APP-003363

OPERATIONS OF THE EXISTING NAMIBIA BREWERIES LIMITED BEVERAGE MANUFACTURING PLANT IN WINDHOEK

ENVIRONMENTAL ASSESSMENT SCOPING REPORT

Assessed by:

Assessed for:

Namibia Breweries Limited

March 2022

Project:	**OPERATIONS OF THE EXISTING NAMIBIA BREWERIES LIMITED BEVERAGE MANUFACTURING PLANT IN WINDHOEK: ENVIRONMENTAL ASSESSMENT SCOPING REPORT**	
Report: Version/Date:	Final March 2022	
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Cite this document as:	Bosman Q., Faul A. 2022 March; Operations of the Existing Namibia Breweries Limited Beverage Manufacturing Plant in Windhoek: Environmental Assessment Scoping Report	
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Report Approval	 **André Faul** Environmental Assessment Practitioner	

I MARCO WENK acting on behalf of Namibia Breweries Limited hereby approve this report and confirm that the project description contained in herein is a true reflection of the information which the proponent has provided to Geo Pollution Technologies. All material information in the possession of the proponent that reasonably has or may have the potential of influencing any decision or the objectivity of this assessment is fairly represented in this report.

Signed at WINDHOEK on the 16TH day of MARCH 2022.

Namibia Breweries Limited

CY/1920/0002
Company Registration

EXECUTIVE SUMMARY

Namibia Breweries Limited (NBL) requested Geo Pollution Technologies (Pty) Ltd to undertake an environmental assessment for the operations of their **existing** beverage manufacturing plant situated on erf 6412, within the Northern Industrial Area of Windhoek. Namibia Breweries Limited was established in 1920 and is one of the leading beverage manufacturers in Namibia and one of the last few independently owned commercial-scale breweries in Southern Africa. Their existing facility in Windhoek manufactures non-alcoholic, low alcohol and alcoholic beverages for the Namibian and international markets.

The environmental assessment is conducted to determine all environmental, safety, health and socio-economic impacts associated with the operations of the facility. Relevant environmental data was compiled by making use of secondary data and from a reconnaissance site visit. Potential environmental impacts and associated social impacts were identified and are addressed in this report.

The facility is surrounded by industrial and manufacturing type businesses. Due to the nature and location of the facility, limited impacts can be expected on the surrounding environment, see summary impacts table below. It is however recommended that environmental performance be monitored regularly to ensure regulatory compliance and that corrective measures be taken if necessary.

The major concerns related to the operations of the facility are that of potential groundwater, surface water and soil contamination, the possibility of fire, traffic, noise and health and safety impacts. These will however be limited by adherence to South African National Standards and Material Safety Data Sheet instructions. Furthermore, noise levels should meet the minimum requirements of the City of Windhoek to prevent nuisance and hearing loss. By appointing local contractors and employees and implementing educational programs the positive socio-economic impacts can be maximised while mitigating any negative impacts.

The environmental management plan included in Section 10 of this document should be used as an on-site reference document during all phases (planning, construction (care and maintenance), operations and decommissioning) of the facility. All monitoring and records kept should be included in a report to ensure compliance with the environmental management plan. Parties responsible for transgression of the environmental management plan should be held responsible for any rehabilitation that may need to be undertaken. A Health, Safety, Environment and Quality policy as well as Environmental Policy could be used in conjunction with the environmental management plan. Operators and responsible personnel must be taught the contents of these documents. Municipal or national regulations and guidelines must be adhered to and monitored regularly as outlined in the environmental management plan.

Impact Summary Class Values

Impact Category	Impact Type	Construction	Operations
	Positive Rating Scale: Maximum Value	5	5
	Negative Rating Scale: Maximum Value	-5	-5
EO	Skills, Technology and Development	2	4
EO	Revenue Generation and Employment	2	3
SC/EO	Demographic Profile and Community Health	-1	-3
EO	Traffic	-1	-1
SC/EO	Health, Safety and Security	-2	-4
EO	Fire	-2	-3
PC	Air Quality	-1	-3
PC	Noise	-1	-2
PC/BE	Waste production	-2	-2
PC/BE	Ecosystem and Biodiversity Impact	-1	-1
PC	Groundwater, Surface Water and Soil Contamination	-2	-2
PC	Groundwater Quality		-3
PC/EO	Groundwater Abstraction		-3
SC	Visual Impact	-1	-1

BE = Biological/Ecological *EO = Economical/Operational* *PC = Physical/Chemical* *SC = Sociological/Cultural*

TABLE OF CONTENTS

LIST OF APPENDICES

LIST OF FIGURES

LIST OF PHOTOS

LIST OF TABLES

LIST OF ABBREVIATIONS

AIDS	Acquired Immune Deficiency Syndrome
BE	Biological/Ecological
DWA	Department of Water Affairs
DEA	Directorate of Environmental Affairs
EA	Environmental Assessment
EIA	Environmental Impact Assessment
EMA	Environmental Management Act No 7 of 2007
EMP	Environmental Management Plan
EMS	Environmental Management System
EO	Economic/Operational
ES	Environmental Classification
GPT	Geo Pollution Technologies
GHG	greenhouse gasses
HFO	Heavy Fuel Oil
HIV	Human Immunodeficiency Virus
IAPs	Interested and Affected Parties
IUCN	International Union for Conservation of Nature
LPG	Liquefied Petroleum Gas
m/s	Meter per second
MEFT	Ministry of Environment, Forestry and Tourism
mm/a	Millimetres per annum
MSDS	Material Safety Data Sheet
MW	Megawatt
NBL	Namibia Breweries Limited
LPG	Liquefied Petroleum Gas
PC	Physical/Chemical
PPE	Personal Protective Equipment
ppm	Parts per million
PV	Photovoltaic
SANS	South African National Standards
SC	Sociological/Cultural
UNCCD	United Nations Convention to Combat Desertification
ULP	Unleaded Petrol
WHO	World Health Organization

GLOSSARY OF TERMS

Alternatives - A possible course of action, in place of another, that would meet the same purpose and need but which would avoid or minimize negative impacts or enhance project benefits. These can include alternative locations/sites, routes, layouts, processes, designs, schedules and/or inputs. The "no-go" alternative constitutes the 'without project' option and provides a benchmark against which to evaluate changes; development should result in net benefit to society and should avoid undesirable negative impacts.

Assessment - The process of collecting, organising, analysing, interpreting and communicating information relevant to decision making.

Competent Authority - means a body or person empowered under the local authorities act or Environmental Management Act to enforce the rule of law.

Construction - means the building, erection or modification of a facility, structure or infrastructure that is necessary for the undertaking of an activity, including the modification, alteration, upgrading or decommissioning of such facility, structure or infrastructure.

Cumulative Impacts - in relation to an activity, means the impact of an activity that in itself may not be significant but may become significant when added to the existing and potential impacts eventuating from similar or diverse activities or undertakings in the area.

Environment - As defined in the Environmental Assessment Policy and Environmental Management Act - "land, water and air; all organic and inorganic matter and living organisms as well as biological diversity; the interacting natural systems that include components referred to in sub-paragraphs, the human environment insofar as it represents archaeological, aesthetic, cultural, historic, economic, palaeontological or social values".

Environmental Impact Assessment (EIA) - process of assessment of the effects of a development on the environment.

Environmental Management Plan (EMP) - A working document on environmental and socio-economic mitigation measures, which must be implemented by several responsible parties during all the phases of the proposed project.

Environmental Management System (EMS) - An Environment Management System, or EMS, is a comprehensive approach to managing environmental issues, integrating environment-oriented thinking into every aspect of business management. An EMS ensures environmental considerations are a priority, along with other concerns such as costs, product quality, investments, PR productivity and strategic planning. An EMS generally makes a positive impact on a company's bottom line. It increases efficiency and focuses on customer needs and marketplace conditions, improving both the company's financial and environmental performance. By using an EMS to convert environmental problems into commercial opportunities, companies usually become more competitive.

Evaluation – means the process of ascertaining the relative importance or significance of information, the light of people's values, preference and judgements in order to make a decision.

Hazard - Anything that has the potential to cause damage to life, property and/or the environment. The hazard of a particular material or installation is constant; that is, it would present the same hazard wherever it was present.

Interested and Affected Party (IAP) - any person, group of persons or organisation interested in, or affected by an activity; and any organ of state that may have jurisdiction over any aspect of the activity.

Mitigate - The implementation of practical measures to reduce adverse impacts.

Proponent (Applicant) - Any person who has submitted or intends to submit an application for an authorisation, as legislated by the Environmental Management Act no. 7 of 2007, to undertake an

activity or activities identified as a listed activity or listed activities; or in any other notice published by the Minister or Ministry of Environment & Tourism.

Public - Citizens who have diverse cultural, educational, political and socio-economic characteristics. The public is not a homogeneous and unified group of people with a set of agreed common interests and aims. There is no single public. There are a number of publics, some of whom may emerge at any time during the process depending on their particular concerns and the issues involved.

Scoping Process - process of identifying: issues that will be relevant for consideration of the application; the potential environmental impacts of the proposed activity; and alternatives to the proposed activity that are feasible and reasonable.

Significant Effect/Impact - means an impact that by its magnitude, duration, intensity or probability of occurrence may have a notable effect on one or more aspects of the environment.

Stakeholder Engagement - The process of engagement between stakeholders (the proponent, authorities and IAPs) during the planning, assessment, implementation and/or management of proposals or activities. The level of stakeholder engagement varies depending on the nature of the proposal or activity as well as the level of commitment by stakeholders to the process. Stakeholder engagement can therefore be described by a spectrum or continuum of increasing levels of engagement in the decision-making process. The term is considered to be more appropriate than the term "public participation".

Stakeholders - A sub-group of the public whose interests may be positively or negatively affected by a proposal or activity and/or who are concerned with a proposal or activity and its consequences. The term therefore includes the proponent, authorities (both the lead authority and other authorities) and all interested and affected parties (IAPs). The principle that environmental consultants and stakeholder engagement practitioners should be independent and unbiased excludes these groups from being considered stakeholders.

Sustainable Development - "Development that meets the needs of the current generation without compromising the ability of future generations to meet their own needs and aspirations" – the definition of the World Commission on Environment and Development (1987). "Improving the quality of human life while living within the carrying capacity of supporting ecosystems" – the definition given in a publication called "Caring for the Earth: A Strategy for Sustainable Living" by the International Union for Conservation of Nature (IUCN), the United Nations Environment Programme and the World Wide Fund for Nature (1991).

