure right procedural disposing methods. Alternatively, a sustainable approach can be done, refer to the list of **Appendices** (EMP) for recommendations.

2.2.12. The Namibian Constitution Act, (1990)

Relevant provisions

The Constitution of Namibia encourages wise and sustainable use of resources. According to Article 95 of Namibia's Constitution it states that, the State shall actively promote and maintain the welfare of the people by adopting policies aimed at the maintenance of ecosystems, essential ecological processes and biological diversity of Namibia and utilization of living natural resources in a sustainable way for the benefit of all Namibians, both present and future. This article recommends that a relatively high level of environmental protection is called for in respect of pollution control and waste management.

Relevance to the proposed project:

The project will enable the full execution of right to practice any profession, or carry on any occupation, trade or business by availing necessary provisions such as practicing any profession, or carry on any occupation, trade or business in the country.

Through implementation of the environmental management plan will ensure conformity to the constitution in terms of environmental management and sustainability.

2.2.13. Petroleum products and energy Act of Namibia (ACT NO. 13 of 1990)

The act describes the accountability of operators in the field of petroleum assessment and exploitation for health, safety and welfare of persons employed, and for protection of other persons, property, the environment and natural resources, in or in respect of any area where petroleum activities are carried out. **Part XII** contains provisions relating to emergency preparedness. Each operator shall prepare an emergency preparedness plan.

Furthermore, the Petroleum Laws Amendment Act 1998 sets out provisions regulating the decommissioning of facilities used in petroleum exploration and production operations in Namibia. These provisions, inter alia, provide that the holder of a production license is under an obligation to establish a trust fund after 50% of the estimated recoverable reserves of the relevant production area has been produced.

Relevance to the project:

The proposed project will in all phases observe the safety and health of workers, visitors and nearby communities. Emergency preparedness will be mandatory during the operating phase whereby the transportation, offloading and storage of hazardous and highly flammable substances. Sand buckets, fire extinguishers, fire training workshops, clearly labeled stickers and a shade will be set to ensure efficient hazard preparedness. During the decommissioning phase the owner of the property should make sure all the procedures are done to meet all aspects addressed in the Petroleum products and energy Act of Namibia (ACT NO. 13 of 1990)

2.2.14 Hazardous Substances Ordinance No. 14 Of 1974

The Ordinance applies to the manufacture, sale, use, disposal and dumping of hazardous substances, as well as their import and export and is administered by the Minister of Health and Social Welfare. Its primary purpose is to prevent hazardous substances from causing injury, ill-health or the death of human beings.

Relevance to the project:

The project will also engage the sale and storage of Hazardous substances i.e. petrol, diesel, oil, paraffin and Afrox gas. The transportation, storage and sale will be done using certified recommended cylinders and containers.

2.3. Conclusion

These pieces of regulations should be observed throughout the project's life cycle. Any deviations from these policies, regulations and administrative frameworks may have catastrophic results to the environment (including man power) and the working environment. These laws bring about rational work ethics that support the protection of the environment. Strict monitoring by relevant authorities will bring about sound environmental practices. DU Preez Petroleum Cc shall enforce these regulations on its area of jurisdiction and constant monitoring will be done in form of inspections and audits.

3.0. CHAPTER THREE: CURRENT ENVIRONMENTAL AND SOCIAL SETUP

3.1. Introduction

This Section provides the most important environmental characteristics of the study area and provides a statement on the potential environmental impacts. The entire Region is part of the broad leafed Tree & Shrub Savannah Biome of medium plant diversity. The conclusion in this chapter are grounded on baseline surveys, public consultation and desk reviews undertaken by the EIA team. The findings relate mainly to aspects of ecology, ambient air, soil, water and noise levels for the entire operation. Correspondingly, the economic and social environment was considered for this study. This Chapter outlines relevant environmental and social setup which was instrumental to compile this report from desktop researches, local authorities consultations and own observations.

