

**ENVIRONMENTAL ASSESSMENT
FOR
THE ESTABLISHMENT AND OPERATION OF A
BULK FUEL STORAGE FACILITY AT ANDIMBA
TOIVO YA TOIVO AIRPORT IN ONDANGWA,
OSHANA REGION NAMIBIA**

**FINAL ENVIRONMENTAL ASSESSMENT
REPORT
SEPTEMBER 2022**



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PROJECT DETAILS

TITLE: Environmental Assessment for the Establishment and Operations of a Bulk Fuel Storage Facility at Andimba Toivo Ya Toivo Airport in Ondangwa, Oshana Region, Namibia

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LIST OF ACRONYMS

AIDS	Acquired Immune Deficiency Syndrome
CRR	Comments and Response Report
dB	Decibels
DEAR	Draft Environmental Assessment Report
EA	Environmental Assessment
EAR	Environmental Assessment Report
ECC	Environmental Clearance Certificate
ECO	Environmental Control Officer
EIA	Environmental Impact Assessment
EMA	Environmental Management Act
EMP	Environmental Management Plan
FEAR	Final Environmental Assessment Report
GATS	Government Air Transport Services
GTZ	Gesellschaft für Technische Zusammenarbeit
HIV	Human Immunodeficiency Virus
I&AP	Interested and Affected Party
IUCN	International Union for Conservation of Nature
MEFT	Ministry of Environment Forestry and Tourism
MEFT: DEA	Ministry of Environment Forestry & Tourism: Department of Environmental Affairs
NAC	Namibia Airports Company
NEC	Namibia Environmental Consultants
NPC	National Planning Commission
PPE	Personal Protective Equipment
PPP	Public Participation Process
SADC	Southern African Development Community
USAID	United States Agency for International Development

1 INTRODUCTION

The purpose of this chapter is to describe the context of the EIA and the scope of work undertaken. It also outlines how this EIA study complies with the requirements set out by the legislative context of Namibia, as well as being guided by the principles of impact assessment best practice.

1.1 PROJECT BACKGROUND

Ondangwa is one of the oldest historic towns situated in the North Central Regions (Oshana Region) of the country with a population of 23, 000 inhabitants. The town is regarded as the district capital of the Ondangwa electoral constituency. Central Oil Namibia (Pty) Ltd often referred to as the proponent has been allocated a portion of land by Namibia Airports Company (NAC) with the intention to establish and operate a bulk fuel storage facility. The fuel storage facility will be used for fuel dispersion purposes to the aircraft operators at Andimba Toivo Ya Toivo Airport in Ondangwa. The proposed site on which the storage facility will be established is located at the premises of Andimba Toivo Ya Toivo Airport and it measures approximately 1600m² in extent. The proposed site currently belongs to Namibia Airports Company who have legally appointed Central Oil Namibia (Pty) Ltd to carry out the operations of the bulk fuel storage facility.

The proposed site on which the bulk fuel storage facility will be established is currently vacant with no vegetation that is considered to be significant. The shrubs found on site will be cleared to allow for the proposed project to take place. The proposed project area is adjacent to the existing site for PUMA Energy (Pty) Ltd which is currently utilized for the same purposes.

The bulk storage facility will be stored in a Jet-A1 fuel storage Container Tanks that will be installed and erected aboveground. The storage Container Tanks will have a capacity of 29 000 Litres of fuel – sufficient capacity to cater for the aircrafts. The establishment and operation of the bulk fuel storage facility will secure fuel supply to the aircraft operators and also ensure that fuel supply to these operators is readily available to avoid any inconveniences for the operators.

The above activity will be discussed in more detail in Chapter 4. Central Oil Namibia (Pty) Ltd appointed Namibia Environmental Consultants (NEC) to undertake the Environmental Assessment (EA) in order to obtain an Environmental Clearance Certificate (ECC) for the above activity in Ondangwa. The competent authority is the Ministry of Environment Forestry and Tourism: Department of Environmental Affairs (MEFT: DEA).

The process will be undertaken in terms of the gazette Namibian Government Notice No. 30 Environmental Impact Assessment Regulations (herein referred to as EIA Regulations) in terms of Environmental Management Act (No 7 of 2007) (herein referred to as the EMA). The EIA process will investigate if there are any potential significant bio-physical and socio-economic negative impacts associated with the proposed development and associated infrastructure and services. The EIA process would also serve to provide an opportunity for the public and key stakeholders to provide comments and participate in the process. Lastly, based on specific nature of the affected environment, specialist input will also be sourced as and when required.

1.2 PROJECT LOCATION

The proposed project for the establishment and operation of the Bulk Fuel Storage Facility is located at Andimba Toivo Ya Toivo Airport (ATYTA) in Ondangwa, Oshana Region. The proposed project site is located on a vacant portion of land that is adjacent to the existing site of PUMA Energy (Pty) Ltd at the airport. Refer to **Figure 1** below for locality map.

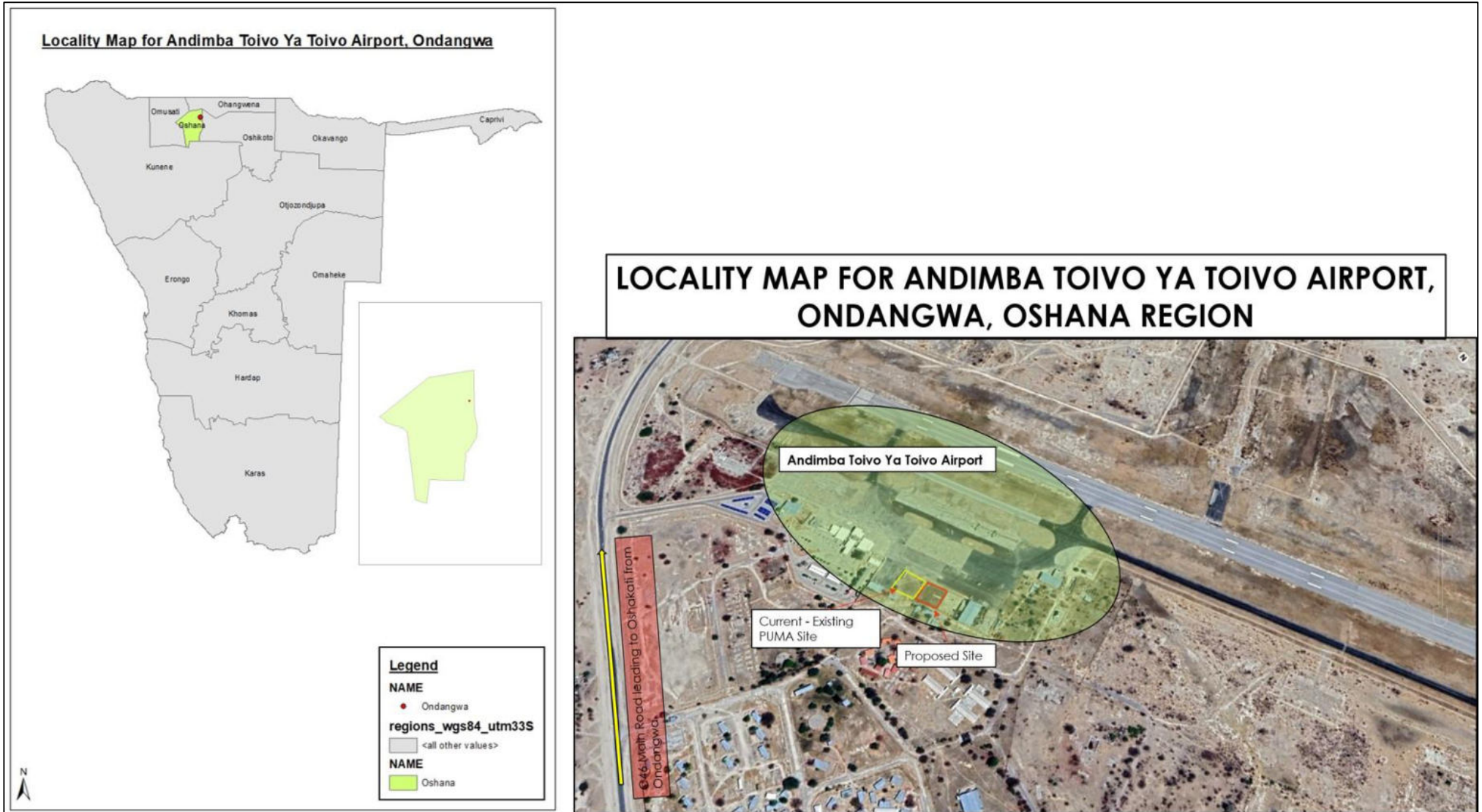


Figure 1: Locality Map for the proposed Bulk Fuel Storage Facility for Andimba Toivo Ya Toivo Airport

1.3 TERMS OF REFERENCE AND SCOPE OF PROJECT

The scope of this project is limited to obtaining an Environmental Clearance Certificate for the proposed establishment and operation of the bulk fuel storage facility together with its associated listed activities as per the Environmental Regulations and it does not extend to any other activity that is not part of this project.

The Final Environmental Assessment Report (FEAR) comprises the following information:

- An overview of the legal requirements which necessitated the assessment, as well as a review of other current or pending legal requirements that have a bearing on the activity;
- A description of the proposed project, including need and desirability, and the proposed activities that form the subject of the EIA process, i.e. details of the processes and infrastructure envisaged and the identification of potential alternative project actions;

A detailed description of the bio-physical and socio-economic environment;

- A description of the possible bio-physical and socio-economic impacts that have been identified to date, i.e. during the Project Initiation and EA Phase, and the means whereby such impacts will be subjected to methodological evaluation, their significance, mitigation potential and possible acceptance are concerned;
- A detailed description of the Public Participation Process (PPP) that underpins the current EIA process;
- An identification of alternatives, a description of aspects and the assessment thereof;
- Impact assessment and mitigation measures proposed by specialist reports; and
- A Final Environmental Management Plan (EMP), which would include the recommended mitigation measures required to reduce the significance of impacts identified in the EIA process.

1.4 ASSUMPTIONS AND LIMITATIONS

In undertaking this investigation and compiling the Environmental Assessment (EA), the following assumptions and limitations apply:

- Assumes the information provided by the proponent is accurate and discloses all information available.
- Assumes all permit or licence requirements associated with the operations at the airport will be addressed as a separate investigation and are not included in this EIA process.
- It is assumed that information obtained from the proponent and its engineers regarding the engineering services of the project is accurate.
- The limitation that no Engineering Services Report was available during the compilation of this environmental assessment report. The existing services at Andimba Toivo Ya Toivo Airport are adequate enough to cater for the new bulk fuel storage facility – and they will therefore be linked to the existing network of the airport.
- The limitation that no alternatives except for the preferred layout designs and the ‘no-go’ option was considered during this assessment. The unique character and appeal of the Andimba Toivo Ya Toivo Airport’s surroundings as well as Ondangwa overall were however taken into consideration with the design perspective.

1.5 CONTENT OF ENVIRONMENTAL ASSESSMENT REPORT

Section 8 of the gazetted EIA Regulations requires specific content to be addressed in a Scoping / Environmental Assessment Report. **Table 1** below is an extract from EMA and highlights the required contents of the Environmental Assessment Report whilst assisting the reader to find the relevant section in the report.

Table 1: Contents of the Scoping / Environmental Assessment Report

Section	Description	Section of DEAR/ Annexure
8 (a)	<i>The curriculum vitae of the EAP who prepared the report;</i>	Refer to Annexure H
8 (b)	<i>A description of the proposed activity;</i>	Refer to Chapter 4
8 (c)	<i>A description of the site on which the activity is to be undertaken and the location of the activity on the site;</i>	Refer to Chapter 3
8 (d)	<i>A description of the environment that may be affected by the proposed activity and the manner in which the geographical, physical, biological, social, economic and cultural aspects of the environment may be affected by the proposed listed activity;</i>	Refer to Chapter 3
8 (e)	<i>An identification of laws and guidelines that have been considered in the preparation of the scoping report;</i>	Refer to Chapter 2
8 (f)	<i>Details of the public consultation process conducted in terms of regulation 7(1) in connection with the application, including</i>	Refer to Chapter 6
	<i>The steps that were taken to notify potentially interested and affected parties of the proposed application</i>	Refer to Chapter 6
	<i>Proof that notice boards, advertisements and notices notifying potentially interested and affected parties of the proposed application have been displayed, placed or given;</i>	Refer to Annexures B and C for site notices and advertisements respectively.
	<i>A list of all persons, organisations and organs of state that were registered in terms of regulation 22 as interested and affected parties in relation to the application;</i>	Refer to Annexure E
	<i>A summary of the issues raised by interested and affected parties, the date of receipt of and the response of the EAP to those issues;</i>	Refer to Annexure E
8 (g)	<i>A description of the need and desirability of the proposed listed activity and any identified alternatives to the proposed activity that are feasible and reasonable, including the advantages and disadvantages that the proposed activity or alternatives have on the environment and on the community that may be affected by the activity;</i>	Refer to Chapter 5
8 (h)	<i>A description and assessment of the significance of any significant effects, including cumulative effects, that may occur as a result of the undertaking of the activity or identified alternatives or as a result of any construction, erection or decommissioning associated with the undertaking of the proposed listed activity;</i>	Refer to Chapter 7 & 8
8 (i)	<i>Terms of Reference for the detailed assessment;</i>	N/A – Assessment of impacts are included in this EA Report
8 (j)	<i>A Final Environmental Management Plan</i>	Refer to Annexure A

2 LEGAL ENVIRONMENTAL FRAMEWORK

This chapter provides an overview of the legislation and policy framework for the EIA being undertaken. The EIA will be undertaken in compliance with the relevant Namibian environmental legislation as well as taking into account international best practice for impact assessments.

2.1 THE CONSTITUTION OF THE REPUBLIC OF NAMIBIA

There are two clauses contained in the Namibian Constitution that are of particular relevance to sound environmental management practice, viz. articles 91(c) and 95(l). In summary, these refer to:

- Guarding against over-utilisation of biological natural resources;
- Limiting over-exploitation of non-renewable resources;
- Ensuring ecosystem functionality;
- Protecting Namibia's sense of place and character;
- Maintaining biological diversity; and
- Pursuing sustainable natural resource use.

The above therefore commits the State to actively promote and sustain environmental welfare of the nation by formulating and institutionalising policies to accomplish the abovementioned sustainable development objectives.