Wort - The liquid extracted from the mashing process during the brewing of beer or whisky. Wort contains the sugars, the most important being maltose and maltotriose, that will be fermented by the brewing yeast to produce alcohol.

1 BACKGROUND AND INTRODUCTION

Namibia Breweries Limited (NBL) was established in 1920 and is one of the leading beverage manufacturers in Namibia and one of the last few independently owned commercial-scale breweries in Southern Africa. Their existing facility on erf 6412, Iscor Street, in the Northern Industrial Area of Windhoek (Figure 1-1), manufactures non-alcoholic, low alcohol and alcoholic beverages for the Namibian and international markets. NBL, the Proponent, requested Geo Pollution Technologies (Pty) Ltd (GPT), as independent environmental consultant, to conduct a scoping environmental impact assessment (EIA) and prepare an environmental management plan (EMP) for the operations of their Windhoek facility. The ultimate goal of the assessment is to apply for an environmental clearance certificate (ECC) that encompass all their activities that requires environmental clearance, as per the Environmental Management Act No. 7 of 2007 (EMA) and its regulations as published in 2012. Activities that will form part of the assessment include, but are not limited to:

- Generation of electricity (photovoltaic plant).
- Temporary storage of waste.
- Abstraction of groundwater for industrial / commercial purposes.
- Industrial effluent disposal with pre-settlement and removal of solids.
- Storage and handling of dangerous goods (fuel).

As a holistic approach to the assessment, not only the listed activities will be addressed, but the entire operations of NBL at the Windhoek manufacturing plant will be included.

The risk assessment was undertaken to determine the potential impacts of the operational and possible decommissioning phases of the project on the environment. The environment being defined in the Environmental Management Act as “land, water and air; all organic and inorganic matter and living organisms as well as biological diversity; the interacting natural systems that include components referred to in sub-paragraphs, the human environment insofar as it represents archaeological, aesthetic, cultural, historic, economic, paleontological or social values”.

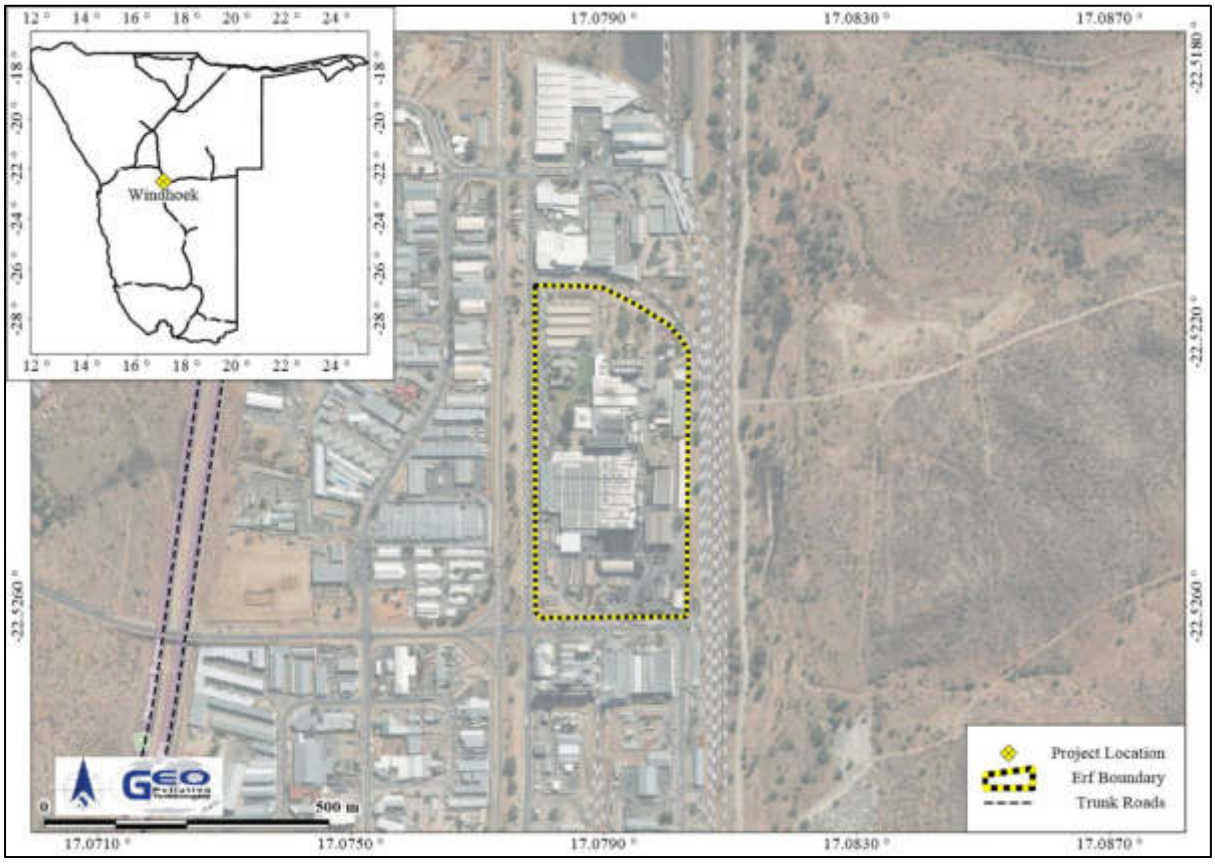


Figure 1-1. Project location

Project Justification – Windhoek is the capital and main hub for commerce and industry in Namibia. NBL is among the oldest and largest manufacturing industries in Windhoek, which has, for more than a century, contributed to revenue generation through local sales and to employment in Namibia. The sale of their locally manufactured products to international clients, also contribute towards a positive trade balance for Namibia.

Benefits of NBL's operations include:

- Availability of locally manufactured beverages at Namibian retailers.
- Significant number of direct and indirect (e.g. transport) employment opportunities.
- Income generation and contribution to a positive trade balance.
- Production of world-class alcoholic beverages promotes Namibia as a brand.
- Spent grain as a by-product (waste) of the beer brewing process is a valuable and affordable food source for livestock.

2 SCOPE

The scope of the environmental scoping assessment is to:

1. Determine the potential environmental impacts emanating from the operational and possible decommissioning activities of the beverage manufacturing plant,
2. Identify a range of management actions which could mitigate the potential adverse impacts to acceptable levels,
3. Comply with Namibia's Environmental Management Act (2007),
4. Provide sufficient information to the Ministry of Environment, Forestry and Tourism (MEFT) to make an informed decision regarding the operations and possible decommissioning of the facility.

3 METHODOLOGY

The following methods were used to investigate the potential impacts that may result from the operational and possible decommissioning activities of the facility, on the social and natural environment:

1. Baseline information about the site and its surroundings was obtained from existing secondary information as well as from a reconnaissance site visit.
2. As part of the scoping process to determine potential environmental impacts, interested and affected parties (IAPs) were consulted about their views, comments and opinions all of which are presented in this report.
3. Based on the gathered information, potential impacts were identified and assessed. These are presented in this report together with preventative and mitigating procedures.
4. As per the findings of this environmental assessment, an EMP was prepared and this, together with the EIA report, will be submitted to the MEFT.

4 FACILITY OPERATIONS AND RELATED ACTIVITIES

The primary activity performed by NBL is the brewing of different types of beer. This is complemented by the production of various non-alcoholic beverages. Various ancillary activities are performed in support of the brewing and manufacturing processes and these include groundwater abstraction, effluent handling and disposal, fuel storage, boiler operations, waste handling, storage and disposal, packaging material receipt and storage, and day to day administrative tasks.

The three main areas / phases of the brewing process are: 1) the brewhouse where the processing of the raw materials take place in preparation of the wort; 2) fermentation cellar where wort is fermented according to different methods to produce different beer types in large stainless steel tanks; and 3) filtration cellar where any residual particles and yeast is removed to produce the "bright" beers.

The following section provides a brief overview of all the major activities taking place at the facility. An overview of the site is presented in Figure 4-1.