3.2. Socio economic status

The socio-economic status in Rundu and the entire Kavango East region where the proposed project site is situated is characterized by Agro Marketing and Tourism industry. Large numbers of tourists are recorded to visit Rundu and its neighboring tourist's attraction areas. Rundu is a hometown to many woodcarvers and has a market near the open market place. Several local restaurants serve traditional food, including mahangu, ground nuts, stewed meats, and fish from the Okavango River. It is also a transport networking village town from Angola, Botswana and Zambia and apart from that it is also a Kavango East regional administrative capital.

Rundu is growing rapidly. The 2001 census counted 36,964 inhabitants, and for the 2011 census it has climbed to 63,430. There are five tertiary Institutions and six secondary schools in the town.

3.2.1. Socio-Economic Benefits of the project

With the increasing number of automobiles in the country as well as globally, increasing unemployment rates, increasing figures of rural to urban migration, the project is of a vital role in the neighborhood as well as for the country. The proposed project has the potential to

generate a number of employment opportunities directly and indirectly during and after the construction phase.

More so, land development is the source of livelihood (directors and employees) of the owner(s) and partners hence such honest sources of livelihood should be encouraged and supported.

3.3. Climate

Rundu has a hot semi-arid climate (Köppen: *BSh*), with hot summers and relatively mild winters (with warm days and chilly to cool nights). Even though it has a hot semi-arid climate, the area experiences high diurnal temperature variation during the winter with average high temperatures at roughly 26° C (79° F) and average low temperatures at 6° C (43° F). This large swing in daily temperature is more commonplace among areas with cold semi-arid climates. During the summer, the diurnal temperature variation is less pronounced. The average annual precipitation is 571 mm (22 in).

3.4. Biological Environment

Fauna and Flora

ERF 1278 is characterized by little grasses and eighteen big trees. Plate 3 below shows the outlook of flora on site.

Plate 3: Vegetation on site.



Vegetation type of any area is influenced by both soil type and the climate conditions of the area. The Kavango region is home to a more diverse community of plants and animals than most other areas in Namibia. Most of the diversity in the Kavango region is linked to the variety of habitats along and near the Okavango River. The plant and

wildlife especially within the conservancies or parks along the Okavango is very abundant. ERF 1278 supports less grass and eighteen (18) established trees namely, (in their local names) **Ugongo, Musu, Mupupu, Mugoro, Mupanda** and **Karanda mbuwo**. There are two (2) developed trees and little invasive flowers (flora) species to be affected by the proposed project development. There was no grass observed on the project site since the proponent was frequently maintaining the area due to an invasive flower species which were in abundance.

3.5. Topography

The planning area is relatively flat and lies at about 1,095 meters above the sea level. Rundu town is relatively close to the Okavango River. There are no significant hills and the area is relatively flat making it easy and cost effective for development.

3.6. Geology and Soils

The surrounding soils are light grey and brown, sandy loamy supporting less vegetation. The proposed project site is located in an urban set up under the local authorities of Rundu Municipality. Flora and Fauna is limited due to land clearance towards urbanization project. Plate 4 overleaf shows the proposed project site soil type.

Soils in Kavango Region are completely dominated by sand, especially fine wind-blown sands deposited as a mantle across the region during much drier time's long ago. The loose sands also known as the Kalahari sand are usually as deep as one (1) meter. Apart from the sand, which generally makes up than 70% of the body of the soil, the Kavango region also consists of less than 10% of the soil consists of clay and silt. The sand texture allows for water to drain away rapidly, leaving very little moisture at depths to which most plant roots can reach. The porous sand also holds very few nutrients, and the loose structure of sand also holds very few nutrients,



and the loose structure of the sand means there is very little run-off and soil erosion.

Plate 4: Soil type on the project site

3.7. Hydrology (surface and ground water)

The soil around the site carries underground porous aquifers which are source underground water.

3.8. Services and Infrastructure

Rundu has the following services: Potable water and water reticulation system, water borne sanitation as well as electricity. These bulk services will be extended from the existing municipal network to newly proposed project development area.

3.8.1 Infrastructure

All structures to be established in accordance to the architectural designs and municipality regulated structures. Monitoring and supervision will be done frequently to ensure quality controlling.

3.8.2 Roads

The proposed project site is connected to the existing road and street network. There four main nearby roads form an intersection of a four-way junction with the Independence street upgraded to bitumen and the other unnamed road still having gravel.