2.2 NAMIBIA'S ENVIRONMENTAL MANAGEMENT ACT (EMA)

In giving effect to articles 91(c) and 95(l) of the Constitution of Namibia, general principles for sound management of the environment and natural resources in an integrated manner have been formulated. This resulted in Namibia's Environmental Assessment Policy of 1994. To give statutory effect to this Policy, the Environmental Management Act was approved in 2007, and gazetted on 27 December 2007 as the Environmental Management Act (Act No. 7 of 2007) (EMA), Government Gazette No. 3966. Part 1 of the Environmental Management Act describes the various rights and obligations that pertain to citizens and the Government alike, including an environment that does not pose threats to human health, proper protection of the environment, broadened *locus standi* on the part of individuals and communities, and reasonable access to information regarding the state of the environment. Part 2 of the Act sets out 13 principles of environmental management, as follows:

- Renewable resources shall be utilised on a sustainable basis for the benefit of current and future generations of Namibians.
- Community involvement in natural resource management and sharing in the resulting benefits shall be promoted and facilitated.
- Public participation in decisions affecting the environment shall be promoted.
- Fair and equitable access to natural resources shall be promoted.
- Equitable access to sufficient water of acceptable quality and adequate sanitation shall be promoted and the water needs of ecological systems shall be fulfilled to ensure the sustainability of such systems.
- The precautionary principle and the strategy of preventative action shall be applied.

- There shall be prior environmental assessment of projects and proposals which may significantly affect the environment or use of natural resources.
- Sustainable development shall be promoted in land-use planning.
- Namibia's movable and immovable cultural and natural heritage, including its biodiversity, shall be protected and respected for the benefit of current and future generations.
- Generators of waste and polluting substances shall adopt the best practicable environmental option to reduce such generation at source.
- The polluter pays principle shall be applied.
- Reduction, reuse and recycling of waste shall be promoted.
- There shall be no importation of waste into Namibia.
- Promotion of the coordinated and integrated management of the environment;
- The Minister of Environment, Forestry and Tourism was enabled to give effect to Namibia's obligations under international environmental conventions;
- Certain institutions were established to provide for a Sustainable Development Commission and Environmental Commissioner".

As the organ of state responsible for management and protection of its natural resources, the MEFT: DEA is committed to pursuing these principles of environmental management.

2.2.1 EIA Regulations GN 28, 29, and 30 of EMA promulgated on 6 February 2012

The gazette EIA Regulations promulgated in terms of the EMA, identify certain activities, which could have a substantially detrimental effect on the environment. These listed activities require an ECC from the competent environmental authority, i.e. MEFT: DEA, prior to commencing. The following activities identified in the EIA Regulations (**Table 2**) apply to the proposed project:

Table 2: List of triggered activities identified in the EIA Regulations which apply to the proposed project

Activity description and No(s):	Description of relevant Activity	The portion of the development as per the project description that relates to the applicable listed activity
Activity 5.1 Land Use and Development Activities	The rezoning of land zoned for open space to any other land use	The project area is currently vacant with no infrastructure on it.
Activity 9.1 Hazardous Substance Treatment, Handling and Storage	The manufacturing, storage, handling or processing of a hazardous substance defined in the Hazardous Substances Ordinance, 1974.	The project entails handling of hazardous substances (diesel) on site.
Activity 9.4 Hazardous Substance Treatment, Handling and Storage	The storage and handling of a dangerous goods, including petrol, diesel, liquid petroleum, gas or paraffin in containers with a combined capacity of more than 30 cubic meters at any one location	The project includes the handling and storage of petrol and diesel in containers.
Activity 9.5 Hazardous Substance Treatment, Handling and Storage	Construction of filling stations or any other facility for the underground and aboveground storage of dangerous	The proposed project includes the establishment and operations of a bulk fuel storage facility.

Activity description and No(s):	Description of relevant Activity	The portion of the development as per the project description that relates to the applicable listed activity
	goods, including petrol, diesel, liquid petroleum, gas or paraffin.	

This EIA process will be undertaken in accordance with the EIA Regulations. A Flow Diagram (refer to **Figure 2** below) provides an outline of the EIA process to be followed.

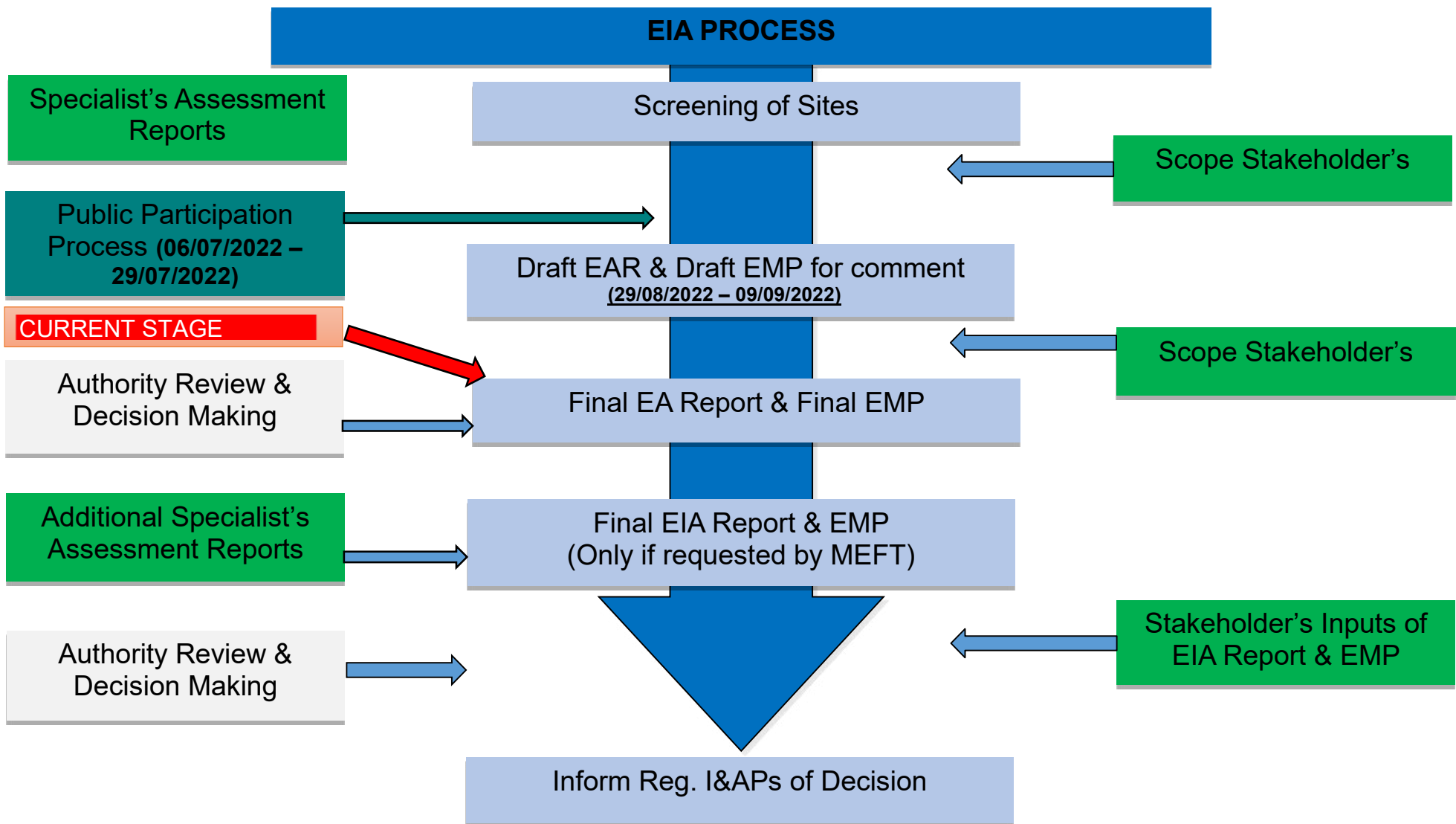


Figure 2: EIA Flow Diagram

2.3 ENVIRONMENTAL GUIDELINES

The EMA, under section 5, states that if a proposal is likely to affect people, the following guidelines should be considered in Scoping / EA:

- The location of the development in relation to interested and affected parties (I&APS), communities or individuals;
- The number of people likely to be involved;
- The reliance of such people on the resources likely to be affected, the resources, time and expertise available for scoping / EA;
- The level of education and literacy of parties to be consulted;
- The socio-economic status of affected communities;
- The level of organisation of affected communities;
- The degree of homogeneity of the public involved;
- History of any previous conflict or lack of consultation;
- Social, cultural or traditional norms within the community; and
- The preferred language used within the community.

The MEFT also released a Draft Procedures and Guidelines for conducting EIAs and compiling EMPs in April 2008. These guidelines outline the procedures and principles that are to be followed. It will be consulted throughout the EIA process to ensure an effective process and an EMP that addresses all identified impacts.

2.4 NAMIBIA VISION 2030

The principles that underpin Vision 2030, a policy framework for Namibia's long-term national development, comprise the following:

- Good governance;
- Partnership;
- Capacity enhancement;
- Comparative advantage;
- Sustainable development;
- Economic growth;
- National sovereignty and human integrity;
- Environment; and
- Peace and security.

Vision 2030 states that natural environments are disappearing quickly. Consequently, the solitude, silence and natural beauty that many areas in Namibia provide are becoming sought after commodities and must be regarded as valuable natural assets. Vision 2030 emphasises the importance of promoting Healthy Living which includes that the majority of Namibians are provided with basic services. The importance of developing Wealth, Livelihood and the Economy is also emphasised by Vision 2030.

2.5 BIODIVERSITY LEGISLATION AND POLICIES

The following policies, aimed at biodiversity, may also be relevant for the proposed project:

- Convention on Biological Diversity (2000)
- Namibian Water Corporation Act (1997)
- Pollution and Waste Management Bill (Draft)

- Soil Conservation Act (1969)
- United Nations Framework Convention on Climate Change (1992)
- Water Resources Management Act (2004)
- Climate Change Policy (Draft with Attorney General's office)

The applicability of the aforementioned policies and legislation has been explored in further detail during this EIA phase, based on the findings of the impact assessment and specialist investigations.

2.6 SOCIAL POLICIES

2.6.1 The Ministry of Environment, Forestry and Tourism (MEFT) Policy on HIV & AIDS

The relevance of this policy for the proposed project stems from the fact that construction activities may involve the establishment of temporary construction workforce within the town of Ondangwa. Experience with other construction projects in a developing-world context has shown that, where construction workers have the opportunity to interact with local community, a significant risk is created for the development of social conditions and behaviors that contribute to the spread of HIV and AIDS.

In response to the threat the pandemic poses, MEFT has recently developed a policy on HIV and AIDS. This policy, which was developed with support from United States Agency for International Development (USAID), Gesellschaft für Technische Zusammenarbeit (GTZ) and the German Development Fund, provides for a non-discriminatory work environment and for workplace programs managed by a Ministry-wide committee.

2.7 ATMOSPHERIC POLLUTION PREVENTION ORDINANCE (ACT NO.11 OF 1976)

This Ordinance serves to control air pollution from point sources, but it does not consider ambient air quality. Any person carrying out a 'scheduled process' which are processes resulting in noxious or offensive gases typically pertaining to point source emissions have to obtain a registration certificate from the Department of Health.

Although we do not anticipate the development to generate noxious or offensive gasses, the proponent will ensure that a registration certificate (air pollution permit) is obtained, if required. As duty of care, the proponent should implement the necessary mitigation measures set out in order to limit emissions to air in the form of dust during construction and operation. Emissions could occur during the event of a fire or explosion and then risk mitigation and management measures should be in place.

2.8 PETROLEUM PRODUCTS AND ENERGY ACT, 1990 (ACT NO. 13 OF 1990)

The Act makes provision for impact assessment for new proposed fuel facilities and petroleum products known to have detrimental effects on the environment.

2.9 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.

2.10 NAMIBIA CIVIL AVIATION REGULATIONS (NAMCAR'S) 139.01.34 (LAND USE IN VICINITY OF AERODROME)

A person who intends to carry out land use activities in the vicinity of aerodromes which are likely to impact on the operational safety of the aerodrome and the safety of the surrounding communities must, during the planning for such land use activities, consult with the Executive Director and operator of the aerodrome or the operator's personnel.

All land use practices and activities in the vicinity of an aerodrome must conform to the standards prescribed in Document NAM-CATS-AH.

2.11 NAMIBIA CIVIL AVIATION REGULATIONS (NAMCAR'S) 139.01.11 (STORAGE OF INFLAMMABLE GOODS)

Fuel, pyrotechnic stores and all highly inflammable matter at an aerodrome must be stored only in buildings or receptacles which comply with the appropriate standards provided for in any applicable law that regulates the storage of inflammable goods in Namibia.

Fuel storage facility in and around aircraft hangars or any building must comply with the -

- (a) applicable technical standards set out in sub-regulation (1);
- (b) applicable local authority council regulations or by-laws, if any; and
- (c) requirements of any other law that regulates the storage of inflammable goods in Namibia.

2.12 NAMIBIA CIVIL AVIATION REGULATIONS (NAMCAR'S) 139.01.12 (SAFETY MEASURES AGAINST FIRE)

This regulation aims to ensure that, (1) A person may not -

- (a) smoke in or bring an open flame into -
 - (i) any place where such an act is prohibited by a notice displayed;
 - (ii) any place within 30 metres of an aircraft or any aircraft fueling or fuel delivery vehicle, storage area, or dump for liquid fuel or explosives;
- (b) willfully give a false fire alarm;
- (c) tamper or interfere with any fire hose reel, hydrant or any other item or equipment provided for fire-fighting purposes;
- (d) keep, store, discard or discharge any inflammable liquid, gas, signal flares or other like material in an aircraft except in the receptacle appropriate for the purpose or in a place on the aerodrome specifically approved by the aerodrome operator for the purpose; or
- (e) store, stack or use any material or equipment in a manner which constitutes or is likely to constitute a fire hazard.

An aerodrome operator must -

- (f) display in conspicuous places appropriate signage in respect of the acts prohibited under sub-regulation (1);
- (g) establish preventive measures against possible fires on the aerodrome and identify a person or group of persons to maintain a fire prevention programme for the aerodrome and aerodrome buildings; and
- (h) ensure that no unsafe practice is performed on the aerodrome or within its vicinity.

If unsafe practices have to be performed during any day-to-day maintenance of, or on, the aerodrome, the aerodrome operator must alert the rescue and firefighting service concerned to be on standby for the duration of such practices.

2.13 NAMIBIA CIVIL AVIATION REGULATIONS (NAMCAR'S) 139.01.26 (SUPPLY OF FUEL TO AIRCRAFT)

This regulation serves to regulate that, a person may not supply any fuel to an aircraft except at a place and in a manner approved by the aerodrome operator.

The aerodrome operator may require a person approved to supply fuel at an aerodrome in terms of sub-regulation (1) to comply with such conditions as the aerodrome operator may consider necessary for the purpose of safety.

The aerodrome operator must -

- (a) develop procedures to be used for refuelling of aircraft at the aerodrome;
- (b) institute measures to periodically monitor the refuelling processes to ensure compliance with the procedures developed in terms of paragraph are maintained;
- (c) institute measures to record, address and resolve any identified non-conformance with procedures for the supply of fuel to an aircraft;
- (d) ensure that arrangements are in place to summon and facilitate emergency services as may be required during refuelling of aircraft.