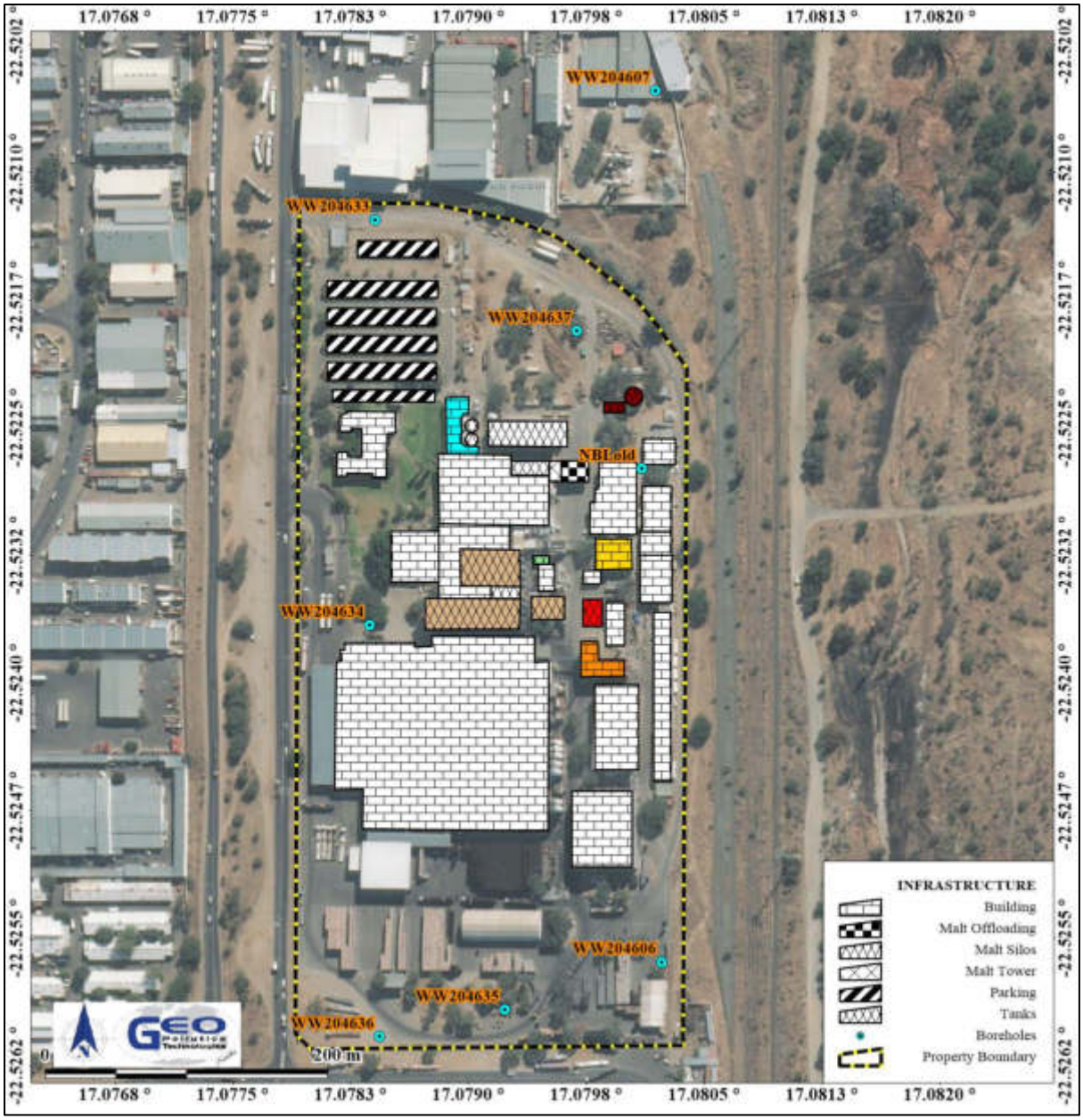


Figure 4-1. Site layout

4.1 RAW MATERIALS

The main raw materials include water, malted barley and hops. Water supply is from both the municipal potable water supply network as well as groundwater from boreholes on site. Apart from water, raw materials are delivered by trucks. The malted barley is received as containerised cargo and offloaded into a belowground hopper with screw conveyor (Photo 4-1). It goes through a polishing process to remove the malt dust which is a bran-like or powdery barley dust that is formed during the malting process (Photo 4-2). Better quality malted barley contains less malt dust. After malt dust removal, it goes through a metal detection and removal process using a strong magnet. The malted barley is then stored in silos (Photo 4-3). From the silos it goes through a de-stoning process and another de-dusting and metal removal process, before being used for wort production. Some special malted barley is also received and stored in bags.

Waste: malt dust (sold to farmers as feed), metal, stones, bags

Photo 4-1. Receipt of malted barely

Photo 4-2. Malt dust

Photo 4-3. Silos for barley storage

4.2 SIMPLIFIED BREWING PROCESS

Yeast culturing is an important process in the production of beer and is used to produce biological lactic acid and yeast through lactic acid and yeast propagation processes. These are added to the beer brewing process at specific stages of brewing. For the first steps of making beer, the malted barley is milled to the desired particle size and it is transferred to the mashing tanks. Mashing is the process of mixing the milled malt with water, heating it, and allowing it to steep (soak) to extract flavours. After mashing it is transferred to a lauter tun which is a vessel that separates the wort (the liquid that will undergo fermentation) from the solids (malted barley). The resultant wort is boiled and hops are added after which the hot trub, a protein precipitate formed during the boiling process, is removed. The wort is cooled and is ready for the fermentation process. For fermentation, yeast is added and the beer is fermented in horizontal or vertical steel tanks.

Carbon dioxide is produced during the fermentation process and it is collected and re-used in the beer brewing process as well as for soft drink manufacturing. For the typical Namibian brand beers, cold trub is removed during the fermentation and maturation process. Cold trub also refers to protein precipitate, but this time it forms after rapid chilling of the beer. Yeast is removed from the beer and some is re-used while some becomes waste. Bright beers (or clear beers) undergo a filtration process while Weiss beer is not filtered. The filtration process takes place in the

filtration cellar. It goes through various steps, among them a membrane filtration step, which removes remaining waste beer particles and yeast. The beer then undergoes some finishing steps and is stored in the bright beer tanks, ready for packaging.

Waste: spent grain, waste beer particles, yeast

Photo 4-4. Spent malt storage and dispatch

4.3 PACKAGING PLANT

The packaging plant has five packaging lines for canning and bottling of beverages. Each line has various stages which include cleaning, filling, carbonating, metal detection, crowning (capping), pasteurising, labelling, shrink wrapping, packing and palletizing. The packaging lines are as follows: 1) returnable and non-returnable bottles; 2) cans; 3) 750 ml bottles; 4) non-returnable bottles; and 5) kegs. Filling and packaging are mostly an automated process making use of conveyors and various machinery that requires regular servicing and lubrication.

Waste: paper, plastic, liquid water, liquid beer, glass, empty bottles (bottles that had to be emptied and can be used again), glue, chemicals (pasteurizing), metal (crowns, cans and can ends), lubricants (conveyor)

Photo 4-5. Packaging plant

4.4 WATER SUPPLY

Water supply to the plant is from two sources. The main supply is from the municipality, but this is augmented by groundwater abstracted from six production boreholes. Two additional boreholes, one a standby production borehole and the other a monitoring borehole, are also present on site.

A total of 172,800 m^3 of groundwater may be abstracted per year under normal conditions, but when drought conditions persists and Windhoek's water supply is under pressure, this volume may be increased. The groundwater abstraction approval from the City of Windhoek is attached in Appendix A. Sustainability of the groundwater resource (Windhoek North Aquifer) was determined in a separate study conducted in 2019 by SLR Environmental Consulting. The study concluded that abstraction of 2,100 m^3 per day is sustainable in the long term, but abstraction at 3,000 m^3 per day will only be sustainable in the short term (Gustavo and Sanzila, 2020).

For the production of beverages all water goes through a stringent treatment process to ensure only the highest quality water is used. Two water treatment plants are present on site.

The main water treatment plant treats the municipality supplied water and the steps involved are ultrafiltration, de-chlorination, chlorination with chlorine dioxide (ClO_2), activated carbon filtration, reverse osmosis and remineralization to produce final brew water.

Borehole water is partially treated in a separate process before being transferred to the main water treatment plant. Treatment steps are flocculation, sand filtration, reverse osmosis and remineralization with sand filter outlet water. The partially treated borehole water is then introduced into the main water treatment plant after the ultrafiltration stage, and is thus then also subjected to the remaining steps of that treatment process.

Photo 4-6. Water treatment plant

Photo 4-7. Water treatment facilities

Photo 4-8. Chemicals used for water treatment

Photo 4-9. Safety signs at water treatment facilities

4.5 CARBON DIOXIDE RECOVERY PLANT

The carbon dioxide recovery plant collects carbon dioxide from the brewing fermentation tanks. It is purified by a gas washer (scrubbing plant) and carbon filter after which it is compressed, cooled down and stored at -20 ºC in insulated pressure tanks. The plant has a capacity to recover 2 tons/hour and a total storage capacity of 160 tons is available.

4.6 ELECTRICITY

Three sources of electricity are used. The main source is as supplied by the municipality who in turn purchases electricity form NamPower. This supply is augmented with renewable energy from an existing photovoltaic (PV) plant of 1.1 MW, installed on the roofs of the buildings. The PV plant feeds into the grid and no battery storage capacity is present on site. The plant produce about 8.1% of the total electricity consumption of the facility. It is scheduled for installation of an additional 1.17 MW generation capacity in the near future. In the event of a power failure, diesel standby generators with a total generation capacity of 5,780 kVA are present on site (Photo 4-10).

A number of forklifts used at the facility are battery operated. A dedicated battery charging station is used for charging of the batteries (Photo 4-11).

Waste: used oil, old oil and air filters, old batteries, obsolete or broken photovoltaic panels

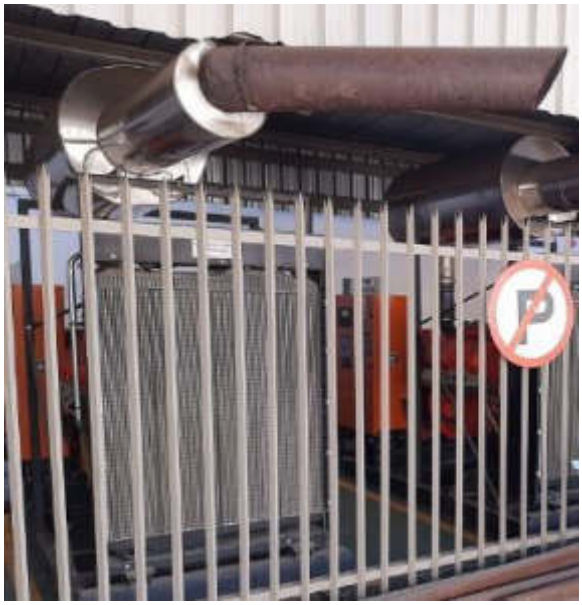


Photo 4-10. Diesel standby generators

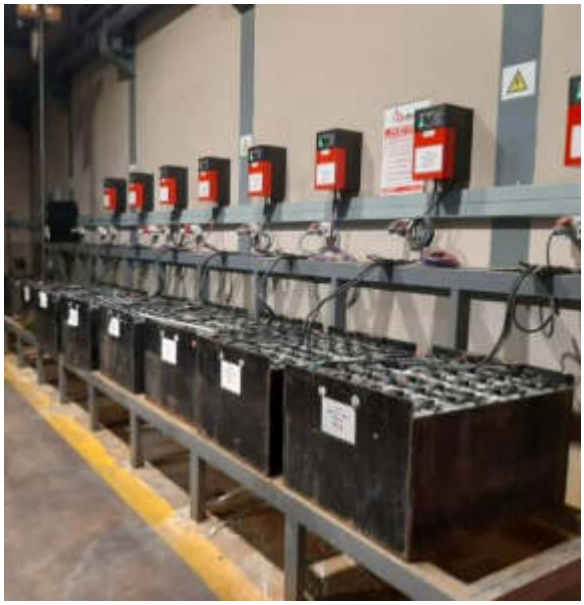


Photo 4-11. Forklift battery charging station

4.7 FUEL SUPPLY AND OIL

The four primary fuels used on site are:

1) Wood chips of invader bush sourced from farmers used to heat boilers.

2) Heavy fuel oil (HFO) of 180 centistokes used to heat boilers. The HFO storage installation consists of two 83 m^3 horizontal steel tanks in a bund area. The HFO installation has an existing ECC.

3) Diesel used for fleet vehicles and to operate standby generators. A 14 m^3 below ground storage tank is present at the consumer fuel installation and supplies diesel to fleet vehicles. Standby generators have five dedicated diesel day tanks of 2,200 litres each.

4) Unleaded petrol used for fleet vehicles. A 14 m^3 below ground storage tank is present at the consumer fuel installation and supplies unleaded petrol to fleet vehicles.

In addition to the above fuels, liquefied petroleum gas (LPG) and argon are used in small quantities for boiler start-up and are stored in refillable cylinders. All fuel is delivered by trucks and all storage and handling takes place on spill control and/or bunded surfaces. The consumer installation has two dispensers, one for diesel and one for unleaded petrol. Oil for the standby generators is stored underroof in 200 litre steel drums.