3.8.3 Water

The proposed project will be connected to the existing bulk water service network of the Council. A site visit witnessed that the connection was already in the process to bring water to the proposed project site. Plate 5 below is the picture taken during the field work.



Plate 5: Portable water connection made to the existing bulk water services

3.8.4 Sewerage

Currently the existing developed Everts in the Industrial area are

using septic tanks and some are connected to the main sewer line for the municipality.

3.8.5. Solid Waste Management System

An existing dumpsite will service the proposed development in all phases. The existing dumping site is located to the western part of the proposed project site approximately *six (6)* kilo meters (km) from the proposed site. The dumpsite is well fenced, presence of waste sorting workers was witnessed and a waste compactor. Rundu Town council has a dedicated team which strive to maintain the standards of solid waste status within the council's area of jurisdiction.

4.0. CHAPTER FOUR: PUBLIC AND STAKEHOLDERS CONSULTATIONS

4.1. Introduction

This chapter gives a brief summary of the interested, affected and stakeholders reached by the EIA team. A background Information document and the layout plans were made accessible upon request.

4.2. Public Participation for EIA

The public participation process was undertaken in accordance with the requirements of the Environmental Management Act of 2007 and its guidelines. The process is mandatory and it is very important as it serves various purposes. It helps in sustainable project implementation and decision making processes giving equitable contributions towards project design.

4.3. Notification of Public and Stakeholders

The involvement of the public was done prior to the fulfillment of the EMAct and the comments were recorded electronically and manually.

4.3.1. Background Information Document

A background Information Document (BID) for the proposed developments was made available during the public consultations. It was distributed upon request by interested parties. Refer to the list of Appendices, BID designed for the proposed project and was made available to interested and affected parties.

4.3.2. Newspaper adverts

Notification of interested and affected parties was done through the newspapers twice in the New Era and the Southern Times. This was done prior to the fulfillment of the EMAct. Public notices were placed on the weekly newspapers dated 7th to 13th and 14th to 20th of February 2020.

4.3.3. Site and Public notices

Site notices were placed all around the project site, neighboring notice boards and some public places calling interested and affected members to attend a public meeting which was scheduled



on the 21st of February 2020. Plate 6 below shows one of the public notices placed on a public place in town

Plate 6: Public notice placed on one of the busiest mall in town

4.4. Public meeting

A public meeting which was scheduled to be hosted on site on the 21st of February 2020 was not attended by any stakeholder except the project proponent, the EIA team and employment seekers.

4.5. Public and Stakeholders comments

Some of the concerns which were communicated through telephone calls and interviews conducted during a random sampled questionnaire distribution to the neighboring residents includes employment, solid waste, and land degradation issues. Their concerns were recorded and all encompassed in the EMP accompanying this Environmental Assessment scoping report. The assessment team extended the deadline for the submission of comments till the 1st of March 2020.

4.6. Conclusion

The public and stakeholder consultations were done in respect to the EIA Act and the outcomes gave a green light for the project implementation that is if the EMP designed by Conserver Investment cc is instrumental.

5.0. CHAPTER FIVE: ENVIRONMENTAL AND SOCIO-ECONOMIC IMPACTS ASSOCIATED WITH THE PROPOSED PROJECT IMPLEMENTATION

5.1. Introduction

The **key environmental and socio-economic issues** associated and identified with the establishment of a new fuel retail station on ERF 1278, EXT 4 Rundu industrial area. The screened issues embraces air pollution (Noise, dust and Vibration), landscape and Visual changes (Soils, Geology, soil erosion), ecology disturbance (Introduction of alien or exotic species, flora), water quality issues (increased surface runoff and reduced infiltration), socio economic and human geography (employment creation, traffic increase), increased solid waste generation (general waste), urbanization (Culture dilution, population increase, illicit dealings), occupational safety, health and the Environmental related issues (for construction and everyday service station workers).