The aerodrome operators are provided with emergency cut-off switches that are clearly marked and situated in an accessible place without causing danger to persons or property in the event of an emergency.

2.14 NAMIBIA CIVIL AVIATION REGULATIONS (NAMCAR'S) 139.01.41 (SECURITY MEASURES)

An aerodrome operator must ensure that the security requirements are determined during the design and construction of an aerodrome.

The security measures at an aerodrome must take into account the provisions of Part 111, and the related standards, procedures and practices.

Despite the requirements of sub-regulation (1) and (2), the operator of any aerodrome that has been designated as a security designated aerodrome in accordance with section 130 of the Act, must ensure compliance with the relevant aviation security provisions of the Act and the applicable requirements in Part 111.

2.15 NAMIBIA CIVIL AVIATION REGULATIONS (NAMCAR'S) 139.11.2 (ERECTION OF OBSTACLES)

A person may not cause or permit the erection or growth of an obstacle at, or in the vicinity of, an aerodrome, where the obstacle may prevent an aircraft operation from being conducted safely or the aerodrome from being usable.

The erection of buildings or other objects in the navigable airspace or in the vicinity of an aerodrome or navigation aid must be in accordance with standards prescribed in Document NAM- CATS-AH.

2.16 WATER ACT NO.54 OF 1956

This Act provides for Constitutional demands including pollution prevention, ecological and resource conservation and sustainable utilisation. In terms of this Act, all water resources are the property of the State and the EIA process is used as a fundamental management tool.

A water resource includes a watercourse, surface water, estuary or aquifer, and, where relevant, its bed and banks. A watercourse means a river or spring; a natural channel in which water flows regularly or intermittently; a wetland lake or dam, into which or from which water flows; and any collection of water that the Minister may declare to be a watercourse. Permits are required in terms of the Act for undertaking the following activity relevant to the proposed project:

- Disposal of waste in a manner that may detrimentally impact on a water resource in terms of Section 21 (g).

2.17 WATER RESOURCES MANAGEMENT ACT OF NAMIBIA (2004)

This act repealed the existing South African Water Act No.54 of 1956 which was used by Namibia. This Act ensures that Namibia's water resources are managed, developed, protected, conserved and used in ways which are consistent with fundamental principles depicted in section 3 of this Act. Part IX regulates the control and protection of groundwater resources. Part XI, titled Water Pollution Control, regulates discharge of effluent by permit. Thus developers are required to efficiently plan for sewage disposal.

2.18 POLLUTION CONTROL AND WASTE MANAGEMENT BILL (IN PREPARATION)

This Bill serves to regulate and prevent the discharge of pollutants to air and water as well as providing for general waste management. The Bill will repeal the Atmospheric Pollution Prevention Ordinance (11 of 1976) (below) when it comes into force.

Only Parts 2 and 7 of the Bill applies to the proposed establishment of a fuel storage facility at Andimba Toivo Ya Toivo Airport in Ondangwa.

Part 2 stipulates that no person shall discharge or cause to be discharged any pollutant to the air from a process except under and in accordance with the provisions of an air pollution licence issued under section 23. It further provides for procedures to be followed in licence application, fees to be paid and required terms of conditions for air pollution licences.

Part 7 states that any person who sells, stores, transports or uses any hazardous substances or products containing hazardous substances shall notify the competent authority, in accordance with sub-section (2), of the presence and quantity of those substances.

In terms of water pollution, it will be illegal to discharge of, or dispose of, pollutants into any watercourse without a Water Pollution Licence (apart from certain accepted discharges). Similarly, an Air Quality Licence will be required for any pollution discharged to air above a certain threshold.

The Bill also provides for noise, dust or odour control that may be considered a nuisance. The Bill advocates for duty of care with respect to waste management affecting humans and the environment and calls for a waste management licence for any activity relating to waste or hazardous waste management.

The proposed development would not entail the discharge to air and or water, but might result in the generation of noise and dust during the construction phase. The potential risk of hazardous substance leakages does occur and should be managed accordingly.

2.19 PUBLIC HEALTH ACT 36 OF 1919 AND SUBSEQUENT AMENDMENTS

The Act, with emphasis to Section 119 prohibits the presence of nuisance on any land occupied. The term nuisance for the purpose of this EIA is specifically relevant specified, where relevant in Section 122 as follows:

- Any area of land kept or permitted to remain in such a state as to be offensive, or liable to cause any infectious, communicable or preventable disease or injury or danger to health; or
- Any other condition whatever which is offensive, injurious or dangerous to health.

Potential impacts associated with the development of the proposed project in Ondangwa are expected to include dust, air quality impacts.

2.20 NATIONAL HERITAGE ACT (NO.76 OF 1969)

The Act calls for the protection and conservation of heritage resources and artefacts. Should any archaeological material, e.g. old weapons, coins, bones found during the construction, work should stop immediately and the National Heritage Council of Namibia must be informed as soon as possible. The Heritage Council will then decide to clear the area or decide to conserve the site or material.

3 ENVIRONMENTAL BASELINE DESCRIPTION

*This chapter provides an overview of the environmental and biophysical characteristics of the affected area, and further provides a detailed description of the characteristics pertaining to the socio-economic and bio-physical environment. Please note that pictures of the proposed site are included in a Photo Plate attached as **Annexure D**.*

3.1 SOCIAL ENVIRONMENT

3.1.1 Socio-Economic Context

According to the 2011 Census, the total population enumerated in Oshana Region is estimated at 176,674. Of these, 96,559 are females and 80,115 are males. Approximately 45% of the total population is located in urban parts and 54% in rural parts of the region. Specifically, Ondangwa has a total population of 23,000. (NPC, 2011).

In Oshana Region the population under 5 years of age is 12%. The population ranging from the age of 5 to 14 years of age comprise 21% of the region's population. The working age population, 15 to 59 years, makes up 59% of the whole population in the region. A relatively low percentage, 8% of the population, was above 60 years of age. For every 100 females in Oshana Region there are 83 males.

In Oshana Region the literacy rate of the age group 15 years and up, is 96%. 7% of all people above the age of 15 have never attended school, 21% are currently attending school and 68% left school at the time, in Oshana Region.

English is the official language while the predominantly spoken language in the region is Oshiwambo at 94%. Approximately 61% of the population aged 15 years and up belong to the labour force (i.e. economically active) in Oshana Region. 63% of the population is employed while 37% are unemployed. The inactive group, which consists of homemakers, 6%, students 62% and the severely disabled, retired or old age income recipients 28% makes up of the regions' population.

The main source of income in this region is from wages and salaries at 40%, business and non-farming activities at 17% and Cash remittance at 5%. Farming makes up 13% respectively. The older age group makes up 19% of the regions income.

3.1.2 Archaeological and Heritage Context

It is highly unlikely that the site will have any momentous archaeological resources or features due to the fact that no major historical activity took place within close proximity of the site. However, an accidental find procedure may be required in the EMP.

No known heritage sites are however located within the proposed development area. If any heritage or cultural significant artefacts are found during the construction phase of the proposed project, construction must stop and the National Heritage Council of Namibia should be immediately notified.

3.2 BIO-PHYSICAL ENVIRONMENT

3.2.1 Climate

The climate for Ondangwa is characterized by a local steppe climate in accordance with the BSh – Koppen Geiger system. The average maximum temperature as indicated in figure 3 below varies between 27 and 36°C with the average minimum temperature between 11 and 23°C.

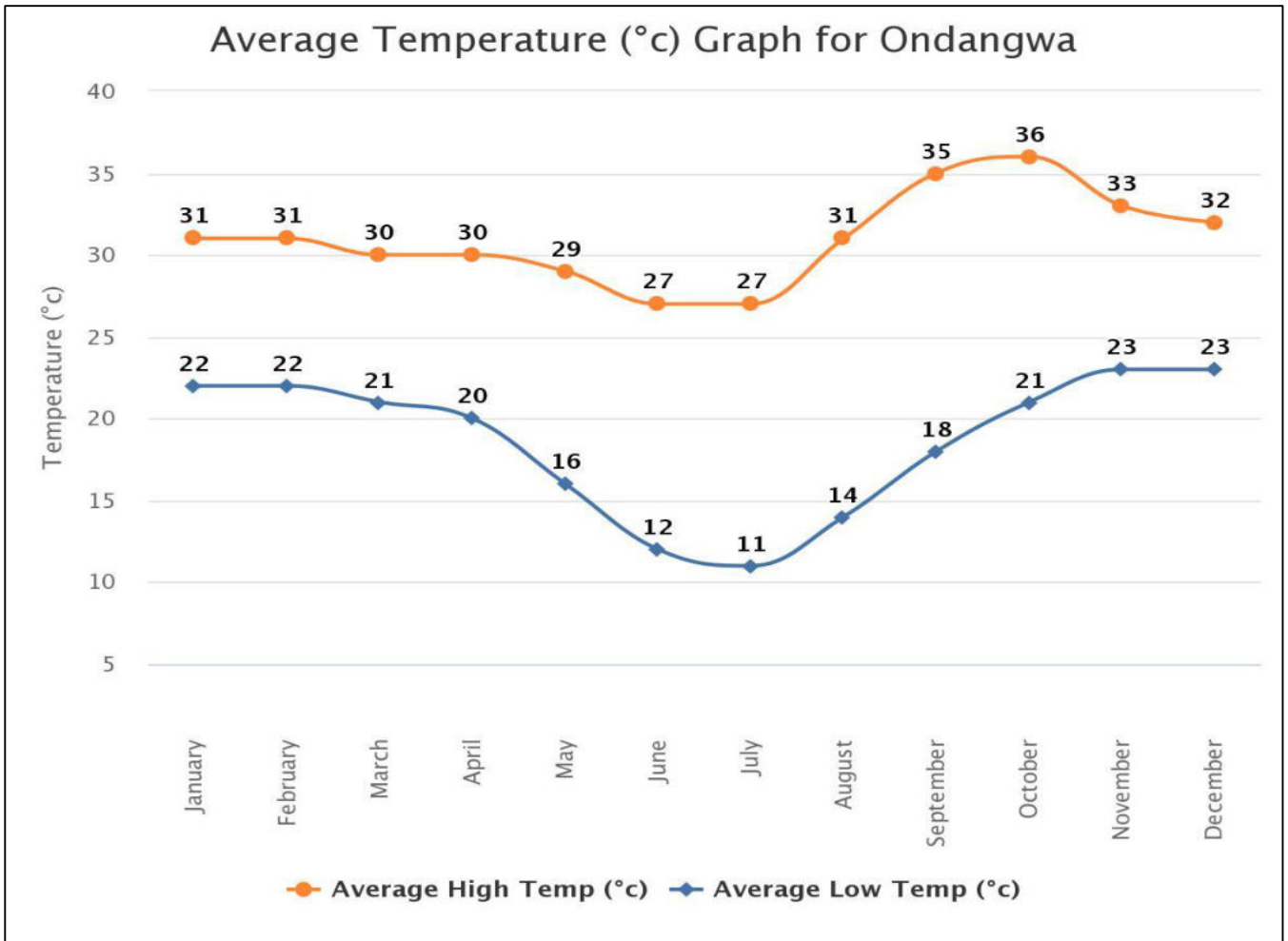


Figure 3: Average monthly temperature for Ondangwa (WorldWeatheronline®, 2022)

In Ondangwa there is not much rainfall throughout the year. Rainfall is usually expected during the summer months as indicated in figure 4 below and on average 80% of this rainfall is experienced from October to April. Ondangwa receives an annual precipitation of 530 mm. No rain is expected between May to September, and the chance of rain increases progressively from October until February, the month with the highest total on average, and then decreases again until May.

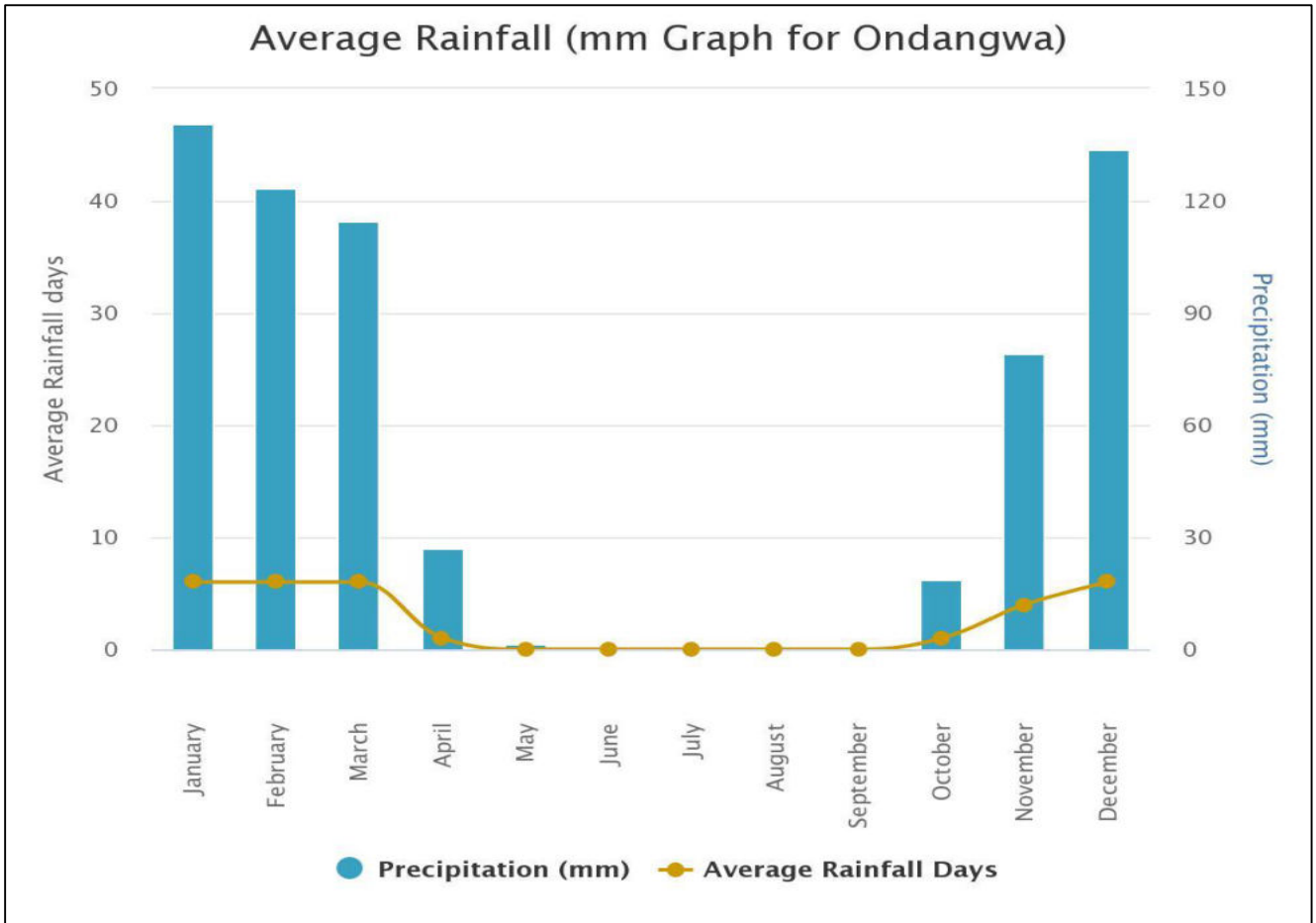


Figure 4: Average monthly rainfall for Ondangwa (WorldWeatheronline®, 2022)

3.2.2 Surrounding Land Use

The proposed project area is currently vacant and it belongs to Namibia Airports Company (NAC). The site is located at Andimba Toivo Ya Toivo Airport and has previously been reserved for future developments and/or expansion of the airport. The general biophysical conditions of the site are predominantly free of sensitive flora and fauna. The surrounding land use in close proximity is characterized by business erven operating at the airport to the west, the aircraft rundown to the north and open townlands to the east and the south.