Waste: contaminated or spilled fuel, empty oil drums

Photo 4-12. Wood chips

Photo 4-13. HFO storage

Photo 4-14. HFO offloading point

Photo 4-15. Underground HFO reticulation

Photo 4-16. Consumer fuel installation

Photo 4-17. Underground tanks

Photo 4-18. Oil storage

4.8 BOILER ROOM

The boiler room is used to heat water mainly for use in the brewing process and for cleaning and sterilisation of bottles and cans during packaging. The output of the boiler is 5 MW. On average 70% (maximum 80%) of the energy requirements of the boiler is provided by wood chips. The

remaining 20% is provided by burning of HFO. To light the boiler furnaces, flammable gases, LPG and Argon, are used.

Waste: wood ash, waste water and chemicals (cleaning of boilers)

Photo 4-19. Boiler room

4.9 COOLING

Various processes at the plant requires cooling. Ammonia is used as cooling liquid and the total volume stored on site is approximately 15 tons. The ammonia tanks are situated to the east of the site and a wind cone (windsock) is located near the tanks. In case of an ammonia spill or leak, the purpose of the wind cone is to act as a guide to direct employees in an upwind direction. An ammonia leak detector is present in the compressor room.

Waste: No specific waste

Photo 4-20. Ammonia storage shed and overhead pipe trestle

Photo 4-21. Ammonia pipe trestle with wind cone

4.10 EFFLUENT

Approximately 1,346 m^3 of industrial effluent is produced per day. All industrial effluent is partially treated on site before it is piped to the City of Windhoek's Ujams industrial wastewater treatment plant. Treatment involves screening and settling to remove any solids that may remain in the water. All solids collected are placed in a skip and disposed of at the Municipal waste disposal site. No chemical treatment takes place. Effluent is regularly sampled and tested by the municipality to ensure it adheres to disposal permit conditions (see Appendix A for copies of permits). For control purposes, the Proponent has an automatic permanently installed effluent sampler, used for monthly effluent analysis. Sampling takes place over a 24 hour period and a sample is collected every hour for the 24 hour period. The sample is kept cool until it is sent for analysis. Results of the Proponent's own analysis are compared with that of the Municipality to ensure accuracy.

Waste: effluent itself is a waste, solids screened from effluent

Photo 4-22. Effluent pipes from brewing process

Photo 4-23. Effluent sampling point

Photo 4-24. Effluent screening infrastructure

Photo 4-25. Solids retrieved from effluent

4.11 CHEMICAL STORAGE

Various chemicals are used for different processes at the facility. All chemicals are handled and stored on spill control surfaces such as concrete slabs and bunded areas. A dedicated chemical store room is present on site (Photo 4-26 and Photo 4-27). Chemical usage are mainly divided between brewing, packaging and utilities. Utilities include water treatment and cooling tower and boiler cleaning. The bulk of the chemicals are used for water treatment and cleaning/sterilisation purposes. Appendix B provides a list of the chemicals currently stored and handled at the NBL facility. The list is subject to change as any new or alternative chemicals are identified for use.

Waste: chemical containers, obsolete chemicals

Photo 4-26. Chemical storage area

Photo 4-27. Chemical store (inside)

4.12 LABORATORY

Two laboratories are operated on site. One laboratory is used for chemical analysis as well as general microbiological testing using growth media and culture plates. The second laboratory is used for routine packaging process control pertaining to chemical analysis. A limited number and volume of chemicals are used in the laboratories.

Waste: Culture plates and laboratory related waste, small amounts of chemicals, paper, plastic, glass, etc.

4.13 CLINIC

A small medical clinic is present on site. It is used to treat minor injuries and ailments of employees.

Waste: Medical and general wastes like paper, plastic, glass, etc.

4.14 STORAGE – PACKAGING MATERIAL, EMPTIES AND STOCK

Five main storage facilities are present. These are:

- The empties yard where all returnable bottles and kegs are stored. The area is paved and in the open (Photo 4-28).
- Three enclosed warehouses for storage of packaging material like cans, bottles, labels, cartons, plastic wrapping, etc. (Photo 4-29).
- The fulls warehouse where all finished products (stock) are stored prior to dispatching to customers.

Waste: broken or damaged packing material, bottles, cans, plastic wrapping, boxes, pallets, etc.

Photo 4-28. Empties storage area

Photo 4-29. Packaging material store

4.15 WASTE

Various types of waste are produced, the main types summarised in the above descriptions. All recyclable waste is kept separate. A third party contractor is responsible for handling and sorting waste on site. Bottles that do not conform to standards are crushed, glass shards stored in bulk bags and shipped back to the supplier (Photo 4-30 and Photo 4-31). Broken bottles are sorted according to colour, placed in bulk bags (Photo 4-32). Damaged metal cans are crushed and compacted into bales (**Error! Reference source not found.**). Waste paper and plastic are also orted. All recyclable materials are taken by the contractor to their recycling plant in Windhoek.

Waste Type	Average Volume
Wood ash	22 tons per month
Recyclable waste (aluminium cans, glass, other)	Varies, some months up to 400 tons per month
Biodegradable and beneficial use wastes	
Spent yeast	5,000 to 8,000 litre per day
Teber (spent malted barley and other grains)	120 to 160 tons per day
Malt dust	1 to 1.5 tons per day

Photo 4-30. Nonconforming bottles to be crushed and returned to supplier

Photo 4-31. Bottle crusher

Photo 4-32. Waste sorting station

4.16 OTHER INFRASTRUCTURE

Various other operational areas and types of infrastructure are present on site. These ensure efficient operations of the beverage manufacturing plant and include offices, a control room, security room, staff canteen, etc. Strict security control is implemented. Security stops are present at the main gates and again at entrance to the operational areas. Separate entrances are present for visitors and employees and for trucks. Site safety induction is performed for anyone who intends to perform work on site. Firefighting equipment is present throughout all operational areas (Photo 4-33 and Photo 4-34).

Photo 4-33. Firefighting infrastructure

Photo 4-34. Fire hose

5 ALTERNATIVES TO THE PROPOSED FACILITY

Extensive infrastructure and technologies have been invested on the site to enable current operations. Some of the alternatives considered and implemented are:

- Solar energy to augment the electricity supplied by the City of Windhoek. This not only result in cost savings to the Proponent in the long term, but also reduce the pressure on the National electricity supply grid.
- Borehole water to augment the water supplied by the City of Windhoek. This not only result in cost savings to the Proponent, but, since abstraction is from a different aquifer than the one supplying the City of Windhoek, also reduces the pressure on the already burdened water supply to the City of Windhoek, especially during drought periods.
- Wood chips are used as an alternative to heavy fuel oil or other hydrocarbon based fuels. Wood chips are from invader bush and thus has an indirect benefit of land rehabilitation.
- Some process water is reclaimed and re-used for rinsing of empty crates received back from customers, thus reducing the pressure on the water supply sources.
- Various other infrastructure and operational procedures have been implemented, and are continuously investigated, to reduce resource consumption and minimize waste. This include energy efficient equipment, water saving measures, recycling, etc.

Since the facility is an existing facility that has been in operation for more than a century, and it provides both direct and indirect employment to thousands of people in Namibia, the no-go alternative should not be considered as long as the Proponent continues to adhere to all relevant legislation and standards.

6 ADMINISTRATIVE, LEGAL AND POLICY REQUIREMENTS

To protect the environment and achieve sustainable development, all projects, plans, programmes and policies deemed to have adverse impacts on the environment require an environmental assessment, as per the Namibian legislation. The legislation and standards provided in Table 6-1 to Table 6-4 govern the environmental assessment process in Namibia and/or are relevant to the facility.

Table 6-1. Namibian law applicable to the facility

Law	Key Aspects
The Namibian Constitution	♦ Promote the welfare of people ♦ Incorporates a high level of environmental protection ♦ Incorporates international agreements as part of Namibian law
Environmental Management Act Act No. 7 of 2007, Government Notice No. 232 of 2007	♦ Defines the environment ♦ Promote sustainable management of the environment and the use of natural resources ♦ Provide a process of assessment and control of activities with possible significant effects on the environment
Environmental Management Act Regulations Government Notice No. 28-30 of 2012	♦ Commencement of the Environmental Management Act ♦ List activities that requires an environmental clearance certificate ♦ Provide Environmental Impact Assessment Regulations
Petroleum Products and Energy Act Act No. 13 of 1990, Government Notice No. 45 of 1990	♦ Regulates petroleum industry ♦ Makes provision for impact assessment ♦ Petroleum Products Regulations (Government Notice No. 155 of 2000) o Prescribes South African National Standards (SANS) or equivalents for construction, operation and decommissioning of petroleum facilities (refer to Government Notice No. 21 of 2002)
The Water Act Act No. 54 of 1956	♦ Remains in force until the new Water Resources Management Act comes into force ♦ Defines the interests of the state in protecting water resources ♦ Controls the disposal of effluent ♦ Numerous amendments
Water Resources Management Act Act No. 11 of 2013	♦ Provide for management, protection, development, use and conservation of water resources ♦ Prevention of water pollution and assignment of liability ♦ Not in force yet
Local Authorities Act Act No. 23 of 1992, Government Notice No. 116 of 1992	♦ Define the powers, duties and functions of local authority councils ♦ Regulates discharges into sewers
Public Health Act Act No. 36 of 1919	♦ Provides for the protection of health of all people
Public and Environmental Health Act Act No. 1 of 2015, Government Notice No. 86 of 2015	♦ Provides a framework for a structured more uniform public and environmental health system, and for incidental matters ♦ Deals with Integrated Waste Management including waste collection disposal and recycling; waste generation and storage; and sanitation.