5.2. Impact Assessment Methodologies

To identify probable impacts this EIA study used different methodologies which include but not limited to:

- ❖ Desktop studies involving comparative analysis of similar projects within and around Namibia;
- ❖ Geographic Information Systems (GIS) and remote sensed data;
- ❖ Checklists and approved standards and relevant legislature;
- ❖ Desk reviews of secondary sources to determine specialized biodiversity or habitat suitability models;
- ❖ Networking and with stakeholder consultation methodologies including questioners, semi-public meetings and interviews with different stakeholders;
- ❖ Matrices done through scientific analysis and field observations;
- ❖ Briefing and Overlays consultation and Workshops and
- ❖ Other computer aided methods.

5.2.1. Checklists

Because of their advantage of simplicity, the assessment team used checklist approach. They bring structure to gathering and classifying information, to identifying potential environmental impacts, and to thinking about possible mitigation options. They also help in reaching tentative conclusions on the extent of environmental impact. It is important to note that, no matter what the structure of checklists, a variety of sources can be used to develop them; local individuals, experts, and other concerned parties.

Checklists are widely used in EIA processes to guide decision-making, especially during the pre-feasibility and planning phases of the project lifecycle, when it is most critical to anticipate adverse impacts and to include mitigating measures in projects. Checklists are designed:

- ❖ To help **identify significant negative impacts** by providing the right questions to ask regarding the various project activities and the respective environmental components that may be affected. Checklists can be used to determine environmental impact thresholds, thus indicating whether a full-scale EIA is needed for a particular project;
- ❖ To provide a **systematic approach** to the environmental screening of development projects. A checklist forces the assessment to consider a standardized set of activities or effects for each proposed action, thus bringing uniformity to the assessment process;
- ❖ To indicate **how and why certain project activities have environmental impacts** which will allow planners to transfer those principles to the screening of projects not specifically addressed by the checklists;
- ❖ To assist in **identifying appropriate mitigation measures** to be incorporated into the project design; and,
- ❖ To **increase environmental awareness and understanding** of the relationship between environmentally sound practices and sustainable development.

Checklists provide variety of methods varying in complexity and characteristics and all share the common basis of an index of environmental factors or development activities as follows:

- ❖ Simple checklists
- ❖ Descriptive checklists
- ❖ Questionnaire checklists
- ❖ Weighting-scaling checklists

Advantages of Simple Checklists

- ✓ Used as 'aide memoir' to identify impacts
- ✓ Can provide structure to initial part of scoping stage
- ✓ Used as 'aide memoir' to identify impacts
- ✓ Can provide structure to initial part of scoping stage

Limitations when using Simple Checklists

Provide assessor with a list of factors to be considered, but no information provided on:

- ✓ Specific data needs
- ✓ Methods of assessing importance of impacts
- ✓ Ways of measuring change to environmental factors

Table 4 overleaf showing Impact screening criteria during the construction and operation phases of the proposed project obtained as *simple* as well as *weighting-scaling checklists*.

Table 4: Impact Screening Criteria

Aspect	Description
Nature	Reviews the type of effect that the proposed activity will have on the relevant component of the environment and includes "what will be affected and how?"
Extent	Geographic area coverage indicating whether the impact will be within a limited area (on site where construction is to take place); local (limited to within 15km of the area); regional (limited to ~100km radius); national (extending beyond Namibia's borders).
Duration	Whether the impact will be temporary (during construction only), short term (1-5 years), medium term (5-10 years), long term (longer than 10 years, but will cease after operation) or permanent.
Intensity	Establishes whether the magnitude of the impact is destructive or innocuous and whether it exceeds set standards, and is described as none (no impact); low (where natural/ social environmental functions and processes are negligibly affected); medium (where the environment continues to function but in a noticeably modified manner); or high (where environmental functions and processes are altered such that they temporarily or permanently cease and/or exceed legal standards/requirements).
Probability	Considers the likelihood of the impact occurring and is described as uncertain, improbable (low likelihood), probable (distinct possibility), highly probable (most likely) or definite (impact will occur regardless of prevention measures).
Significance	Significance is given before and after mitigation. Low if the impact will not have an influence on the decision or require to be significantly accommodated in the project design, Medium if the impact could have an influence on the environment which will require modification of the project design or alternative mitigation (the route can be used, but with deviations or mitigation) High where it could have a "no-go" implication regardless of any possible mitigation (an alternative route should be used).
Status of the impact	A statement of whether the impact is positive (a benefit), negative (a cost), or neutral. Indicate in each case who is likely to benefit and who is likely to bear the costs of each impact.