3.2.3 Topography, Geology, Hydrogeology

The extremely flat topography of the Oshana Region is characterized by the Oshana system, which dominates the central area. This is a complex ephemeral system of broad, shallow, vegetated channels that flows south out of Angola after good rains, meandering through the sandy soils and mostly ending in large pans. The topography for the proposed project area is considered to be fairly flat as can be seen in figure 5 below.

Geology:

The Oshana Region lies on an old continental base of granites, gneisses and volcanic rocks. Only in the Kamanjab area and the northern area into Karoos in the south-western corner of Etosha are some of these rocks visible as remnant hills. These are the oldest exposed rocks in the north-central region. The collision of continental fragments caused the dolomites and limestones along the edge of the Owambo Basin to be folded and tilted upwards to form a rim to the basin. That rim now forms the hills around Tsumeb, Otavi and Grootfontein, and odd

isolated hills such as the ones at Halali. From there, the rims further extend as ranges of hills west to just north of Kamanjab and then north up to Ruacana along the western border of Omusati, forming the eastern edge of the Kaokoveld escarpment (*Mendelsohn et al, 2002*).

The soils in the area are generally sodic sands of nature. The soil conditions are generally not suitable for agricultural practices given their salinity concentrations. The salinity concentrations in the soils are the results of how frequently they have been subjected to cycles of flooding and evaporation over many years ago (*Mendelsohn et al, 2002*).

Hydrogeology:

The Ondangwa town is located within Oshana Region which falls under the Cuvelai – Etosha Basin. The Cuvelai Basin is bordered in the south and west by the surface water divide running from Otavi to Outjo, Kamanjab, Otjovasandu, Otjondeka, Opuwo and Ruacana. In the east, the boundary is formed by a faint groundwater divide running north from Tsintsabis almost at 18°E longitude, while in the north it is the international border between Angola and Namibia. The hydrogeological Cuvelai Basin thus comprises the Omusati, Oshana, Ohangwena, and Oshikoto regions and parts of the Kunene Region. Most of the land surface of the basin is very flat dipping from some 1150 m above sea level (asl) in the north-east to 1 080 m asl in the Etosha Pan, which is the largest pan in Namibia (*Mendelsohn et al, 2002*).

All drainage is thus in the direction of the Etosha Pan. The Cuvelai Basin is the most densely populated area of Namibia and most of the inhabitants live in rural communities that are dependent on agriculture. Rainfall decreases from 600 mm in the north-east to 300 mm/a in the west. In the same direction, potential evaporation increases from 2 700 to 3000 mm/a. The relatively high and reliable rainfall allows dryland crop farming in addition to cattle and small stock farming. Light industries and businesses have been established in towns like Oshakati and Ondangwa (*Mendelsohn et al, 2002*).

The Kalahari Sequence comprises the Ombalantu, Beisib, Olukonda and Andoni formations. It is entirely of continental, aeolian to fluvial origin. The aeolian material consists of fine-grained, well-sorted sand, while the material deposited in a fluvial environment ranges from gravel to clay and often represents braided stream conditions, resulting in very variable lithologies both vertically and horizontally. Fluvial sedimentation dominates with some reworking of aeolian sand. Lacustrine clays and associated fluvial silts and sands were most probably transported by endorheric rivers flowing south from the north-west, similarly to the way that the Okavango River now feeds into the Okavango Swamps.

The Discontinuous Perched Aquifer (DPA) is not a single aquifer, but consists of a series of small perched aquifers, which occur predominantly in the dune-sand covered area north-east of Okankolo. These aquifers are mainly recharged by direct infiltration of rainwater and exploited by means of “omifima”, traditional, funnel-shaped dug wells. Although the yield is generally limited by the size of the aquifers, they provide shallow, easily accessible and good quality drinking water to the scattered villages of the Ohangwena and northern Oshikoto regions. The water quality is subject to seasonal variations, and may become brackish towards the end of the dry season. Because of the shallow water table, the Discontinuous Perched Aquifer is extremely vulnerable to pollution. Care must be taken to avoid contamination by dung at cattle drinking points (*Mendelsohn et al, 2002*).



Figure 5: Topography of the Proposed Project Area

3.2.4 Terrestrial Ecology

Mopane Savanna - Occurs in the Kunene Region and extends into the Omusati, Oshana and Oshikoto Regions. It is characterised by woody species such as: Mopane (*Colophospermum mopane*) Herero sesame bush (*Sesamothamnus guerichii*)-Corkwoods (*Commiphora species*).

In the area north of Ondangwa, erosion processes have resulted in the development of a mosaic of low-lying and upland habitats. The higher ground in this unit is sandy and has many species characteristics of the Kalahari further to the east. The area is heavily cultivated with little of the natural vegetation undisturbed. However, many fruiting trees have been preserve: *Sclerocarya birrea*, *Berchemia discolor*, *Diospyros mespiliformis* and *Ficus tbonningii*. Oshanas flowing through this unit are narrower than those further west (*Mendelsohn et al, 2002*).

Woody species characteristics of the Kalahari sands are *Burkea Africana*, *Schinziophyton rautanenii*, *Combretum collinum*, *Pterocarpus angolensis* (in the eastern areas of the unit) and *Terminalia sercea*. The shrub layer consists mainly of *Combretum collinum* and *Terminalia sercea*. *Colophospermum mopane* is also present locally in dense stands of tall trees or shrubs. *Schmidtia kalabariensis*, *Willkommia sarmentosa*, *Sporobolus spicatus* and *S. tenellus*, *Aristida* species, *Melinis repens* and *Eragrostis* species usually dominate the grass layer. The grazing resources are of little value within this unit, although livestock densities are very high (*Mendelsohn et al, 2002*).

The Site:

The proposed project area is currently covered with grass only. The site is free of any significant vegetation (endangered flora species) as well as tress to be considered and/or conserved.

The grass that is found on site will be cleared to allow for the development and/or project to take place. Figure 6 below illustrates the type of vegetation found site.



Figure 6: Vegetation found on site

4 PROJECT DESCRIPTION

The purpose of this chapter is to provide a detailed description of the project components. In addition, a description of reasonable and feasible alternatives is also provided.

4.1 PROJECT NEED AND DESIRABILITY

The quality and reliable aviation fuel supply is an important integral part for the general operations of an airport. Central Oil Namibia (Pty) Ltd has been appointed by Namibia Airports Company to provide aircraft fuelling services to the aircraft operators at Andimba Toivo Ya Toivo Airport. The project need and desirability stems from the need to ensure stable and consistent supply of aviation fuel to the aircraft operators at Andimba Toivo Ya Toivo Airport to cater for both scheduled and non-scheduled flights. This will in turn prevent any inconveniences related to the adequate supply of aviation fuel that may negatively affect the aircraft operators.

4.2 PROJECT COMPONENTS

Central Oil Namibia (Pty) Ltd (proponent) has been allocated a portion of land by Namibia Airports Company (NAC) with the intention to establish and operate a bulk fuel storage facility. This is an agreement between the proponent and Namibia Airports Company. This facility will be used for fuel dispersion purposes to the aircraft operators at Andimba Toivo Ya Toivo Airport. The site in question is located at the premises of Andimba Toivo Ya Toivo Airport and it measures approximately 1600m² in extent. The proposed project area is adjacent to the existing site for PUMA Energy (Pty) Ltd which is currently utilized for the same purposes.

The proposed site area in question is situated within the premises of Andimba Toivo Ya Toivo Airport which currently zoned for industrial or commercial (business) purposes. The site in question is mostly visible from the airport terminal as well as the car rental service providers at the airport. The site is currently vacant (*refer to figure 7 below*) and it is reserved for future expansion and developments for the airport.

The proponent intends to have two bulk storage facilities (Jet A-1 fuel Storage Containers) in which one will be for Jet A-1 fuel and the other one for AVGAS. The Jet A-1 Fuel will be dispersed mainly to the aircraft with new engines and/or modernized engines and the AVGAS will be mostly dispersed to the aircrafts operating on old model engines.

The bulk fuel Storage Containers for Andimba Toivo Ya Toivo Airport will be 20ft in size and will have a capacity of 29 000 Litres. The operations of fuel dispersion at Andimba Toivo Ya Toivo Airport will not make use of a bowser. It will maintain the same design (site set up) and current operations being implemented by PUMA Energy (Pty) Ltd. The area on which the storage containers will be installed will be paved to avoid and ensure that no possible hazardous leakages through to groundwater sources as well as the environment overall are encountered.

In addition, the site will also have a small administration office for the admin staff on site during the operational phase. No canopy will be constructed on site given that the proponent intends to maintain the same design and/or set up currently being implemented by PUMA Energy (Pty) Ltd.



Figure 7: Pictures of the Development site

4.2.1 Fuel Storage Facility Description

The project has the aim to:

- Create more job opportunities to the residents of Ondangwa (construction and operation),
- To contribute to the diversification of the local economy of Ondangwa at large through increased revenue generation.
- Ensure consistent and stable dispersion of fuel to the aircraft operators at Andimba Toivo Ya Toivo Airport.

Below is the general layout design of the proposed bulk Fuel Storage Facility (Container Jet A1) at Andimba Toivo Ya Toivo Airport in Ondangwa. Other engineering drawings for the proposed site attached in **Annexure G** of this report.



NOTES:
ALL DIMENSIONS ARE IN METERS UNLESS OTHERWISE STATED.
DIMENSIONS TO BE READ & NOT TO BE SCALED FROM THIS DRAWING.

REVISION	DATE	NO

CLIENT:
CENTRAL
P.O. BOX 5308
WINDHOLEK
NAMIBIA
TEL: 061 91 181 930

CLIENT: _____ **DATE:** / /

CONSTRUCTION DRAWING

CONSULTANTS:

DRAWN BY:
CHARMHILL DESIGN CONSULTANTS
107 P.O. BOX 10000 WINDHOLEK NAMIBIA
TEL: 061 91 181 930

CIVIL STRUCTURAL ENGINEER	CONSULTING ENGINEERS P.O. BOX 10000 WINDHOLEK NAMIBIA TEL: 061 91 181 930
ELECTRICAL ENGINEER	CONSULTING ENGINEERS P.O. BOX 10000 WINDHOLEK NAMIBIA TEL: 061 91 181 930
MECHANICAL ENGINEER	CONSULTING ENGINEERS P.O. BOX 10000 WINDHOLEK NAMIBIA TEL: 061 91 181 930

PROJECT TITLE:
PROPOSED TEMPORARY AVIATION FUEL STORAGE FACILITY AT ANDIMBA TOIVO YA TOIVO AIRPORT, ONDANGWA, NAMIBIA

DRAWING TITLE: General Layout	REF:
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SCALE: nbs	DRAWN: Charm	CHECKED: CDC	DATE: 8/1/2022
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PROJECT NUMBER: COC/001-2022	DRAWING NUMBER: COC-ATYT/A100	REVISION:
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Figure 8: General Layout design of the proposed site area and Storage Facility (Container Jet A1)



Figure 9: Layout Design of the Jet A-1 Fuel Container Tank

4.2.2 Engineering Services of the Proposed Fuel Storage Facility

The bulk fuel storage facility will be situated on a vacant site that is adjacent to the existing PUMA Energy (Pty) Ltd site.

The engineering services (such as water, electricity, sewer reticulation, access roads) of the proposed project will be designed and installed by the proponent to fully integrate with the existing network of Andimba Toivo Ya Toivo Airport and other existing properties in close proximity.

Access Roads:

During the construction phase, access to the project site will be obtained from the Gate 2 (Air-side Access Gate – Emergency and Temporary Access). **For the operational phase**, access to the site will be obtained from Gate 1 (Air-side Access Service Gate). However, this access will need to be revised and approved by Namibia Airports Company (NAC). Therefore, it is important to note and ensure that all approvals for access within the vicinity of the airport has been sought and granted. (Refer to **Annexure G** for the proposed access routes to the sites).

Refuse removal:

Ondangwa Town Council already caters for refuse removal in Ondangwa and has enough capacity to accommodate waste for the proposed fuel storage facility.

5 PROJECT ALTERNATIVES

The purpose of this chapter is to provide a detailed description of the project components. In addition, a description of reasonable and feasible alternatives is also provided.

5.1 NO-GO ALTERNATIVE

The no-go alternative is the baseline against which all alternatives are assessed. The no-go alternative would essentially entail maintaining the current situation, whereby the aircraft operators will experience inconsistency with aviation fuel supply to the aircrafts at Andimba Toivo Ya Toivo Airport. In addition, if the proposed project does not commence it will result in the shortage of aviation fuel supply to scheduled and non-scheduled flights.

Furthermore, the local aviation industry will be affected due to insufficient and/or lack of fuel supply to the aircraft operators which will ultimately affect other commercial businesses who frequently make use of flight services.

Given the project location and its status quo, should it happen that the proposed site does not get developed, it will remain a biodiversity (flora and fauna) habitat and also further create the invasion of plant species. Therefore, the development of the site will ensure the optimal and controlled utilisation of the site. The proposed site which belongs to Namibia Airports Company is reserved for future expansion of aviation activities to be undertaken at Andimba Toivo Ya Toivo Airport. Other activities to be considered at the site will strictly fall into the land use plans of landlord.

Without the propose project, there will be no added associated economic investment in Ondangwa and no potential increased revenue regeneration. Furthermore, employment opportunities during both construction and operational phases of the project will be created. The benefits that will accrue due to the project on the national, regional and global scale will be compared to the economic, social and environmental status if the area is left as it is or designated to other land use types. These land use types may entail those that are most probable to be adopted such as building of unplanned or planned infrastructure.