Law	Key Aspects
Labour Act Act No 11 of 2007, Government Notice No. 236 of 2007	♦ Provides for Labour Law and the protection and safety of employees ♦ Labour Act, 1992: Regulations relating to the health and safety of employees at work (Government Notice No. 156 of 1997)
Atmospheric Pollution Prevention Ordinance Ordinance No. 11 of 1976	♦ Governs the control of noxious or offensive gases ♦ Prohibits scheduled process without a registration certificate in a controlled area ♦ Requires best practical means for preventing or reducing the escape into the atmosphere of noxious or offensive gases produced by the scheduled process
Hazardous Substances Ordinance Ordinance No. 14 of 1974	♦ Applies to the manufacture, sale, use, disposal and dumping of hazardous substances as well as their import and export ♦ Aims to prevent hazardous substances from causing injury, ill-health or the death of human beings
Pollution Control and Waste Management Bill (draft document)	♦ Not in force yet ♦ Provides for prevention and control of pollution and waste ♦ Provides for procedures to be followed for licence applications

Table 6-2. Municipal By-laws, Guidelines and Regulations

Municipal By-laws, Guidelines or Regulations	Key Aspects
Groundwater Protection Regulations	♦ Provides for the protection of groundwater, landscape and vegetation sensitivity ♦ Requires an EIA and EMP for projects that may potentially impact on groundwater ♦ Identifies three groundwater control zones: medium, high and very high
Windhoek Environmental Structure Plan and Environmental Policy	♦ Integrates spatial planning decision-making, environmental planning and environmental impact management
Town Planning Scheme	♦ Enables the comprehensive management of all property and related public sector functions across the city ♦ Provides for the protection of groundwater and the environment

Table 6-3. Relevant Multilateral Environmental Agreements for Namibia and the Facility

Agreement	Key Aspects
Stockholm Declaration on the Human Environment, Stockholm 1972.	♦ Recognizes the need for a common outlook and common principles to inspire and guide the people of the world in the preservation and enhancement of the human environment
1985 Vienna Convention for the Protection of the Ozone Layer	♦ Aims to protect human health and the environment against adverse effects from modification of the Ozone Layer are considered. ♦ Adopted to regulate levels of greenhouse gas concentration in the atmosphere
United Nations Framework Convention on Climate Change (UNFCCC)	♦ The Convention recognises that developing countries should be accorded appropriate assistance to enable them to fulfil the terms of the Convention
Convention on Biological Diversity, Rio de Janeiro, 1992	♦ Under article 14 of The Convention, EIAs must be conducted for projects that may negatively affect biological diversity

Table 6-4. Standards or Codes of Practise

Standard or Code	Key Aspects
South African National Standards (SANS)	♦ The Petroleum Products and Energy Act prescribes SANS standards for the construction, operations and demolition of petroleum facilities ♦ SANS 10089-3:2010 is specifically aimed at storage and distribution of petroleum products at fuel retail facilities and consumer installations o Provide requirements for spill control infrastructure

The project is listed as an activity requiring an environmental clearance certificate as per the following points from Sections 1, 2 9 of Government Notice No. 29 of 2012:

- 1.1 (a) The construction of facilities for - the generation of electricity. The Proponent generates solar energy by means of solar panels fixed on the roof.
- 2.3 The import, processing, use and recycling, temporary storage, transit or export of waste. Various types of waste are temporarily stored and or treated on site.
- 9.1 "The manufacturing, storage, handling or processing of a hazardous substance defined in the Hazardous Substances Ordinance, 1974." Fuel, ammonia and various chemicals are stored on site.
- 9.2 "Any process or activity which requires a permit, licence or other form of authorisation, or the modification of or changes to existing facilities for any process or activity which requires an amendment of an existing permit, licence or authorisation or which requires a new permit, licence or authorisation in terms of a law governing the generation or release of emissions, pollution, effluent or waste." Fuel is stored on site.
- 9.4 "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 Proponent has a combined fuel storage (LPG, HFO, diesel and unleaded petrol) capacity of 205 m^3 on site.
- 9.5 "Construction of filling stations or any other facility for the underground and aboveground storage of dangerous goods, including petrol, diesel, liquid petroleum gas or paraffin" HFO is stored in two aboveground tanks on site and diesel and unleaded petrol in two below ground tanks.

7 ENVIRONMENTAL CHARACTERISTICS

This section lists pertinent environmental characteristics of the study area and provides a statement on the potential environmental impacts on each.

7.1 LOCALITY AND SURROUNDING LAND USE

The facility is located on erf 6412, on the corner of Dortmund and Iscor street, in the Northern Industrial Area of Windhoek (22.5235°S, 17.0797°E) (Figure 1-1). The site which is zoned for industrial, is in an area with multiple industrial businesses with similar zoning (Figure 7-1). It is located within the City of Windhoek townlands and adjacent to (west of) open farm land.

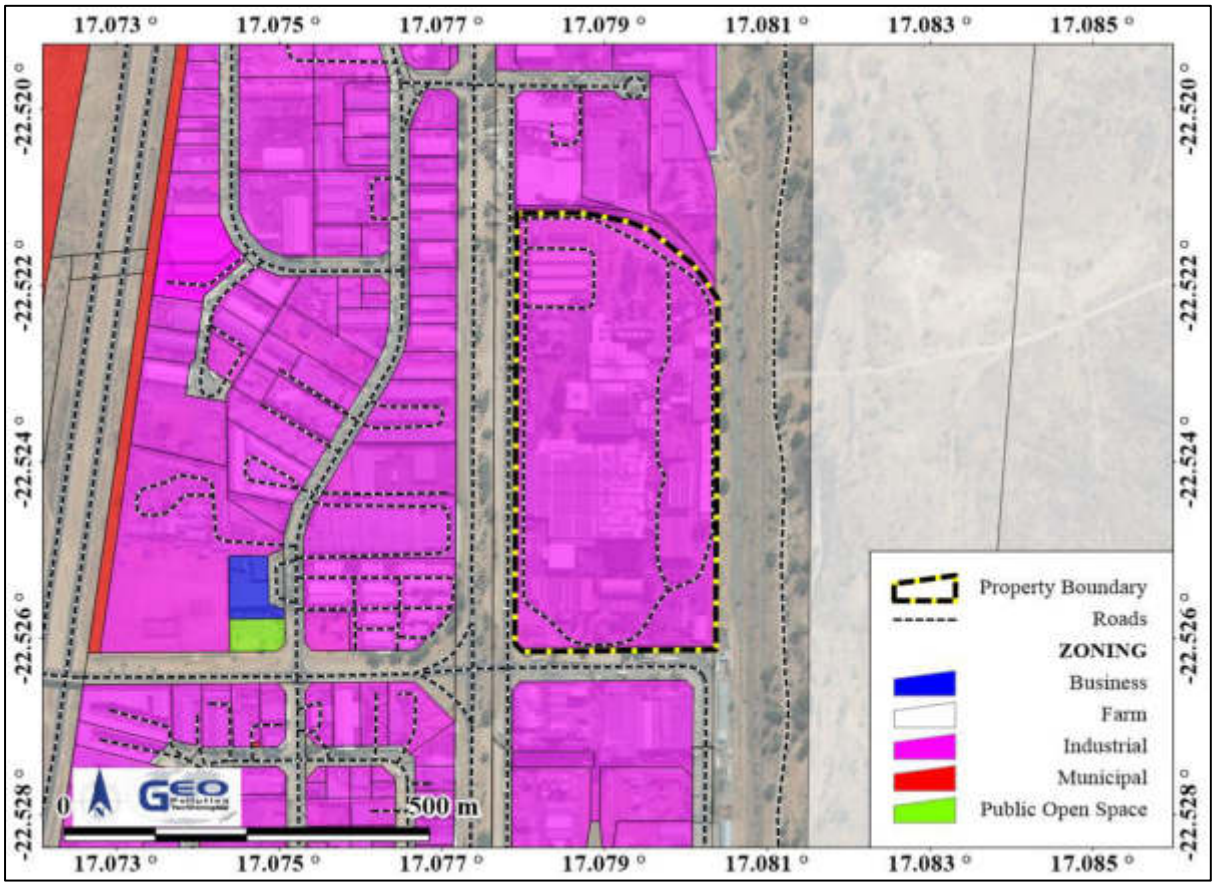


Figure 7-1. Surrounding land use

> ***Implications and Impacts***
>
> The site is situated in an area earmarked for industrial activities. Operations are thus similar in nature to surrounding properties. Traffic to and from the site is the most significant impact resulting from operations.

7.2 CLIMATE

The project location is part of a semi-arid highland savannah region. Heavy rainfall in this region is mostly common between January and March, peaking mostly in February, whilst May to September have little or no rainfall. The aridity of the region causes water resources to be a scarce commodity that has to be conserved and protected from pollution. A general summary of climatic conditions for the area is provided in Table 7-1. Table 7-2 presents the CHIRPS-2 (Climate Hazards Group Infra-Red Precipitation with Station data version 2) dataset on rainfall for the project area. It consist of long term rainfall data (1981 to near-present) obtained from satellite imagery and in-situ station data. The resultant dataset provides a reasonably well represented overview of the climatic conditions and historic weather conditions of a general area. True values for single, site specific meteorological events may however differ to some degree.

The average annual rainfall for the last 40 years was calculated as 321 mm/a, with a coefficient of variance of 35 % (Table 7-2). This coefficient of variance correlate with Atlas of Namibia Project data (Table 7-1). Daily and seasonal rainfall data (Funk et al., 2015) is presented in Figure 7-2. Seasonal (July to June) total rainfall, centred on the average line for the last 40 years,

is presented, with the daily total rainfall and the seasonal cumulative rainfall. From the figure it is clear that Windhoek mostly experienced below average rainfall during the last decade.

Table 7-1. Summary of Climate Data (Digital Atlas of Namibia)

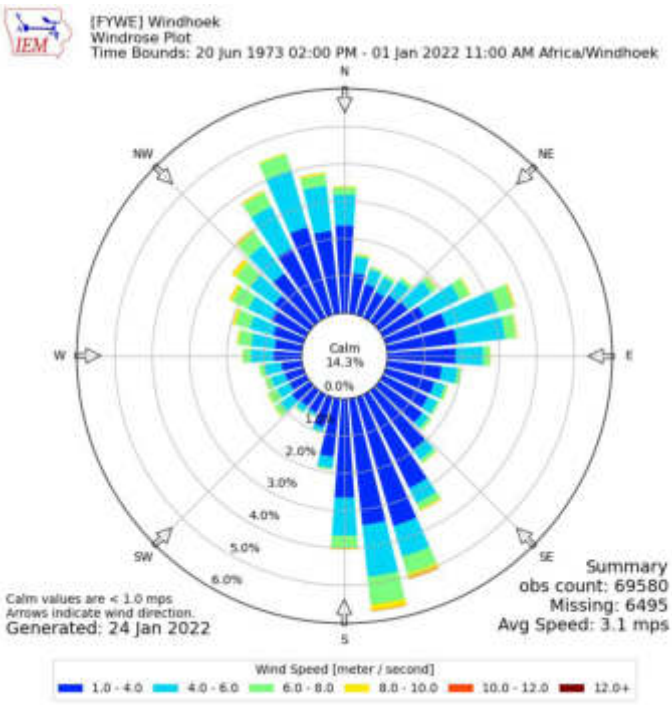
Average annual rainfall (mm/a)	300-350
Variation in annual rainfall (%)	30-40
Average annual evaporation (mm/a)	3,000-3,200
Water deficit (mm/a)	1,701-1,900
Average annual temperatures (°C)	19-20
Windrose -Wind Direction and Speed: Period 1973 - 2022 (Mesonet, 2022)	