FINAL REPORT: Released: March 2020

***Report compiled
by: CONSERVER INVESTMENT CC***

Table 5: Anticipated Bio-Physical Impacts

Variable	Nature of likely impact									
	Adverse						Beneficial			
	ST	LT	R	IR	L	W	ST	LT	N	
Air pollution (Noise, dust and Vibration)	X		X		X					
Landscape and Visual changes (Soils, Geology, soil erosion)		X		X	X					
Ecology disturbance (Introduction of alien or exotic species)		X	X		X					
Increased surface runoff		X	X			X				
Employment creation (permanent and short contracts)								X		
Traffic increase								X		
Solid waste generation (construction debris, general waste)		X	X		X					
Urban expansion (infrastructural development)								X		
Illicit activities (drugs, prostitution, corruption)		X	X		X					
Occupational Health, safety and Environmental hazards		X	X							
Hazardous substances spillages		X	X							
Fire Risks		X	X		X					
KEY: ST- Short Term LT- Long Term R- Reversible IR- Irreversible L- Local W- Wide N- Neutral										

The Impact rating criteria used to analyze the extent of anticipated impacts during the project life cycle uses Low to High rating. Where the extent can be neutralized the rating moderate is applicable. Table 6 below has detailed impact rating criteria.

Table 6: Impact Rating Criteria

Significance Rating	Criteria
LOW	Where the impact will have a negligible influence on the environment and no modifications or mitigations are necessary for the given development description. This would be allocated to impacts of any severity/magnitude, if at a local scale/ extent and of temporary duration/time.
MODERATE	Where the impact could have an influence on the environment, which will require modification of the development design and/or alternative mitigation. This would be allocated to impacts of moderate severity/magnitude, locally to regionally, and in the short term.
HIGH	Where the impact could have a significant influence on the environment and, in the event of a negative impact the activity(ies) causing it, should not be permitted (i.e. there could be a 'no-go' implication for the development, regardless of any possible mitigation). This would be allocated to impacts of high magnitude, locally for longer than a month, and/or of high magnitude regionally and beyond.

5.3. Construction Phase

The construction phase is the most critical component of project implementation, which is associated with several impacts. The construction will result in the establishment of a fuel retail station, a truck port and this will encompass very limited excavations since the site is having an existing gully which the storage tanks can be set in the pit. There will also be installation and construction of

supporting structures among others. This phase will take approximately two to three months. Impacts associated with the Construction

phase identified by this study include noise pollution, vibration, ecology disturbance, dust generation and, debris accumulation, visual changes, safety and health risks as well as employment creation.

Table 6: Impacts are associated with the Construction phase

Environmental Impact	Description	Effects	Class	Type	Likelihood	Extent	Action
Employment creation	The construction exercise provides an opportunity of outsourcing work at DU Preez Petroleum cc	Improves disposable income to those employed in the exercise	Socio-Economic	Positive	Most likely	Local	Provide a press statement detailing how many extra workers will be employed by the exercise.
Safety and Health Risks	Construction can be associated with falling objects among other work place hazards.	Injuries to workers	Health and Safety	Negative	Likely	Moderate	-Equip workers with adequate personal protective equipment (PPE)
Noise Pollution	Noise will be generated as part of the construction of structures	The health of working personnel could be disturbed. General annoyance	Environmental	Negative	Most Likely	Moderate	-A Construction Interval will be established, used and adhered to. -Adequate PPE to workers. Public notices on blasting periods. Well serviced machinery