5.2 SITE ALTERNATIVES

With regards to the proposed development, there is no other alternative land use for the intended project. The project area in question is located within the premises of the airport and it belongs to Namibia Airports Company who legally appointed Central Oil Namibia (Pty) Ltd to undertake the dispersion of aviation fuel to the aircraft operators at Andimba Toivo Ya Toivo Airport. The site is deemed convenient for the proposed activities given that it is located next to the existing site for PUMA Energy (Pty) Ltd which is utilised for the same purposes. The strategic location of the proposed site allows for the smooth operations and fuel dispersion to the aircrafts.

The environmental footprint is expected to be minimal given that the project site location does not hold any significant vegetation to be considered. The site is located within an industrial area where similar activities are currently being undertaken. The possible impacts at the project location, both environmental and socio-economic, are of such a nature that they can be mitigated through good practice.

6 PUBLIC PARTICIPATION PROCESS

The purpose of this chapter is to provide an outline of the Public Participation Process, a summary of the process undertaken to date and the way forward with respect to public participation as part of this project. This chapter also provides a summary of the key issues that have been raised to date.

6.1 PUBLIC PARTICIPATION REQUIREMENTS

In terms of Section 21 of the EIA Regulations a call for open consultation with all I&APs at defined stages of the EIA process is required. This entails participatory consultation with members of the public by providing an opportunity to comment on the proposed project. Public Participation has thus incorporated the requirements of Namibia's legislation, but also takes account of international guidelines, including Southern African Development Community (SADC) guidelines and the Namibian EIA Regulations. Public participation in this project has been undertaken to meet the specific requirements in accordance with the international best practice.

6.2 PROPOSED APPROACH

The public participation process (PPP) undertaken for this project can be divided into the following phase:

- Project initiation;
- Environmental Assessment Phase; and
- EIA Phase (if required) by the Ministry of Environment, Forestry and Tourism.

6.2.1 Initiation of the Public Participation Process

The approach adopted for the initiation of the EIA and associated PPP was to identify and contact potential I&APs as possible through a number of activities which included:

- Placement of site notices/ posters in Ondangwa namely; Ondangwa Town Council notice board, Ministry of Home Affairs, Andimba Toivo Ya Toivo Airport and Ondangwa Private Hospital (refer to **Annexure B**);
- Placing advertisements in two newspapers namely The Namibian and New Era (refer to **Annexure C**);
- Distribution of the Background Information Document to Interested & Affected Parties and adjacent landowners in Ondangwa on 08th July 2022 (refer to **Annexure E**);
- Giving written notice of the proposed project to potentially affected stakeholders via email dated 08th July 2022 (refer to **Annexure E**).
- Hosting a Public Meeting in Ondangwa.

The Public Participation Process was formally initiated with the advertisement of the EIA process in the newspapers (New Era and The Namibian) on **06th July 2022 and 13th July 2022**. As part of the notification period, all of the identified potential I&APs were invited to participate in the EIA process via email. I&APs were given more than 14 days within which to submit comments or register from **06th July 2022 up until 29th July 2022**.

Public Meeting

At the public meeting that was held on 21st July 2022, the information was provided in English. The facilitated discussions, attendance register as well as the presentation from the public meeting are documented in **Annexure E**. Only two (2) people attended the public meeting at Ondangwa Ekamuti Town Lodge. Comments and concerns raised by I&APs regarding the proposed project have been recorded in the Comments and Response Report (CRR) which is included in **Annexure E**. In the table below are some of the comments raised at the public meeting as well as those from the distribution of the background information document.

Table 3: Main issues received during initial PPP

Impact Group	Potential impacts / issues identified during public consultation
I&AP	<p>1. The notice concerning an “Environmental Impact Assessment (“EIA”) for the establishment of the bulk fuel storage facilities at Eros airport (Windhoek) and Andimba Toivo Ya Toivo Airport (Ondangwa)” refers.</p> <p>2. <i>We confirm acting for Puma Energy Namibia (Pty) Ltd.</i></p> <p>3. <i>Our instructions are to submit the following grounds of objection with regard to the application for environmental clearance certificates:</i></p> <p>3.1. <i>Our client is the current holder of fuel concession agreements at Eros and Andimba Toivo Ya Toivo Airports. The proposed environmental impact assessment is inappropriate and objectionable for several reasons.</i></p> <p>3.2. <i>First, your proposed process is premature. According to your BID issued earlier this month, the list of activities triggered by the proposed project includes the need to rezone the land from nature conservation or zoned open space to construction of bulk storage facilities. It follows that no environmental clearance certificate may be issued until such time the land has been properly rezoned for the intended activity. This was confirmed last week Tuesday, 13 July 2022, the Supreme Court in Awas Valley Residents Association and others v Minister of Environment and Tourism and others, Case No. SA 26/2020.</i></p> <p>3.3. <i>Secondly, in August 2021, the Namibia Airports Company (“NAC”) issued a tender for the provision of aircraft fuelling services at Eros and Andimba Toivo Ya Toivo Airports. This tender was awarded to Central Oil Namibia (Pty) Ltd (“Central Oil”). Our client launched a review application on 5 April 2022 in the High Court of Namibia. The award by NAC to Central Oil is fundamentally flawed and will in all probability be set aside by the High Court as void and of no force and effect. Just one of the reasons for the review application is that the procurement by NAC fell within the types of services covered by the Public Procurement Act 15 of 2015 (“Public Procurement Act”) and exceeded the minimum threshold in value. Yet the NAC did not follow the peremptory requirements of the Public Procurement Act, and the NAC did not apply for or receive an exemption from the Minister of Finance as required by the Public Procurement Act. The Minister of Finance confirmed under oath that he did not receive and application for exemption and did not grant exemption. There are several more reasons set out in the affidavits on the public record. We refer you to the affidavits delivered in case number HC-MD-CIV-MOT-REV-2022/00139. All of the documents are available on the electronic portal of the Namibian Superior Court (ejustice.jud.na). For brevity and to help save the environment we do not attach hardcopies to this letter of objection. If you are unable to access the documents, please inform us so that we may deliver whatever you need. The review proceedings are still pending. As such, we are of the view that it is inappropriate for Central Oil Namibia to commence with the Environmental Impact Assessment process.</i></p> <p>3.4. <i>Thirdly, the proposed Jet Fuel Storage Tanks and bulk Fuel Storage Facilities intended to be used at both Airports are not in conformity with the applicable safety and environmental standards as well as other regulations as have been issued by the relevant statutory regulatory bodies. Similarly, the proponent does</i></p>

Impact Group	Potential impacts / issues identified during public consultation
	<p>not meet the requirements of the relevant statutory regulatory bodies. These requirements are set out by or in, amongst others and not limited to, the following:</p> <p>3.4.1 IATA (International Aviation Transport Association) 3.4.1.1 Compliance with IFQP (International Fuel Quality Pool);</p> <p>3.4.1.2 Qualified IFQP Inspector is sent to each Aviation Depot Location to validate adherence to standards;</p> <p>3.4.1.3 Aviation Depot is then classified as Red, Amber, or Green Status.</p> <p>3.4.2 JIG (Joint Inspection Group) 3.4.2.1 JIG 1 – Aviation Fuel Quality Control and Operating Standards for Into-Plane Fuelling Services</p> <p>3.4.2.1.1 Defines standards required for Aviation Refuelling Vehicles;</p> <p>3.4.2.1.2 Defines requirements and process to be followed for Into-Plane Fuelling Operations;</p> <p>3.4.2.1.3 Defines requirements for product quality controls and records for Into-Plane Fuelling Operations.</p> <p>3.4.2.2 JIG 2 – Aviation Fuel Quality Control and Operating Standards for Airport Depots and Hydrants 3.4.2.2.1 Defines standards required for Aviation Fuel Depots;</p> <p>3.4.2.2.2 Defines requirements and process to be followed at Aviation Fuel Depot Operations;</p> <p>3.4.2.2.3 Defines requirements for product quality controls and records for receiving, storing, handling and loading Aviation Fuels at Aviation Fuel Depots.</p> <p>3.4.2.3 JIG 4 - Aviation Fuel Quality Control and Operating Standards for Smaller Airport 3.4.2.3.1 Defines standards required for Aviation Fuel Depots at smaller Airfields;</p> <p>3.4.2.3.2 Defines requirements and process to be followed at Aviation Fuel Depot Operations at smaller Airfields;</p> <p>3.4.2.3.3 Defines requirements for product quality controls and records for receiving, storing, handling and loading Aviation Fuels at Aviation Fuel Depots at smaller Airfields.</p> <p>3.4.3 \$1,000,000,000 USD Aviation Refuelling Liability Insurance 3.4.3.1 International Aviation Fuel Industry requirement to respond to any incident caused by the fuelling activity;</p> <p>3.4.3.2 Requires oversight from International Insurers.</p> <p>3.4.4 EI 1540 3.4.4.1 Design and Construction, Commission, Maintenance and Testing of Aviation Fuelling Facilities.</p> <p>3.4.5 ICAO 9977 3.4.5.1 International Civil Aviation Organization – Manual on Civil Aviation Jet Fuel Supply.</p> <p>3.4.6 NCAA (Namibian Civil Aviation Authority)</p> <p>3.4.7 AFQRJOS Checklist – Aviation Fuel Quality Requirements for Jointly Operated Systems.</p> <p>3.4.8 Defstan 91-091 Issue 11 YY 3.4.8.1 Jet A1 Product Specification/Standard.</p> <p>3.4.9 Defstan 90-090 Issue 11 YY 3.4.9.1 Avgas 100 LL Product Specification/Standard.</p> <p>3.4.10 Membership to International Aviation Industry Forums to get updates on Standards 3.4.10.1 Required to keep up to date on Aviation Industry Updates and Regulations.</p> <p>4. Our client's rights to supplement the above-mentioned grounds for objections and to raise further grounds for objection are hereby reserved.</p>

Impact Group	Potential impacts / issues identified during public consultation
	5. Please confirm that our client's objection and comments have been received and that they have been registered as interested and affected parties.
I&AP	<ol style="list-style-type: none"> 1. Given the current proposed layout design for the Eros Airport site, will the Ondangwa site also have a canopy? 2. Is Central Oil Namibia going to make use of bowsers for fuel dispersion on both Airports? 3. Please provide specifications for the construction Central Oil Namibia intends to use so that both parties may establish safety plan – which will need to be approved by NAC. Provide all details prior all details prior to construction. 4. Please provide drawings for the Ondangwa site. 5. Please provide the drawings for the office structure because this will determine how much land NAC will be leasing to you and the structure also needs to be approved by NAC.

The preliminary database formed the basis of the current I&AP Register, which includes directly affected landowners, relevant authorities and organs of state, who are automatically included in the I&AP register. The current I&AP register includes all the above I&APs identified in the initial database as well as additional I&APs who registered during the comment period (refer to **Annexure E**). It should be noted that the I&AP database will be updated throughout the project as new I&APs register.

6.2.2 Environmental Assessment Phase 2

The second phase of the PPP involved the lodging of the Draft Environmental Assessment Report (DEAR) to all registered I&AP for comment. Registered and potential I&APs were informed of the DEAR for public comment via an email dated **29th August 2022**. An Executive Summary of the DEAR was included in the emails to the registered I&APs. I&APs were given until **09th September 2022** (ten working days) to submit comments or raise any issues or concerns they may have with regard to the proposed project.

6.3 WAY FORWARD

No comments were raised by the Interested and Affected Parties during the public consultation process to be incorporated into the Final Environmental Assessment Report (FEAR) which is now submitted to MEFT: DEA for consideration and decision making. If MEFT: DEA approves or requests additional information / studies all registered I&APs and stakeholders will be kept informed of the progress throughout the assessment process.

7 ASSESSMENT METHODOLOGY

The purpose of this chapter is to describe the assessment methodology utilized in determining the significance of the construction and operational impacts of the proposed project, and where applicable the possible alternatives, on the biophysical and socio-economic environment.

Assessment of predicted significance of impacts for a proposed project is by its nature, inherently uncertain – environmental assessment is thus an imprecise science. To deal with such uncertainty in a comparable manner, a standardised and internationally recognised methodology has been developed. Such accepted methodology is applied in this study to assess the significance of the potential environmental impacts of the proposed development, outlined as follows in **Table 4**.

Table 4: Impact Assessment Criteria

CRITERIA	CATEGORY
Impact	Description of the expected impact
Nature Describe type of effect	Positive: The activity will have a social / economical / environmental benefit. Neutral: The activity will have no effect Negative: The activity will have a social / economical / environmental harmful
Extent Describe the scale of the impact	Site Specific: Expanding only as far as the activity itself (onsite) Small: restricted to the site's immediate environment within 1 km of the site (limited) Medium: Within 5 km of the site (local) Large: Beyond 5 km of the site (regional)
Duration Predicts the lifetime of the impact.	Temporary: < 1 year (not including construction) Short-term: 1 – 5 years Medium term: 5 – 15 years Long-term: >15 years (Impact will stop after the operational or running life of the activity, either due to natural course or by human interference) Permanent: Impact will be where mitigation or moderation by natural course or by human interference will not occur in a particular means or in a particular time period that the impact can be considered temporary
Intensity Describe the magnitude (scale/size) of the Impact	Zero: Social and/or natural functions and/ or processes remain unaltered Very low: Affects the environment in such a way that natural and/or social functions/processes are not affected Low: Natural and/or social functions/processes are slightly altered Medium: Natural and/or social functions/processes are notably altered in a modified way High: Natural and/or social functions/processes are severely altered and may temporarily or permanently cease

CRITERIA	CATEGORY
<p>Probability of occurrence Describe the probability of the Impact <u>actually</u> occurring</p>	<p>Improbable: Not at all likely Probable: Distinctive possibility Highly probable: Most likely to happen Definite: Impact will occur regardless of any prevention measures</p>
<p>Degree of Confidence in predictions State the degree of confidence in predictions based on availability of information and specialist knowledge</p>	<p>Unsure/Low: Little confidence regarding information available (<40%) Probable/Med: Moderate confidence regarding information available (40-80%) Definite/High: Great confidence regarding information available (>80%)</p>
<p>Significance Rating The impact on each component is determined by a combination of the above criteria.</p>	<p>Neutral: A potential concern which was found to have no impact when evaluated Very low: Impacts will be site specific and temporary with no mitigation necessary. Low: The impacts will have a minor influence on the proposed development and/or environment. These impacts require some thought to adjustment of the project design where achievable, or alternative mitigation measures Medium: Impacts will be experienced in the local and surrounding areas for the life span of the development and may result in long term changes. The impact can be lessened or improved by an amendment in the project design or implementation of effective mitigation measures. High: Impacts have a high magnitude and will be experienced regionally for at least the life span of the development, or will be irreversible. The impacts could have the no-go proposition on portions of the development in spite of any mitigation measures that could be implemented.</p>

*NOTE: Where applicable, the magnitude of the impact has to be related to the relevant standard (threshold value specified and source referenced). The magnitude of impact is based on specialist knowledge of that particular field.