Table 7-2. Rainfall statistics for the project area (Funk et al., 2015)

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Minimum (mm)	12.0	18.5	9.3	7.1	0.0	0.0	0.0	0.0	0.0	0.0	5.3	8.0
Maximum (mm)	264.9	258.7	150.7	133.6	9.0	3.8	0.1	1.3	6.7	39.2	64.4	104.0
Average (mm)	71.4	86.2	57.3	32.7	1.1	0.2	0.0	0.0	1.6	10.4	20.4	32.8
Variability (%)	74.0	61.0	63.0	87.0	212.0	411.0	351.0	466.0	139.0	82.0	69.0	69.0
Daily maximum (mm)	48.6	45.6	43.2	53.3	9.0	3.8	0.1	1.3	5.1	18.1	25.2	24.6
Average rain days	8	9	6	3	0	0	0	0	1	2	4	5
Season July - June average: 321 mm				**Season coefficient of variation: 35 %**								
Data range	1981-Jul-01		to	2021-Jun-30						Lat: -22.5236°S Long: 17.0791°E		

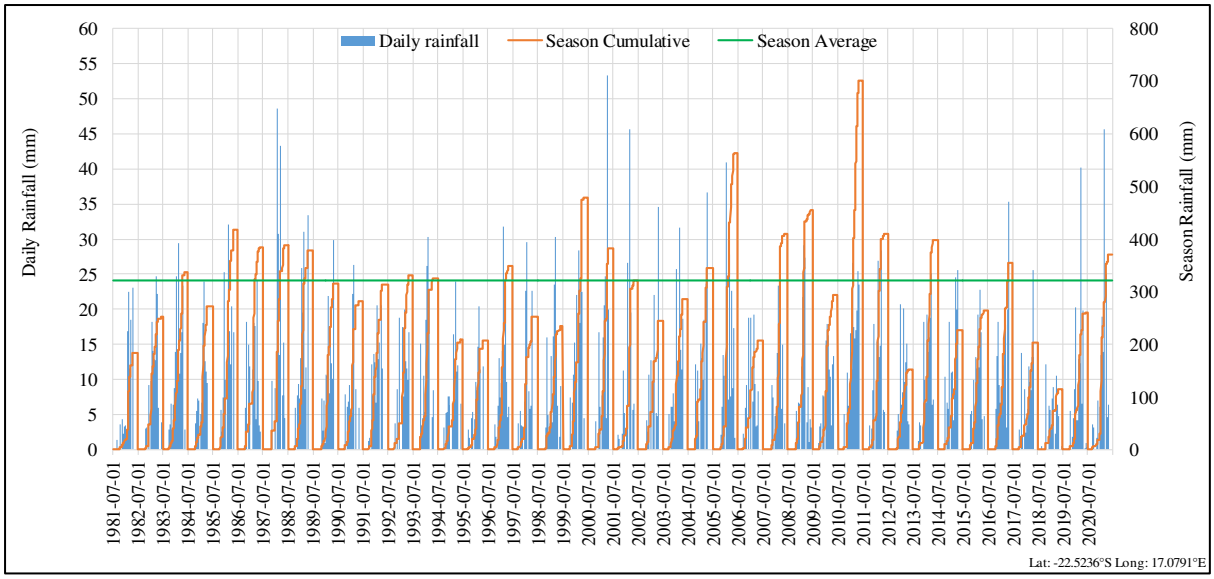


Figure 7-2. Daily and seasonal rainfall (Funk et al., 2015)

Implications and Impacts

Rainfall events are typically thunderstorms with heavy rainfall that can occur in short periods of time (cloud bursts) which may result in floods. Heavy rainfall events may result in the leaching of pollutants or hazardous substances into groundwater as well as runoff into surface waters. The extreme variability in seasonal rainfall makes water an extremely vulnerable resource.

7.3 TOPOGRAPHY AND DRAINAGE

The regional topography of the area can be described as a wide graben valley sloping north inside the surrounding hilly terrain. The valley floor is relatively flat compared to the surrounding terrain (Komas Hochland to the west and Eros Mountains to the east) where moderate to steep slopes are the norm. A very distinct mountain range (Auas Mountains) cuts across the valley south of the city and divides the valley into two parts, with the southern part draining to the south. The topography is strongly related to the historic geological structural activities that took place in the area. These can be summarised as a graben structure striking roughly from north to south and thrusting that is evident along the Auas Mountains.

Regional drainage tend to be in a northern direction. The site is located on the western edge of the catchment of the Klein Windhoek River, a tributary of the Swakop River. The on-site surface drainage is heavily impacted by anthropogenic activities, but is expected to be mainly in an eastern direction from the site (Figure 7-3). The site has a low relief with a slope of < 5°.

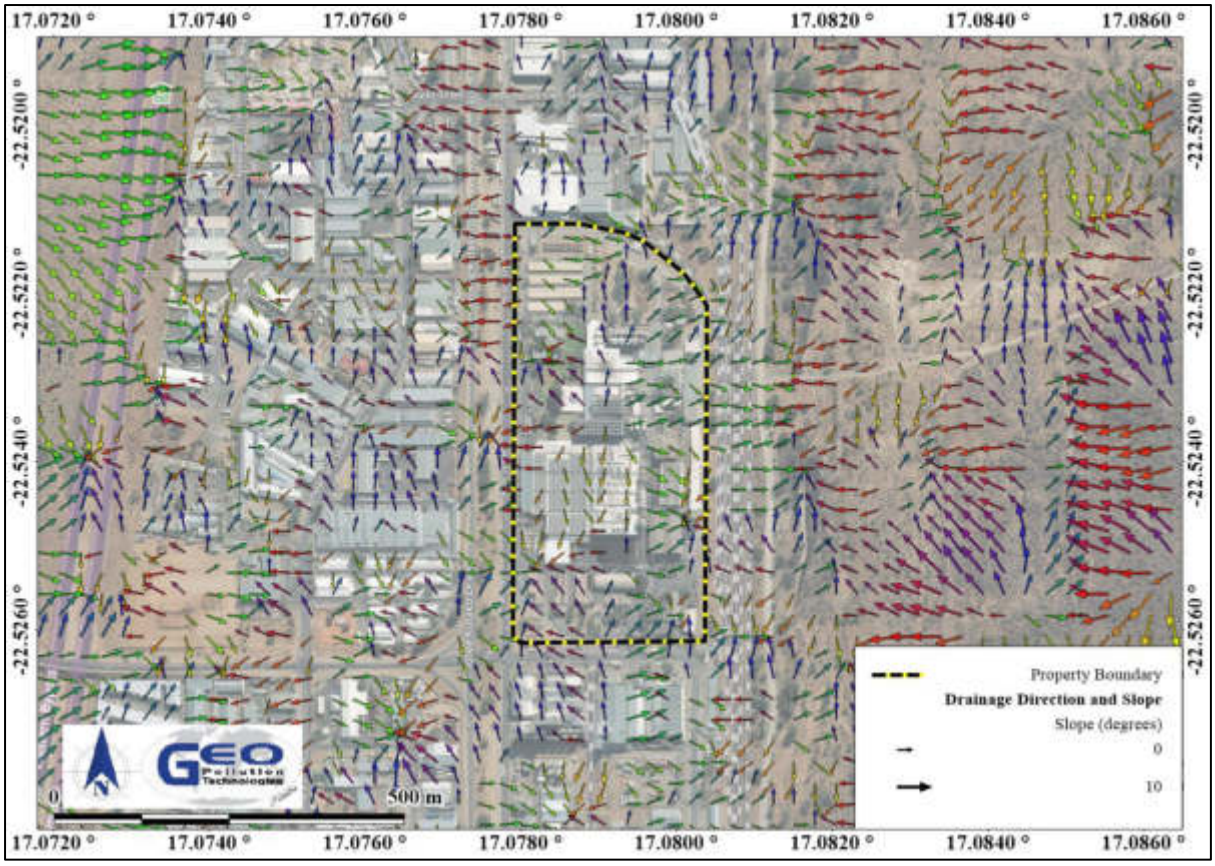


Figure 7-3. Surface drainage direction of the study area

Implications and Impacts

Any pollutants that are not contained and are transported via surface water flow, will flow out of the site via storm water drainage lines and potentially pollute the natural environment. Cumulative effects may be considered for the Klein Windhoek River and the Swakoppoort Dam.

7.4 GEOLOGY AND HYDROGEOLOGY

Metasedimentary rocks of the Namibian Age constitute the regional geology of the study area, consisting of rocks from the Damara Sequence. The Damara Sequence is locally subdivided into the Swakop Group rocks. The Kuiseb Formation make up the Swakop Group and include amphibolite, schist, micaceous quartzite and quartzite. The project location is situated on an alluvium deposit (sand) and is underlain by the Kuiseb Formation rocks (schist). See Figure 7-4 for the hydrogeological map of the area.

The metamorphic formations of the study area strike in a west-south-westerly direction and dip 15-35° to the north-northwest. The structural geology of the Windhoek area is complex as a result of numerous episodes of folding, faulting, thrusting and rifting. A number of north- to north-westerly striking faults and joints found in Windhoek form the major underground water conduits and therefore determine the conditions of the aquifer. A shallow alluvium basin overlay these formations within the Windhoek Graben Valley. Host rock fracturing along fault planes results in better development of secondary porosity in quartzite compared to schistose terrain, which is prone to plastic deformation rather than brittle fracturing. The quartzite therefore exhibits significantly higher secondary porosity and permeability, compared to the micaceous schist.