Environmental Impact	Description	Effects	Class	Type	Likelihood	Extent	Action
Vibration	The construction activities will include the use of compactors, jack hammers and earth moving machinery	Can cause irritation to coworkers, neighbors and visitors	Environmental	Negative	Likely	Low	<ul style="list-style-type: none"> - Use of well-maintained machinery. - Use of noise generating machinery for less hours and avoid working during the night
Dust Generation	Dust will accumulate as a result of the land preparation.	<ul style="list-style-type: none"> - Can lead to respiratory illnesses especially to those working in the plant. - General air pollution. 	Environmental	Negative	Most likely	Moderate	<ul style="list-style-type: none"> - install dust fallout gauges on and immediately off site to monitor the quality and quantity of dust generated. - Water down and possible dust sources surfaces. - Dust suppression methods
Landscapes and visual changes	Construction activities will lead to excavations, modification of the natural beauty, of the area, with the introduction to new objects/ structures	<ul style="list-style-type: none"> -Loss of aesthetic beauty -excavations may lead to dangerously left open trenches 	Environmental	Negative	Most likely	Low	Use of site construction notices, reflectors at night and use of commonly used plans and materials
Ecology Disturbance	Construction can disturb microorganisms and existing flora	Ecology disturbance leads to modification of natural ecosystem balance	Environmental	Negative	Most Likely	Moderate	-Avoiding spillages of oil, cement, petrol and all potentially harmful materials around the site.

5.4. Operation Phase

The operational phase is the most critical component of project implementation and it is normally associated with several severe impacts. The phase will comprise the plastic/ general waste generation and disposal, offloading, storage of petrol, diesel, paraffin and Afrox gas for resale. This phase is expected to last for a lifetime and will comprise several impacts that will occur on a daily or other sequential routine. The phase forms the basis of an Environmental Management Plan that is detailed in the list of Appendices/ Appendix (i). The major impacts identified by this study for the operational phase are as detailed in Table 7 overleaf and they include the discharge of effluent, accidental spillages, safety and health issues, employment creation, surface compaction/ paving and increased surface runoff, increased traffic flow, illicit dealings and loss of aesthetic landscape value. It is important to note that these impacts can be identified as a result of the operational phase of the Fuel retail station itself.

Table 7: Impacts are associated with the Operational phase

Environmental Impact	Description	Effects	Class	Type	Likelihood	Extent	Action
Discharge of effluent	The operational phase will generate sewage waste on daily basis and it needs proper discharging	Can cause non-point source pollution, health hazards if improperly discharged	Environmental	Negative	Most Likely	Moderate	- Waste water/ effluent to be dispose correctly into the municipal sewage drainage system/ septic tanks
Accidental spillages of hazardous substances (fuel, oil)	Spillages can occur during delivery, storage and refilling processes.	- The spillages of a flammable liquid can lead to fire hazards and these hazardous substances can cause non-point source of pollution into the water bodies	Environmental	Negative	Most likely	Moderate	-Install lined underground storage tanks, steel canopy, inflammable building materials, use of product safety data sheets -Training education and awareness on spillage clean up and reduction. - use of sand buckets in case of fires.
Employment creation	The operation phase brings employment opportunities to the locals as fuel attendants, shop attendants, securities, accountants	The operation phase will improve the living standards of economically active group by providing employment	Socio economic	Positive	Most Likely	Local	-The project proponent should consider hiring local service providers, residents and indigenous companies to improve the social well-being of Rundu and Kavango East residents -Disabled and women should be given first priority.

Environm ental Impact	Description	Effects	Class	Type	Likeli hood	Extent	Action
Solid waste generation	Day to day running of the proposed business will generate plastic waste, cardboard and general waste	Improperly disposed waste will cause an eyesore to the people, affect pets, land pollution and non-point source of pollution.	Environmental	Negative	Most Likely	Moderate	-Recycling reuse and reduce waste.-Education and awareness.-Use of sound waste management strategies.-Make use of the municipal solid waste collection schedules
Urban expansion/ development	The physical expansion of the urban services and infrastructure will be enhanced	The operational phase will provide convenience to automobiles and a quick shop	Socio Economic	Positive	Most likely	Local	The proposed project must cater for modern services like 24 hour services, ATMs, breakdown services and enough parking space
Increase GDP per capita income for the country	The project operation phase will subscribe to inland revenue	The economy will be enhanced through tax collection	Socio Economic	Positive	Most Likely	Wide	The proposed business should be faithful in paying tax