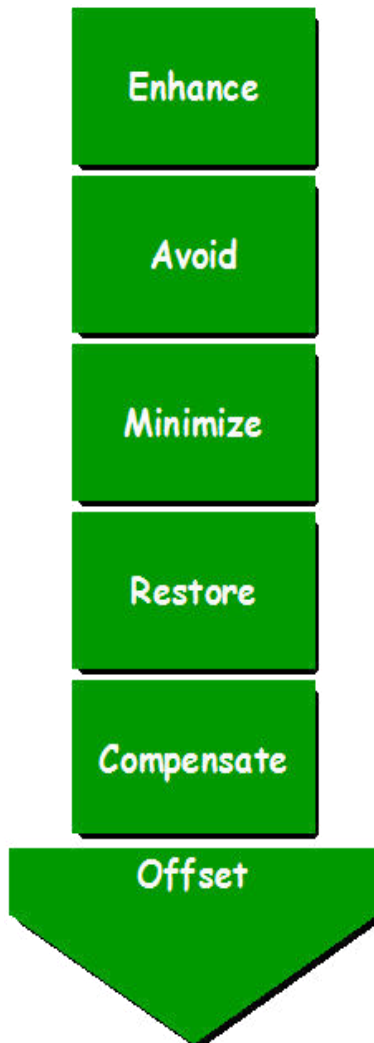
For each impact, the EXTENT (spatial scale), MAGNITUDE (size or degree scale) and DURATION (time scale) are described. These criteria are used to ascertain the SIGNIFICANCE of the impact, firstly in the case of no mitigation and then with the most effective mitigation measure(s) in place. The decision as to which combination of alternatives and mitigation measures to apply lies with Central Oil Namibia (Pty) Ltd as the proponent, and their acceptance and approval ultimately with the relevant environmental authority.

The SIGNIFICANCE of an impact is derived by taking into account the temporal and spatial scales and magnitude. Such significance is also informed by the context of the impact, i.e. the character and identity of the receptor of the impact. The means of arriving at the different significance ratings is explained in the **Table 4**.

7.1 MITIGATION MEASURES

There is a hierarchy of actions which can be undertaken to respond to any proposed project or activity. These cover avoidance, minimization and compensation. It is possible and considered sought after to enhance the environment by ensuring that positive gains are

included in the proposed activity or project. If negative impacts occur then the hierarchy indicates the following steps.



Impact avoidance: This step is most effective when applied at an early stage of project planning. It can be achieved by:

- not undertaking certain projects or elements that could result in adverse impacts;
- avoiding areas that are environmentally sensitive; and
- Putting in place preventative measures to stop adverse impacts from occurring.

Impact minimization: This step is usually taken during impact identification and prediction to limit or reduce the degree, extent, magnitude, or duration of adverse impacts. It can be achieved by:

- scaling down or relocating the proposal;
- redesigning elements of the project; and
- taking supplementary measures to manage the impacts

Impact compensation: This step is usually applied to remedy unavoidable residual adverse impacts. It can be achieved by:

- rehabilitation of the affected site or environment, for example, by habitat enhancement;
- restoration of the affected site or environment to its previous state or better; and
- Replacement of the same resource values at another location (off-set), for example, by wetland engineering to provide an equivalent area to that lost to drainage or infill.

8 ASSESSMENT OF POTENTIAL IMPACTS AND POSSIBLE MITIGATION MEASURES

This chapter is the focus of the EA Report. It contains a detailed assessment of the operational (or long term) impacts as well as the construction phase (or short term) impacts on the biophysical and socio-economic environments using the methodology described in Chapter 7. A summary table of the assessment of all the potential impacts is also provided.

8.1 INTRODUCTION

This Chapter describes the potential impacts on the biophysical and socio-economic environments, which may occur due to the proposed activities described in Chapter 4. These include potential impacts, which may arise during the operation of the proposed development (i.e. long-term impacts) as well as the potential construction related impacts (i.e. short to medium term). The assessment of potential impacts will help to inform and confirm the selection of the fuel storage facility to be submitted to MEFT: DEA for consideration. In turn, MEFT: DEA's decision on the environmental acceptability of the proposed project and the setting of conditions of authorisation (should the project be authorised) will be informed by this chapter, amongst other information, contained in this EA Report. In this section only the expected environmental impacts are highlighted.

The evaluation of environmental and related socio-economic impacts related to the development and operation of the proposed fuel storage facility at the site has been prepared through the examination of individual environmental components that are potentially affected by the proposed activities. This examination assesses the following:

- Communities attitude towards the site;
- The possibility of the impact to occur;
- The timeframe over which the impact is likely to be experienced (long-term, short-term);
- Possible mitigation or preventive measures.

8.1.1 Construction Phase Impacts

The construction phase impacts are those impacts on the biophysical and socio-economic environment that would occur during the construction phase of the proposed bulk services infrastructure. They are inherently temporary in duration, but may have longer lasting effects. The construction phase impacts could potentially include:

- Disturbance on biophysical environment (fauna and flora);
- Impact on surface and ground water resources;
- Impact on soil erosion;
- Social Impacts;
- Impact on archaeological, cultural and historic sites;
- Impact of increased vehicular traffic and heavy load transport;
- Impact of nuisances (noise, aesthetics etc.) and
- Impact of dust on air quality

8.1.2 Operational Phase Impacts

The operational phase impacts are those impacts on the biophysical and socio-economic environment that would occur during the operational phase of the proposed project and are inherently long-term in duration. The operational phase impacts could potentially include:

- Impact on surface and ground water resources;
- Impact of visual and sense of place;
- Impact of increased vehicular traffic;
- Impact of noise during operation;
- Impact of dust during operation (unpaved area);
- Impact of waste generation;
- Impact on Health and Safety;
- Impact on existing service infrastructure;
- Impact of hazardous substances (pollution);
- Social impacts.

Each of these impacts is assessed in detail in the section below. The baseline and potential impacts that could result from the proposed development are described and assessed with potential mitigation measures recommended. Finally, comment is provided on the potential cumulative impacts which could result should this development, and others like it in the area, be approved.

8.2 CONSTRUCTION PHASE IMPACTS (BIOPHYSICAL ENVIRONMENT)

The construction phase activities and impacts are similar and would therefore have more or less the same ratings for all developmental activities.

8.2.1 Flora and Fauna Impacts

a) Impact Assessment

The site area holds very small vegetation (thorn bushes and grass) on it and these will be cleared to allow for the proposed project to take place (as can be seen in figure 10 below).

Good planning prior to development (including associated infrastructure development) as well as adhering to proposed mitigation measures would however minimise the overall effect on the existing local fauna and flora at the proposed project area.



Figure 10: Type of vegetation (Flora) found at the project area

The impact of this proposed development is deemed to result in a **Low (negative)** impact on the natural vegetation of the area as well as possible fauna that could be found within or close proximity of the project area. By implementing the below proposed mitigation measures such as ensuring least disturbance of indigenous plant species would reduce the impact to **Low (negative)**.

b) Mitigation Measures

- Prevent Contractors from collecting wood, veld food, etc. during the construction phase.
- Recommend the planting of local indigenous species of flora as part of the landscaping as these species would require less maintenance than exotic species.

8.2.2 Water Impacts (Surface & Groundwater)

It should be noted that no specialist was appointed to assess surface water impacts as this was deemed to be a low significance issue and generic mitigation measures will be adequate to manage impacts.

a) Impact Assessment

During the site visit that was done for the proposed project, there were no surface water bodies visible to be considered. The topography for the proposed area is noticeably flat and is highly unlikely that water bodies will surface in future. However, should the proposed project take place during the rainy season, surface water bodies are likely to occur. In that regard, contamination of surface water through oil leakages and grease from construction machinery is expected to occur.

The impact of the proposed project is deemed to result in a **Medium - Low (negative)** impact on the natural surface water areas when construction activities takes place in close proximity and if the appropriate mitigation measures are not implemented. However, by implementing the proposed mitigation measures below it would be possible to reduce the impact to a **Low (negative)**.

b) Mitigation Measures

- It is recommended that construction **takes place outside of the rainy season in order to limit flooding and surface water pollution.**
- No dumping of waste products of any kind in or in close proximity to the surface water bodies (if any).
- Heavy construction vehicles should be kept out of the surface water bodies and the movement of construction vehicles should be limited where possible to the existing roads and tracks.
- Ensure that oil/ fuel spillages from construction vehicles and machinery are minimised and that where these occur, that they are appropriately dealt with.
- Drip trays must be placed underneath construction vehicles when not in use to contain all oil that might be leaking from these vehicles.
- Contaminated runoff from the construction sites should be prevented from entering the surface water bodies.
- All materials on the construction site should be properly stored.
- Disposal of waste from the site should be properly managed and taken to an authorized landfill site in Ondangwa.

- Construction workers should be given ablution facilities at the construction site that are located at least 30 m away from any surface water bodies and regularly serviced.
- Washing of personnel or any equipment should not be allowed on site. Should it be necessary to wash construction equipment these should be done at an area properly suited and prepared to receive and contain polluted waters.

8.2.3 Soil Erosion Impacts

a) Impact Assessment

As indicated above the topography of the project area is noticeably flat. In that regard, the topography thus plays an important role in the potential cause of soil erosion during the construction phase when vegetation clearing take place. In addition, the rainy season can play a vital role when potential flooding occurs to cause further erosion within the project area.

The impact of soil erosion on the proposed project is deemed to result in a **low (negative)** impact on the natural environment when construction activities takes place especially during the rainy season and if the appropriate mitigation measures are not implemented. However, by implementing the below proposed mitigation measures it would be possible to reduce the impact to a **very low (negative)**.

b) Mitigation Measures

- It is recommended that construction **takes place outside of the rainy season in order to limit potential flooding and the run of loose soil causing further erosion.**
- Appropriate erosion control structures must be put in place where soil may be prone to erosion.
- Checks must be carried out at regular intervals to identify areas where erosion is occurring. Appropriate remedial actions are to be undertaken where ever erosion is evident.

8.3 CONSTRUCTION PHASE IMPACTS ON THE SOCIO-ECONOMIC ENVIRONMENT

8.3.1 Archaeological/Heritage Impacts

It should be noted that no specialist was appointed to assess heritage impacts as this was deemed not to be a significant issue and generic mitigation measures will be adequate to manage impacts.

No known heritage sites are located within the proposed development area. If any heritage or cultural significant artefacts are found during the construction of the proposed development construction must stop and the National Heritage Council of Namibia immediately notified.

a) Impact Assessment

The proposed development is deemed to result in a **Very-Low to Negligible (negative)** impact on the cultural or heritage resources given that the project area is not in close proximity to any heritage sites. The project management should however be made aware of the provisions of the National Heritage Act regarding the prompt reporting of archaeological finds. In the event of such finds, the project management or contractors should contact the National Heritage Council of Namibia immediately.

8.3.2 Health, Safety and Security Impacts

Experience with other construction projects in a developing-world context has shown that, where construction workers have the opportunity to interact with local community, a significant risk is created for the development of social conditions and behaviours that contribute to the spread of HIV and AIDS. However minimal workers are envisaged due to the minimal construction related activities required.

In response to the threat the pandemic poses, MEFT has recently developed a policy on HIV and AIDS. This policy, which was developed with support from USAID, GTZ and the German Development Fund, provides for a non-discriminatory work environment and for workplace programs managed by a Ministry-wide committee.

The following mitigation measures are recommended:

a) Mitigation Measures

- Construction personnel should not overnight at the site, but only the security personnel.
- Ensure that all construction personnel are properly trained depending on the nature of their work.
- Provide for a first aid kit and properly trained person to apply first aid when necessary.
- A wellness program should be initiated to raise awareness on health issues, especially the impact of sexually transmitted diseases as described above.
- Restrict unauthorised access to the site and implement access control measures.
- Clearly demarcated the construction site boundaries along with signage of no unauthorised access.
- Clearly demarcate dangerous areas and no go areas on site.
- Staff and visitors to the site must be fully aware of all health safety measures and emergency procedures.
- The contractor must comply with all applicable occupational health and safety requirements. The workforce should be provided with all necessary Personal Protective Equipment including where appropriate.

The proposed project is deemed to result in a **Low-Very Low (negative)** impact on community health and safety during the construction phase. The project management should collaborate with Ondangwa Town Council and other local institutions (clinic and police) in order to incorporate a health and safety guideline / plan for the local community and workers prior to the start of construction. With the implementation of such a plan and the above mitigation measures the significance rating can be dropped to **Negligent (negative)** impact.

8.3.3 Traffic Impacts

a) Impact Assessment

Given the magnitude of the proposed project, traffic impacts are likely to be encountered as construction vehicles will be transporting building material to the site. In addition, traffic is expected to slightly increase within the vicinity of ATYT Airport.

The following mitigation measures are recommended:

b) Mitigation Measures

- Ensure that road junctions have good sightlines.

- Construction vehicles' need to be in a road worthy condition and maintained throughout the construction phase.
- Transport the materials in the least amount of trips as possible.
- Adhere to the speed limits provided within the airport vicinity.
- Implement traffic control measures where necessary.

The impact of increased traffic is deemed to be **Low (negative)** without mitigation and **Very-Low (negative)** with mitigation and no significant cumulative traffic impacts are foreseen.

8.3.4 Nuisance Impacts (Noise, Aesthetic)

It should be noted that no specialist was appointed to assess noise impacts as this was deemed not to be a significance issue and generic mitigation measures will be adequate to manage impacts.

a) Impact Assessment

The noise impacts will mainly be during the construction phase and would be associated with construction machinery and traffic noise from construction vehicles. The project area is however mostly uninhabitable and would therefore not interfere significantly on people in the area (except for the car rental service providers operating at the airport) during the short-term construction phase.

The following mitigation measures are recommended:

b) Mitigation Measures

- No amplified music should be allowed on Site.
- Inform immediate neighbours of construction activities to commence and provide for continuous communication between the neighbours and contractor (if there is any).
- Limit construction times to acceptable daylight hours (07:00 – 17:00).
- Should blasting be required all residents as per the legal requirements should be informed.

The noise impact to be generated from the proposed project is deemed to be **Medium-Low (negative)** without mitigation and **Low (negative)** with mitigation. There are a few properties (car rental service providers) to the western side of the site which will be slightly affected by the proposed construction activities but due to the relative short term nature of the proposed construction phase, no significant cumulative traffic impacts are foreseen.

8.3.5 Dust and Emission Impacts

Excavation and stockpiles during the construction phase could result in dust impacts, if not managed correctly. *It should be noted that no specialist was appointed to assess dust impacts as this was deemed not to be a significance issue and generic mitigation measures will be adequate to manage impacts.*

a) Impact Assessment

Dust could impact negatively on the health of the nearby business properties if mitigation measures are not implemented. The business properties in close proximity to the site would be the existing PUMA Energy (Pty) Ltd and the Car Rental Service providers. Dust impacts are primarily associated with the construction phase. The project area is however mostly

uninhabitable and would therefore not interfere significantly on people in the area during the short-term construction phase.