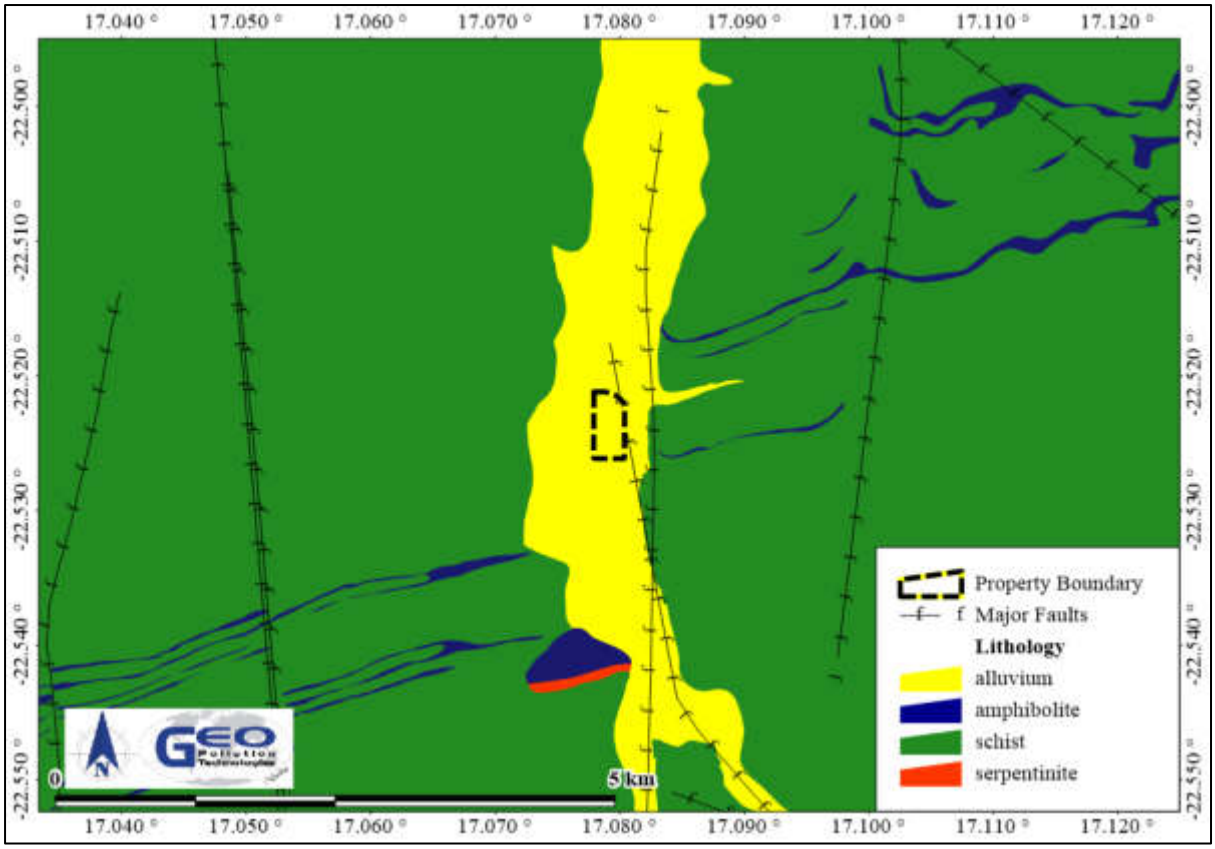


Figure 7-4. Hydrogeology

The groundwater level in the area is expected to be more than 8 m below surface. Groundwater flow is expected to take place through primary porosity in the surface cover, while it is expected to flow along fractures, faults (secondary porosity) and other geological structures present within the underlying formations (hard rock formations). Groundwater flow from the site can be expected in a northerly direction (Figure 7-6). Local flow patterns may vary due to groundwater abstraction. Water is utilized in the area, with at least 13 boreholes known of within a 5 km radius. Table 7-3 presents groundwater statistics of boreholes contained in the Department of Groundwater (DWA) database. Note that this database is generally outdated and more boreholes might be present.

Table 7-3. Groundwater statistics

Query Centre:	Namibia Breweries; -22.5236°S; 17.0791°E									Query Box Radius: 5.0km	
	NUMBER OF KNOWN BOREHOLES	LATITUDE	LONGITUDE	DEPTH (mbs)	YIELD (m3/h)	WATER LEVEL (mbs)	WATER STRIKE (mbs)	TDS (ppm)	SULPHATE (ppm)	NITRATE (ppm)	FLUORIDE (ppm)
Data points	**13**			8	7	6	4	10	10	10	10
Minimum		-22.478604	17.030388	38	2	8	24	164	5	0	0
Average				92	21	18	42	838	134	4	1
Maximum		-22.568596	17.127812	246	50	46	64	2567	510	24	4
Group A				25.00%	42.86%	50.00%	0.00%	70.00%	80.00%	90.00%	70.00%
Limit				50	>10	10	10	1000	200	10	1.5
Group B				50.00%	14.29%	50.00%	50.00%	20.00%	20.00%	0.00%	10.00%
Limit				100	>5	50	50	1500	600	20	2.0
Group C				12.50%	42.86%	0.00%	50.00%	0.00%	0.00%	10.00%	0.00%
Limit				200	>0.5	100	100	2000	1200	40	3.0
Group D				12.50%	0.00%	0.00%	0.00%	10.00%	0.00%	0.00%	20.00%
Limit				>200	<0.5	>100	>100	>2000	>1200	>40	>3

Statistical grouping of parameters is for ease of interpretation, except for the grouping used for sulphate, nitrate

and fluoride, which follow the Namibian guidelines for the evaluation of drinking-water quality for human consumption, with regard to chemical, physical and bacteriological quality. In this case the groupings has the following meaning:
Group A: Water with an excellent quality
Group B: Water with acceptable quality
Group C: Water with low health risk
Group D: Water with a high health risk, or water unsuitable for human consumption.

Furthermore, the facility is located north of the Windhoek Wellfield Areas, in an area where less strict control on potential pollution sources are placed (Figure 7-6). Based on the Windhoek Environmental Structure Plan the project location falls within a zone of medium geological sensitivity due to the underlying alluvium, with high sensitivity around the major fault to the east of the project area. The project location is situated in the Okahandja Groundwater Basin. Flow along preferred flow paths might be in different directions, but the larger scale flow is still expected to be in a northerly direction. This area falls in the Windhoek-Gobabis Subterranean Water Control Area (Extension). The groundwater is therefore a permit controlled area. Groundwater remains the property of the Government of Namibia.

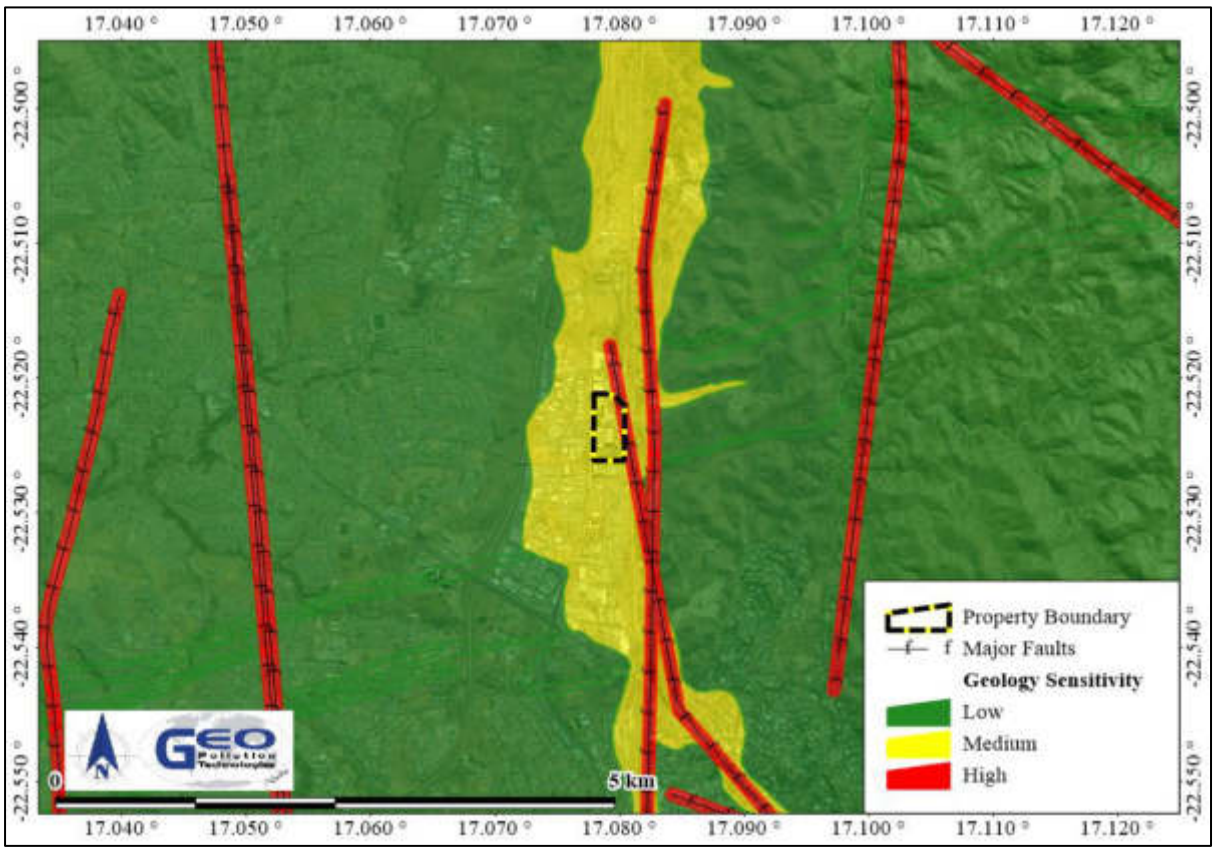


Figure 7-5. Geological sensitivity (Botha et al., 2020)

Figure 7-6. Inferred groundwater flow and groundwater basins

Implications and Impacts

A medium risk to groundwater is expected due to the medium geological sensitivity of the area. This is mainly due to the subsurface geology of highly permeable alluvium with less permeable mica schist there under. Furthermore, the high viscosity of HFO, which is stored in bulk on site, further reduce the potential of groundwater pollution. However, chemicals and waste stored or treated on site, have the potential to pollute the groundwater should a spill occur.

The abstraction of groundwater through boreholes on the site, contributes to the cumulative extraction of the groundwater resources of Windhoek, which is the primary source for all potable water in the capital city. The aquifer abstracted from is however different from that utilised by the City of Windhoek.

Groundwater remains an important resource and would be a risk if fuel spills are not contained, cleaned and disposed of properly.

7.5 PUBLIC WATER SUPPLY

Water consumption in Windhoek is well managed by means of water demand management. Nevertheless, available water is one of the city's most scarce resources and represents a constraint for sustainable development in future. Consumption will increase with the soaring influx of people to the city.

Listed in order of resource development, Windhoek receives its water from boreholes in and around town, reclaimed water (New Goreangab Water Reclamation Plant), and a NamWater Scheme that transfers water from the Von Bach Dam, the Swakoppoort Dam, the Omatako Dam and the Grootfontein Karst Area. The city also conducts artificial recharge of the Windhoek aquifer and is extending this scheme through the installation of new recharge boreholes as well as the development of deeper abstraction boreholes, 400 to 500 m deep. This clearly illustrates

the value of the aquifer. The boreholes are the second most important water resource of the city and the sustained use of the aquifer needs to be assured.