Visual changes	The proposed project will affect the visual outlook especially during the night	Bright light theory will be promoted and the physical appearance will be modified.	Environmental	Negative	Most Likely	Moderate	The use of locally acceptable lighting system, friendly colors when painting
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Environmental Impact	Description	Effects	Class	Type	Likelihood	Extent	Action
Traffic inflow Increase	The vehicular movement on and around the project site will be increased during the project operational phase	Accidents, noise, over crowdedness	Environmental	Negative	Most Likely	Moderate	Use of road signs, signals, speed humps. Traffic law enforcing for example No parking where it's inappropriate/ safe to park
Increased surface runoff	Paved surfaces will increase surface runoff and reduce infiltration rates.	Increased surface runoff might cause flooding, reduced infiltration rate.	Environmental	Negative	Most Likely	Moderate	Connect the surface water drainage system to the municipal or expect engineered water ways

<p>Illicit dealings</p>	<p>Drug dealing, stealing, prostitution, illegal hiking of transport, street vending</p>	<p>Health and social wellbeing deterioration, life risky activities</p>	<p>Socio-Economic</p>	<p>Negative</p>	<p>Likely</p>	<p>Moderate</p>	<p>24 Hour security features like CCTV cameras, security on duty, use of vendors demarcated places. Strick management and police engagement</p>
<p>Occupational Safety and Health</p>	<p>Oil, Afrox gas Petrol and diesel are corrosive and harmful to human bodies, Fire hazards</p>	<p>Occupational or on duty injuries can cause sicknesses or fatal.</p>	<p>Environmental</p>	<p>Negative</p>	<p>Likely</p>	<p>Moderate</p>	<p>Education, awareness, training on fire fighting and use of adequate PPE on duty.</p>

5.5. Decommissioning Phase

The decommissioning phase of the service station project is difficult to visualize at this point in time. However, impacts associated with this phase will be similar to that of the construction phase. The possibility of noise happening during this stage is high as bulldozers will be used to remove the structures. Dust might also be generated during the destructions. Moreover, during the decommissioning phase, precaution must be greatly taken to avoid employees from being injured. Waste generated should also be disposed at an approved building waste dumping site and not dumped in the surrounding areas. Furthermore, the site should be rehabilitated (planting of grass and trees on the site). An Environmental Impact Assessment should also be made.

5.6. Risk Analysis

Based on the impacts identified by this study as from site visit, process analysis, desk study and stakeholder consultations conducted, an integrated (environmental) risk analysis was carried using a Sustainable Project Implementation approach, as well as the international Procedures. The risk analysis showed generally life over the entire lifespan of the whole project, the public and the workers are at a very low risk to the impact and hazards associated with the project is compliance with the EMP is observed. However, compliance inspections should be always done to guarantee the protection of the environment.

6.0. CHAPTER 6: CONCLUSION AND RECOMMENDATIONS

6.1 Conclusion

The proposed establishment of a new service station will result in land use change. The operation of the proposed project should be done in accordance with sound environmental sustainable technologies and methods, constant monitoring should be carried to ensure the operations are done in a sustainable and environmental friendly manner. The project implementation is a good initiative to the economy and the society but research has revealed that land use changes if improperly accomplished it will damage the environment in a way that can be detrimental to the survival of humans and animals in the locality.

6.2 Recommendations

The following recommendations should be strictly adhered to. In order to alleviate any negative impacts that may emanate from the construction and operation phases of the proposed project development under discussion.

- ❖ Relevant and cost effective management, which ensures hiring of qualified personnel; on serviceable components like electricity, fuel pumps, underground tanks, contracted personnel and waste recycling companies,
- ❖ Mitigation measures should be put in place always,
- ❖ Consulting Environmental Engineers, Manufacturing and installing Engineers and the Town council on issues that arose during Project life cycles and
- ❖ In the cases of decommissioning of the project, an application for decommissioning should be done with a qualified Environmental Engineer or consultant to the Ministry of Environment and Tourism.

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APPENDIX I: ENVIRONMENTAL MANAGEMENT PLAN

APPENDIX II: TERMS OF REFERENCE

APPENDIX III: BACKGROUND INFORMATION DOCUMENT

APPENDIX IV: COMPANY REGISTRATION, MAPS, SITE PLANS AND STRUCTURAL LAYOUTS

APPENDIX V: PUBLIC CONSULTATION TEMPLATES

APPENDIX VI: CONSULTANT RESUME