It is important for the proponent to keep constant communication with the airport's manager to ensure that the construction phase activities do not interfere with the flight schedules.

The following mitigation measures are recommended:

b) Mitigation Measures

- Construction vehicles to only use designated roads.
- During high wind conditions the contractor must make the decision to cease works until the wind has calmed down.
- It is recommended that Dustex be applied to all the construction clearing activities to ensure 50% control efficiency and to ensure 75% control efficiency on all the unpaved roads.
- Cover any stockpiles with plastic to minimise windblown dust.
- Dust suppression measures will be used during the construction phase.

The dust impact for the proposed development is deemed to be **Medium-Low (negative)** without mitigation and **Low (negative)** with mitigation. Due to the short term nature of the proposed construction phase, no significant cumulative dust impacts are foreseen.

8.3.6 Waste Management

a) Impact Assessment

Waste is expected to be generated on site especially during construction from construction materials such as cement bags, rubbles, pipes, excavated materials from earthworks etc. Other sources of waste may be from oil leakages and grease from operating machinery which will cause soil contamination. Lack of proper management of the waste on the site may lead to dumping and wind-blown litter creating a negative visual impact as well as impacting on the surrounding natural ecosystems.

The following mitigation measures should be followed in order to minimise the generation of waste on site.

b) Mitigation Measures

- The oil leakages, lubricants and grease must be addressed and contaminated soil must be removed and disposed off at an authorised hazardous waste landfill site in Ondangwa or Oshana Region at large.
- The contractor must provide sufficient containers on-site, to store any hazardous waste produced and regular inspection and housekeeping procedure monitoring should be maintained by the contractor.
- Appropriate measures should be in place to minimise windblown litter and dust during transportation of waste by either covering trucks or by transporting wastes in enclosed containers.

8.3.7 Combined Construction Phase Impacts

Construction Site

The construction phase will result in an additional people on-site, who will require provision of the following services:

- Potable water would be required for domestic (ablution and drinking) and construction purposes.
- Temporary toilets would be required during the construction phase. These will be placed within the accommodation campsite.
- All solid waste (domestic and construction waste) will be collected and disposed of at an appropriate local landfill site in Ondangwa.

Storage and Utilisation of Hazardous Substances

Hazardous substances are regarded by the Hazardous Substance Ordinance (No. 14 of 1974) as those substances which may cause injury or ill-health to or death of human beings by reason of their toxic, corrosive, irritant, strongly sensitizing or flammable nature or the generation of pressure thereby in certain circumstances. It covers manufacture, sale, use, disposal and dumping as well as import and export.

During the construction period, the use and storage of these types of hazardous substances, such as shutter oil, curing compounds, types of solvents, primers and adhesives and diesel, on-site could have negative impact on the surrounding environment, if these substances spill and enter the environment. Typical mitigation measures include storage of the material in a bunded area, with a volume of 120 % of the largest single storage container or 25 % of the total storage containers whichever is greater, refuelling of vehicles in designated areas that have a protective surface covering and utilisation of drip trays for stationary plant.

The significance of the composite construction phase impacts was deemed to be **Low (negative)** without mitigation and **Very-Low (negative)** with mitigation for the proposed development.

8.3.8 Environmental Management Plan

A final Environmental Management Plan (EMP) is contained in **Annexure A** of this report. The purpose of the EMP is to outline the type and range of mitigation measures that should be implemented during the construction, operational and decommissioning phases of the project to ensure that negative impacts associated.

8.4 OPERATIONAL PHASE IMPACTS

During the operational phase, a large portion of land will change to make way for the proposed project of the bulk fuel storage facility. The operational phase activities and impacts will primarily consist out of those carried out at the bulk fuel storage facility.

8.4.1 Water Pollution Impacts

a) Impact Assessment

During the operational phase of the project, surface and stormwater could also be contaminated as a result of minor spillages during the tanker refuelling of the above storage tanks, fuel dispensing to bowsers on the forecourt of the site area and washing of these areas. Should these contaminants not be trapped on site, it could end up in downstream

watercourses with associated impacts on water users and biota. It is therefore essential to ensure that stormwater from the site is controlled.

The impact of the proposed project is deemed to result in a **Medium-Low (negative)** impact for the proposed project especially in the rainy season. However, by implementing the below proposed mitigation measures it would be possible to reduce the impact to a **Low (negative)**.

b) Mitigation Measures

- A no-go buffer area of at least 50m should be allocated to any water bodies in the area (if there is any).
- No dumping of waste products of any kind in or in close proximity to the surface water bodies.
- Contaminated runoff from the operations of the fuel storage facility should be prevented from entering the surface water bodies.
- Ensure that surface water accumulating on-site are channelled and captured through a proper storm water management system to be treated in an appropriate manner before disposal into the environment.
- Re-use of treated waste water should be considered wherever possible to reduce the consumption of potable water – *wherever possible*.

8.4.2 Visual and Sense of Place Impacts

a) Description of the Environment

The proposed project is visually very prominent mostly from the car rental service providers, airport terminal building and the aircraft runway. The proposed development will only entail the operation of a bulk fuel storage facility. The size and design of the fuel storage facility will be that of a general fuel storage facility with a workshop for mechanical maintenance services as well as an administration office.

Existing vegetation on-site holds very little potential to screen the development from the surrounding area.

Very little mitigations exist with regards to reduce the expected visual impact at this stage. Given the flat topography and size of the development, the impact on the sense of place is expected to be **Medium-Low (negative)**. With proper mitigation measures the significance is expected to be **Low (negative)**, to change over time as the area becomes more developed.

b) Mitigation Measures

It is recommended that more 'green' technologies be implemented within the architectural designs and building materials of the development where possible in order to minimise the visual prominence of such a development within the more natural surrounding landscape. Visual pollutants can further be prevented through mitigations

8.4.3 Traffic Impacts

a) Impact Assessment

Given the magnitude of the development it is expected there will be no increase in traffic which could potentially result in associated noise impacts and/or have an impact on the existing access roads in the area.

However, the impact of increased traffic is however deemed to result in a **Low (negative)** impact for the surroundings of Andimba Toivo Ya Toivo Airport and it would be possible to reduce the impact to a **Very-Low (negative)**.

b) Mitigation Measures

The following mitigation measures are recommended:

- Ensure that road junctions have good sightlines.
- Adhere to the speed limit within ATYT Airport.
- Implement traffic control measures where necessary.

8.4.4 Noise Impacts

a) Impact Assessment

The operation of various types of activities within the proposed development will result in associated noise impacts. *It should be noted that no specialist was appointed to assess noise impacts as this was deemed not to be a significance issue and generic mitigation measures will be adequate to manage impacts.*

Operational noises associated with the proposed development is expected to be at the level of normal noise generated from a fuel storage facility at the airport.

The impact of noise is deemed to result in a **Low (negative)** impact and with proper mitigation measures it would be possible to reduce the impact to a **Very-Low (negative)** for the surrounding areas in close proximity to the site and airport overall.

b) Mitigation Measures

The following mitigation measures are recommended:

- Continuous monitoring of noise levels should be conducted to make sure the noise levels does not exceed acceptable limits **(only if required)**.
- The design and materials use as well as the layout of the development should be such to minimise noises.

No activity having a potential noise impact should be allowed after 18:00 if possible. By applying a series of the mitigation measures as proposed for general development as well as these above it is believed that any potential nuisance can be significantly reduced.

8.4.5 Dust and Emission Impacts

a) Impact Assessment

The project area will remain paved at the section or area where the Jet Fuel Storage Containers will be stored and installed. However, the rest of the site will remain unpaved.

The air quality within the airport area is considered to be fairly good. This is based on the impact that there are currently no activities taking place in the area which are likely to have on the air quality.

Emissions associated with the proposed development will mostly be generated by vehicle movement. Because the impact is unknown, the entire development needs to be controlled and managed as required by the Public Health Act (Act No. 36 of 1919) and Atmospheric Pollution Prevention Ordinance (No. 11 of 1976).

The impact of dust and emissions is deemed to result in a **Low (negative)** impact and with proper mitigation measures it would be possible to reduce the impact to a **Very-Low (negative)** for Ondangwa.

8.4.6 Existing Service Infrastructure Impacts

The proposed development will make use of the existing infrastructure specifically regarding electricity, water and sewer. This minimal demand is expected to be **Low – Very Low (negative)**.

It is recommended that alternative and renewable source of energy be explored and introduced into the proposed development to reduce dependency on the grid. Other 'green' technologies to reduce the proposed development's dependence should be explored where possible. Water saving mechanisms should be incorporated within the proposed development's design and plans in order to further reduce water demands.

By applying a series of the mitigation measures as proposed for general developments it is believed that any potential nuisance can be significantly reduced.

8.4.7 Hazardous Substances Impacts

The storage and handling of a variety of chemicals to be stored on site especially diesel, petrol and oil in regards to the fuel storage facility must be properly regulated. All chemicals and other hazardous substances must be stored and maintained in accordance with the Hazardous Substances Ordinance (No. 14 of 1974), with all relevant licences and permits to be obtained where applicable. All special regulations and laws pertaining to the management of a fuel storage facility must be adhered to.

All fuel storage and handling facilities in Namibia must also comply with strict safety distances as prescribed by SANS 10089. SANS 10089 is adopted by the Ministry of Mines and Energy as the national standard.

Given the potential harm to human health during handling and use of any of hazardous substances it is essential that all staff be trained with regards to the proper handling of these substances as well as First Aid in the case of spillage or intoxication. Storage areas for all substances should be bunded and capable to hold 120% of the total volume of a given substance stored on site.

Aboveground fuel tankers should be stored in proper containers and include appropriate risk control measures in the case of leakages or pollution. Specific safety features and protocols should be implemented in the case of a **fire or explosion**. Proper licensed and updated firefighting equipment should be installed and easily implemented. It must further be assured that sufficient water and sand is available for firefighting purposes.

8.4.8 Waste Generation

a) Impact Assessment

Waste is expected to be generated from the proposed development. Nonetheless, waste generated from the development will be removed and disposed off at an authorised landfill site in Ondangwa by Central Oil Namibia (Pty) Ltd or the proponent's Waste Removal Contractors. With quite a minor increase in human activity on site, it is likely that an increase in the generation of general waste can be expected. It is unlikely that this increase, coupled with other similar within the vicinity will significantly affect the ability of Ondangwa Town Council to handle and dispose of waste in a responsible manner.

Care should, however, be taken to ensure that the waste generated on site does not become a litter issue, since there is potential for that scenario to develop if not managed correctly and adequately.

b) Mitigation Measures

The following mitigation measure should be implemented in order to avoid rubbish being blown away by wind.

- It is therefore recommended that the Town Council should provide the fuel storage facility with sufficient waste skips. These waste skips should be removed on a weekly basis.

8.4.9 Safety and Health Impacts

A limited demand of local workforce during the operational phase of the proposed development is envisaged with most workers to be contracted from Ondangwa or Oshana Region. Construction projects in a developing-world context has shown that, where workers have the opportunity to interact with local community, a significant risk is created for the development of social conditions and behaviours that contribute to the spread of HIV and AIDS. This is not deemed to have a high impact due to the medium scale of the proposed development.

The proposed development is deemed to result in a **Low (negative)** impact on community health and safety during the rehabilitation and operational phase. The project management should however collaborate with Ondangwa Town Council and other local institutions (clinic/hospitals and police) in order to incorporate a health and safety guideline / plan for the local community and workers prior to the start of the operational phase of the project. With the implementation of such a plan the significance rating can be dropped to **Very Low (negative)** impact.

8.4.10 Socio-Economic Impacts

The proposed development will result in the direct creation of job opportunities (e.g. the use of local labourers) for the local labour force during the operational phase of the site. This will also involve transfer of skills and the improvement of the quality of life for families of individuals employed. Indirect job opportunities (industries that provide materials and services for the project) are also expected as a result of the operations of the proposed development area.

The resultant consumption of fuel on the property will create additional employment opportunities in the local area. This will also involve transfer of skills and the improvement of the quality of life for families of individuals employed. Furthermore, the fuel storage facility will improve the levels of convenience and ensure stable dispersion of fuel to the aircraft operators at Andimba Toivo Ya Toivo Airport.

8.5 CUMULATIVE IMPACTS

Cumulatively, the proposed development of the bulk fuel storage facility is rated as **high (positive)** for all developments. The cumulative impact of the proposed development in regards to the degradation of the vacant project area (potential pollution of surface and groundwater, soil erosion), of which the exact type of activities is unknown are very difficult to rate. With regards to vegetation found on site, these could be rated **Low – Very low (negative)** overall given that there is no significant vegetation on site to be considered.

If all proposed mitigation measures are however in place to minimise the overall impacts, then the cumulative impact can be expected to be rated as **Low (negative)** for Ondangwa.

8.6 SUMMARY OF POTENTIAL IMPACTS

A summary of all the potential impacts from the proposed project assessed above is included in **Table 5**. While some difference in magnitude of the potential impacts would result from the proposed alternatives this difference was not considered to be significant for any of the potential impacts. As such, the table below applies to all proposed alternatives.

Table 5: Summary of the potential impacts of the proposed development (Construction and Operation)

Description of potential impact	Project alternative	No mitigation / mitigation	Extent	Magnitude	Duration	SIGNIFICANCE	Probability	Confidence	Reversibility	Cumulative impact
CONSTRUCTION PHASE										
Biophysical (Flora)	ATYT Airport – Bulk Fuel Storage Facility	No mitigation	Local	Medium-Low	Short term	Low	Probable	Certain	Reversible	Low (-)
		Mitigation	Local	Low	Short term	Low	Probable	Certain	Reversible	Very low (-)
	No go	No mitigation	Local	Neutral	Short term	Neutral	Probable	Certain	Reversible	Neutral
		Mitigation	Local	Neutral	Short term	Neutral	Probable	Certain	Reversible	Neutral
Biophysical (Fauna)	ATYT Airport – Bulk Fuel Storage Facility	No mitigation	Local	Low	Short term	Low	Probable	Certain	Reversible	Low (-)
		Mitigation	Local	Very low	Short term	Very low	Probable	Certain	Reversible	Very low (-)
	No go	No mitigation	Local	Neutral	Short term	Neutral	Probable	Certain	Reversible	Neutral
		Mitigation	Local	Neutral	Short term	Neutral	Probable	Certain	Reversible	Neutral
Surface water	ATYT Airport – Bulk Fuel Storage Facility	No mitigation	Local	Medium	Short term	Medium - Low	Probable	Certain	Reversible	Medium (-)
		Mitigation	Local	Low	Short term	Very low	Probable	Certain	Reversible	Very low (-)
	No go	No mitigation	Local	Neutral	Short term	Neutral	Probable	Certain	Reversible	Neutral
		Mitigation	Local	Neutral	Short term	Neutral	Probable	Certain	Reversible	Neutral
Soil Erosion	ATYT Airport – Bulk Fuel Storage Facility	No mitigation	Local	Medium	Short term	Low	Probable	Certain	Reversible	Medium (-)
		Mitigation	Local	Low	Short term	Very low	Probable	Certain	Reversible	Very low (-)
	No go	No mitigation	Local	Neutral	Short term	Neutral	Probable	Certain	Reversible	Neutral
		Mitigation	Local	Neutral	Short term	Neutral	Probable	Certain	Reversible	Neutral
Heritage/Archaeological	ATYT Airport – Bulk Fuel Storage Facility	No mitigation	Local	Medium	Short term	Very Low	Probable	Certain	Reversible	Very Low (-)
		Mitigation	Local	Low	Short term	Negligible	Probable	Certain	Reversible	Negligible (-)
	No go	No mitigation	Local	Neutral	Short term	Neutral	Probable	Certain	Reversible	Neutral
		Mitigation	Local	Neutral	Short term	Neutral	Probable	Certain	Reversible	Neutral
Health & Safety	ATYT Airport – Bulk Fuel Storage Facility	No mitigation	Local	Medium	Short term	Low – Very Low	Probable	Certain	Reversible	Low (-)
		Mitigation	Local	Low	Short term	Negligible	Probable	Certain	Reversible	Negligible (-)
	No go	No mitigation	Local	Neutral	Short term	Neutral	Probable	Certain	Reversible	Neutral
		Mitigation	Local	Neutral	Short term	Neutral	Probable	Certain	Reversible	Neutral
		No mitigation	Local	Medium	Short term	Low	Probable	Certain	Reversible	Low (-)

Description of potential impact	Project alternative	No mitigation / mitigation	Extent	Magnitude	Duration	SIGNIFICANCE	Probability	Confidence	Reversibility	Cumulative impact
Traffic Impacts	ATYT Airport – Bulk Fuel Storage Facility	Mitigation	Local	Low	Short term	Very low	Probable	Certain	Reversible	Very low (-)
	No go	No mitigation	Local	Neutral	Short term	Neutral	Probable	Certain	Reversible	Neutral
		Mitigation	Local	Neutral	Short term	Neutral	Probable	Certain	Reversible	Neutral
Noise Impacts	ATYT Airport – Bulk Fuel Storage Facility	No mitigation	Local	Medium	Short term	Medium - Low	Probable	Certain	Reversible	Medium (-)
	No go	Mitigation	Local	Low	Short term	Low	Probable	Certain	Reversible	Low (-)
		No mitigation	Local	Neutral	Short term	Neutral	Probable	Certain	Reversible	Neutral
		Mitigation	Local	Neutral	Short term	Neutral	Probable	Certain	Reversible	Neutral
Dust Impacts	ATYT Airport – Bulk Fuel Storage Facility	No mitigation	Local	Medium	Short term	Medium-Low	Probable	Certain	Reversible	Medium-Low (-)
	No go	Mitigation	Local	Low	Short term	Low	Probable	Certain	Reversible	Low (-)
		No mitigation	Local	Neutral	Short term	Neutral	Probable	Certain	Reversible	Neutral
		Mitigation	Local	Neutral	Short term	Neutral	Probable	Certain	Reversible	Neutral
Waste Management	ATYT Airport – Bulk Fuel Storage Facility	No mitigation	Local	Medium	Short term	Medium-Low	Probable	Certain	Reversible	Medium-Low (-)
	No go	Mitigation	Local	Low	Short term	Low	Probable	Certain	Reversible	Low (-)
		No mitigation	Local	Neutral	Short term	Neutral	Probable	Certain	Reversible	Neutral
		Mitigation	Local	Neutral	Short term	Neutral	Probable	Certain	Reversible	Neutral
Combined Construction Phase Impacts	ATYT Airport – Bulk Fuel Storage Facility	No mitigation	Local	Low	Short term	Medium-Low	Probable	Certain	Reversible	Medium - Low (-)
	No go	Mitigation	Local	Very low	Short term	Low	Probable	Certain	Reversible	Low (-)
		No mitigation	Local	Neutral	Short term	Neutral	Probable	Certain	Reversible	Neutral
		Mitigation	Local	Neutral	Short term	Neutral	Probable	Certain	Reversible	Neutral
OPERATIONAL PHASE										
Surface Water	ATYT Airport – Bulk Fuel Storage Facility	No mitigation	Local	Medium-Low	Medium term	Medium - Low	Probable	Certain	Reversible	Medium-Low (-)
	No go	Mitigation	Local	Low	Medium term	Low	Probable	Certain	Reversible	Low (-)
		No mitigation	Local	Low	Medium term	Neutral	Probable	Certain	Reversible	Neutral
		Mitigation	Local	Low	Medium term	Neutral	Probable	Certain	Reversible	Neutral
		No mitigation	Local	Medium-Low	Medium term	Medium - Low	Probable	Certain	Reversible	Medium-Low (-)

Description of potential impact	Project alternative	No mitigation / mitigation	Extent	Magnitude	Duration	SIGNIFICANCE	Probability	Confidence	Reversibility	Cumulative impact
Visual & Sense of place	ATYT Airport – Bulk Fuel Storage Facility	Mitigation	Local	Low	Medium term	Low	Probable	Certain	Reversible	Low (-)
	No go	No mitigation	Local	Neutral	Medium term	Neutral	Probable	Certain	Reversible	Neutral
		Mitigation	Local	Neutral	Medium term	Neutral	Probable	Certain	Reversible	Neutral
Traffic Impacts	ATYT Airport – Bulk Fuel Storage Facility	No mitigation	Local	Low	Medium term	Low	Probable	Certain	Reversible	Low (-)
	No go	Mitigation	Local	Very Low	Medium term	Very Low	Probable	Certain	Reversible	Very Low (-)
		No mitigation	Local	Neutral	Medium term	Neutral	Probable	Certain	Reversible	Neutral
		Mitigation	Local	Neutral	Medium term	Neutral	Probable	Certain	Reversible	Neutral
Noise Impacts	ATYT Airport – Bulk Fuel Storage Facility	No mitigation	Local	Low	Medium term	Low	Probable	Certain	Reversible	Low (-)
	No go	Mitigation	Local	Very Low	Medium term	Very Low	Probable	Certain	Reversible	Very Low (-)
		No mitigation	Local	Neutral	Medium term	Neutral	Probable	Certain	Reversible	Neutral
		Mitigation	Local	Neutral	Medium term	Neutral	Probable	Certain	Reversible	Neutral
Dust & Emissions	ATYT Airport – Bulk Fuel Storage Facility	No mitigation	Local	Low	Medium term	Low	Probable	Certain	Reversible	Low (-)
	No go	Mitigation	Local	Very Low	Medium term	Very Low	Probable	Certain	Reversible	Very Low (-)
		No mitigation	Local	Neutral	Medium term	Neutral	Probable	Certain	Reversible	Neutral
		Mitigation	Local	Neutral	Medium term	Neutral	Probable	Certain	Reversible	Neutral
Existing Services	ATYT Airport – Bulk Fuel Storage Facility	No mitigation	Local	Low	Medium term	Medium-Low	Probable	Certain	Reversible	Medium-Low (-)
	No go	Mitigation	Local	Very Low	Medium term	Low	Probable	Certain	Reversible	Low (-)
		No mitigation	Local	Neutral	Medium term	Neutral	Probable	Certain	Reversible	Neutral
		Mitigation	Local	Neutral	Medium term	Neutral	Probable	Certain	Reversible	Neutral
Hazardous Substances	ATYT Airport – Bulk Fuel Storage Facility	No mitigation	Local	Medium	Medium term	Medium-High	Probable	Certain	Reversible	Medium-High (-)
	No go	Mitigation	Local	Low	Medium term	Medium-Low	Probable	Certain	Reversible	Medium-Low (-)
		No mitigation	Local	Neutral	Medium term	Neutral	Probable	Certain	Reversible	Neutral
		Mitigation	Local	Neutral	Medium term	Neutral	Probable	Certain	Reversible	Neutral
Social Impact (municipal services & job provisions)	ATYT Airport – Bulk Fuel Storage Facility	No mitigation	Local	High	Long term	High (+)	Probable	Probable	Reversible	High (+)
		Mitigation	Local	High	Long term	High (+)	Probable	Probable	Reversible	High (+)

Description of potential impact	Project alternative	No mitigation / mitigation	Extent	Magnitude	Duration	SIGNIFICANCE	Probability	Confidence	Reversibility	Cumulative impact
	No go	No mitigation	Local	Neutral	Long term	Neutral	Probable	Probable	Reversible	Neutral
		Mitigation	Local	Neutral	Long term	Neutral	Probable	Probable	Reversible	Neutral
Waste Generation	ATYT Airport – Bulk Fuel Storage Facility	No mitigation	Local	High	Long term	Low	Probable	Probable	Reversible	Medium-High (-)
		Mitigation	Local	High	Long term	Very Low	Probable	Probable	Reversible	Medium-Low (-)
	No go	No mitigation	Local	High	Long term	Neutral	Probable	Probable	Reversible	Neutral
		Mitigation	Local	High	Long term	Neutral	Probable	Probable	Reversible	Neutral
Cumulative Impacts	ATYT Airport – Bulk Fuel Storage Facility	No mitigation	Local	High	Long term	High (+)	Probable	Probable	Reversible	High (+)
		Mitigation	Local	High	Long term	High (+)	Probable	Probable	Reversible	High (+)
	No go	No mitigation	Local	High	Long term	Neutral	Probable	Probable	Reversible	Neutral
		Mitigation	Local	High	Long term	Neutral	Probable	Probable	Reversible	Neutral

9 CONCLUSION

The purpose of this Chapter is to briefly summarise and conclude the Final Environmental Assessment Report and describe the way forward.

9.1 CONSTRUCTION PHASE IMPACTS

With reference to **Table 5**, none of the negative construction phase impacts were deemed to have a high significance impact on the environment. The construction impacts were assessed to a **Medium - Low (negative)** significance, without mitigation measures.

With the implementation of the recommended mitigation measures in **Chapter 8** as well as in the EMP (**Annexure A**), the significance of the construction phase impacts is likely to be reduced to a **Medium-Low (negative)** medium being during the rainy season.

9.2 OPERATIONAL PHASE

The most significant impact **high (positive)** is the social impact directly associated with the provision of bulk fuel storage facility for the aircraft operators in Ondangwa which benefits the city at large. However, if the proposed development is not properly managed, nuisance could be caused to the residents of the town and could cause major environmental and health concerns (**Medium-low negative**).

9.3 LEVEL OF CONFIDENCE IN ASSESSMENT

With reference to the information available at the project planning cycle, the confidence in the environmental assessment undertaken is regarded as being acceptable for the decision-making, specifically in terms of the environmental impacts and risks. The Environmental Assessment Practitioner believes that the information contained within this Final Environmental Assessment Report is adequate to allow MEFT: DEA to be able to determine the environmental acceptability of the proposed project.

9.4 MITIGATION MEASURES

With the implementation of the recommended mitigation measures in **Chapter 8** as well as in the EMP (**Annexure A**), the significance of the construction and operational phase impacts is likely to be reduced to a **Low (negative)**. It is further extremely important to include an Environmental Control Officer (ECO) on site during the construction phase of the proposed project to ensure that all the mitigation measures discussed in this report and the EMP are enforced.

It is noted that where appropriate, these mitigation measures and any others identified by MEFT: DEA could be enforced as Conditions of Approval in the Environmental Authorisation, should MEFT: DEA issue a positive Environmental Authorisation.

9.5 OPINION WITH RESPECT TO THE ENVIRONMENTAL AUTHORISATION

Regulation 15(j) of the EMA, requires that the EAP include an opinion as to whether the listed activity must be authorised and is the opinion is that it must be authorised, any condition that must be made in respect of that authorisation.

In comparing the proposed project and the 'no-go' alternative, it can be seen that the social benefits associated with the provision of the fuel storage facility far outweigh the 'no-go'

alternative. In fact, the negative impacts associated with the 'no-go' alternative are in response to the current lack of services.

It is recommended that this project be authorised, as the provision of the bulk fuel storage facility is highly important for the aircraft operators at Andimba Toivo Ya Toivo Airport. The significance of the social impact was therefore deemed to be **High (positive)**.

The “no go” alternative on the other hand was deemed to have a **High (negative)** impact, as all the social and economic benefits resulting from the provision of the proposed bulk fuel storage facility would not be realised.

Based on the above, the EAP is of the opinion that the proposed development and associated infrastructure be authorised as the benefits outweigh the negative impacts. The significance of negative impacts can be reduced with effective and appropriate mitigation provided in this report and the EMP attached in **Annexure A**. If authorised, the implementation of an EMP should be included as a condition of approval.

9.6 WAY FORWARD

The Final Environmental Assessment Report (FEAR) was made available for public comment from the **29th August 2022 to 09th September 2022**.

There were no comments received from the Draft Environmental Assessment Report to be incorporated into the final EA report which is now submitted to the Environmental Commissioner, MEFT: DEA for approval.

10 REFERENCES

1. Atlas of Namibia (in print): Ministry of Environment and Tourism. Directorate of Environmental Affairs. Windhoek.
2. Barnard P. 1998. Biological Diversity in Namibia, a country wide study. Namibian National Biodiversity Task Force. Windhoek.
3. Berthelot RM, Edwards KA & Najjar IM. 1989. Assessment of the Water Resources Sector in Namibia. UNDP Base Studies on Financial, Economic and Social Aspects for the Arrangements for Independence in Namibia, mission report. Windhoek.
4. Christelis, G. and Struckmeier, W. 2001. Groundwater in Namibia – an explanation to the Hydrogeological Map. Ministry of Agriculture, Water and Forestry and Ministry of Mines and Energy, Namibia.
5. Giess, W. 1971. A preliminary vegetation map of South West Africa. Dinteria 4: 1 – 114.
6. Mendelsohn J. & Roberts C. 2002. An Environmental Profile and Atlas of Northern Regions. Ministry of Environment and Tourism, Namibia.
7. Namibia. 2008. Draft Procedures and Guidelines for Environmental Impact Assessments (EIA) and Environmental Management Plan (EMP). The Republic of Namibia.
8. National Heritage Council Namibia. 2014. (www.nhc-nam.org) Official Gazette 1616, No. 325, 1951. Vogt, Official Gazette 1616, No. 325, 1951. Vogt, Andreas, \\\"National Monuments in Namibia\\\", Windhoek 2004, p.7-8. Heinz, R., \\\"Die Saurierfaehrten bei Otjihaenamaparero in Hereroland und das Alter.
9. The National Planning Commission of Namibia. 2011. Namibia 2011 Population and Housing Census Preliminary Results. (www.npc.gov.na)
10. World Weather Online®, 2022.
11. Wikipedia, 2022