Namibia Breweries is located within the Swakoppoort Dam catchment which is important in terms of public water supply for the central areas of Namibia. The Swakoppoort Dam forms one of the three dams that supply water to the central areas of Namibia.

Implications and Impacts

Groundwater is a source of potable water and as such public water supply is at risk if a significant hydrocarbon spill occurs on site. The likelihood that the Municipal water supply boreholes are impacted by pollution from this facility is low, but other groundwater users nearby might be at risk.

7.6 FAUNA AND FLORA

Windhoek lies in the centre of the Savanna vegetation zone. Trees such as *Acacia mellifera*, *A. reficiens* and *A. fleckii* and a variety of other acacia trees are characteristic of this zone. Table 7-4 and Table 7-5 present a summary of the general fauna and flora of the area.

Apart from few ornamental plants or trees, no vegetation of note is present in the direct vicinity of the facility as this is an existing facility with mainly an artificial ground cover. No further impact on the fauna and flora is expected from the continued operation of the facility.

Table 7-4. General Flora Data (Atlas of Namibia)

Biome	Savanna
Vegetation type	Thornbush shrubland
Vegetation structure type	Dense shrubland
Diversity of higher plants	Highest (Diversity rank = 1 [1 to 7 representing highest to lowest diversity])
Number of plant species	More than 500
Percentage tree cover	26-50
Tree height (m)	2-5
Percentage shrub cover	26-50
Shrub height (m)	1-2
Percentage dwarf shrub cover	2-10
Dwarf shrub height (m)	< 0.5
Percentage grass cover	51-75
Grass height (m)	0.5-1
Dominant plant species 1	*Acacia mellifera*
Dominant plant species 2	*Acacia reficiens*
Dominant plant species 3	*Acacia fleckii*
Dominant plant species 4	*Boscia albitrunca*
Dominant plant species 5	*Lonchocarpus nelsii*
Dominant plant species 6	*Acacia erioloba*

Table 7-5. General Fauna Data (Atlas of Namibia)

Mammal Diversity	61 - 75 Species
Rodent Diversity	20 - 23 Species
Bird Diversity	> 230 Species
Reptile Diversity	71 - 80 Species
Snake Diversity	35 - 39 Species
Lizard Diversity	> 35 Species
Frog Diversity	8 - 11 Species
Termite Diversity	7 - 9 Genera
Scorpion Diversity	18 - 21 Species

Although the project is located within an anthropogenic environment, the Proponent has contributed significantly to national environmental conservation initiatives which includes reduction in waste and water use, optimising electrical use and supporting the fight against rhino poaching. Partnering with local and international organisations, the Proponent has not only raised the awareness of such issues to an international level, but also contributes to the international view of Namibia and conservation.

Implications and Impacts

Operations are existing and located on a developed property. No immediate threat to biodiversity in the area is expected, however, uncontrolled pollution may and can cause damage to any biodiversity surrounding the site.

Contribution and continued efforts to environmental conservation has not only directly benefitted the environment, but also has a significant cumulative impact on the conservation of the Namibian environment and its related tourism potential, which is one of the main economic drivers in Namibia.

7.7 DEMOGRAPHIC AND ECONOMIC CHARACTERISTICS

The project area falls within capital city of Namibia, Windhoek, situated within the Khomas Region. Windhoek is the largest and most densely populated town in Namibia and is the main hub of commerce and industry. As a result, a continuous influx of job seekers into Windhoek occur, which in turn increases the size of informal settlements in the area. See Table 7-6 for a summary of the main demographic statistics of Windhoek, the region and nationally. The industrial area has established businesses and industries and plays an important part in the economic sector of Windhoek and Namibia as a whole.

Table 7-6. Demographic characteristics of Windhoek the Khomas Region and Nationally (Namibia Statistics Agency, 2011)

	Windhoek	Khomas Region	Namibia
Population (Males)	159,600*	164,600	1,021,912
Population (Females)	162,800*	167,700	1,091,165
Population (Total)	322,500	332,300	2,113,077
Unemployment (15+ years)	N/A	21.7%	33.8%
Literacy (15+ years)	N/A	95.7%	87.7%
Education at secondary level (15+ years)	N/A	60.4%	51.2%
Households considered poor	N/A	5.8%	19.5%

**Data available from preliminary results only (National Planning Commission, 2012)*

The Proponent is a large scale employer with employment provided to 887 people, of which 771 are permanent positions. The economic resilience of the workforce is a significant contributor to family livelihoods in Windhoek and other operational areas throughout Namibia, as operations continued to offer employment and remuneration during the recent Covid19 pandemic. In addition, support towards to local community, especially in terms of education and people with disabilities, is a continued commitment by the Proponent. Initiatives, funded and established, include partnering with vocational centres, provision of training and consumables such as: computers, desks and beverages to local centres, but also to marginalised communities in the Omusati Region. Direct investment into the community averages up to N$3 million per year.

Implications and Impacts

Operations of the Proponent enables not only remuneration for employment, but also important resource contributions to the community. Significant impacts, especially in remote communities, may be achieved though changes in the demographic profile brought on by education support, income and employment. Cumulative demographic "knock-on" effects may include literacy rates, population growth rate, dependence ratio and migration rate.

Namibia Breweries Limited sustain employment of people from the area. Some skills development and training also benefit employees during operations of the facility.

7.8 HERITAGE, CULTURAL AND ARCHAEOLOGICAL ASPECTS

There are no churches, mosques or related buildings within the industrial area. No known archaeological resources have been noted in the vicinity since the establishment of the facility. No other structures, sites or spheres of heritage of cultural significance was determined to be in close proximity to the site.

8 PUBLIC PARTICIPAATION

Consultation with the public forms an integral component of an environmental assessment investigation and enables Interested and Affected Parties (IAPs) e.g. neighbouring landowners, local authorities, environmental groups, civic associations and communities, to comment on the potential environmental impacts associated with the proposed facility and to identify additional issues which they feel should be addressed in the environmental assessment.

Public participation notices were advertised twice in two weeks in the national papers The Namibian Sun and Republikein on 16 and 23 November 2021 respectively. A site notice was placed on site and notification letters delivered to neighbours. The City of Windhoek was notified by hand delivery of notification letter. A background information document was loaded onto the MEFT electronic system as well as made available to commenting authorities and IAP. Copies of the notification letter, the press and site notices as well as photos of the site notices are included in Appendix C.

9 MAJOR IDENTIFIED IMPACTS

During the scoping exercise a number of potential environmental impacts have been identified. The following section provides a brief description of the most important of these impacts.

9.1 POLLUTION

Groundwater, surface water and soil pollution from chemicals, waste or hydrocarbon products are major issues associated with the storage and handling of such products. All forms of pollution are prohibited in Namibia. Water and soil contamination may take place when such products are spilled as a result of broken containers, leaking pipes, incorrect refilling procedures, etc. Hydrocarbon fuels and some of the chemicals stored on site can render water sources unfit for consumption. If the nearby Klein Windhoek River becomes contaminated, such contaminants can negatively affect biodiversity downstream during the rainy season and may even reach the Swakoppoort Dam.

9.2 NOISE IMPACTS

Certain areas of operations, such as the packaging warehouse, creates a lot of noise. Working in these areas without proper hearing protection can lead to hearing loss. Such noise is however limited to operational areas. Heavy motor vehicles accessing the site for deliveries and collections creates some noise beyond the property boundaries. This is however a typical impact in industrial areas, and is not expected to impact negatively on surrounding properties.

9.3 TRAFFIC

The site is situated in an area with generally heavy traffic, many of which are trucks. The operations of NBL entail frequent delivery of raw materials, empties, packaging materials and fuel, as well as regular removal of waste and distribution products. As such significant traffic is generated around the site which can lead to traffic congestion, collisions and other accidents. This impact is a strongly cumulative in nature.

9.4 FIRE

Various flammable products are stored on site. At the consumer fuel installation unleaded petrol is highly flammable with diesel not as volatile and flammable. Heavy fuel oil is not as flammable, but if sufficiently heated can cause significant fire hazards. Ammonia, if present in low volumes in air becomes flammable. LPG and some chemicals stored in smaller quantities are highly flammable. Due to the volumes of packing materials stored in warehouse, it presents a high risk scenario in case of fires.

9.5 HEALTH

During normal operations the risk for injury exists due to the nature of the project. Exposure to some of the chemicals used in various processes can have serious health effects. Various vehicles operates on site and can cause accidents. Moving machinery such as conveyors can cause serious injury if operators get caught in it. Risks of falling from heights exist.

Ammonia is corrosive and can cause freeze burns. Inhalation of dangerous *Legionella* bacteria can occur where contaminated water becomes airborne. Typical conditions favourable to *Legionella* growth include stagnant water between 20 °C and 45 °C with media such as scale build-up present. These are often found in cooling towers, water coolers, etc.

9.6 SOCIO-ECONOMIC IMPACTS

The Proponent is one of the major employers in Windhoek with 598 permanent and 59 part-time employees at its main facility in Windhoek. During operations skills development and training benefit employees. Employees become financially more resilient and have more spending power. Significant revenue is generated through the sale of the manufactured products and this also contributes positively towards the trade balance of Namibia through exports.

Local and regional third party contractors and suppliers continuously benefit from construction activities, repairs, upgrades and provision of general goods and services.

10 ASSESSMENT AND MANAGEMENT OF IMPACTS

The purpose of this section is to assess and identify the most pertinent environmental impacts that are expected from the operational, construction (upgrades, maintenance, etc. – see glossary for “construction”) and potential decommissioning activities of the facility. An environmental management plan based on these identified impacts are also incorporated into this section.

For each impact an environmental classification was determined based on an adapted version of the Rapid Impact Assessment Method (Pastakia, 1998). Impacts are assessed according to the following categories: Importance of condition (A1); Magnitude of Change (A2); Permanence (B1); Reversibility (B2); and Cumulative Nature (B3) (see Table 10-1)

Ranking formulas are then calculated as follow:

Environmental Classification = A1 x A2 x (B1 + B2 + B3)

The environmental classification of impacts is provided in Table 10-2.

The probability ranking refers to the probability that a specific impact will happen following a risk event. These can be improbable (low likelihood); probable (distinct possibility); highly probable (most likely); and definite (impact will occur regardless of prevention measures).

Table 10-1. Assessment criteria

Criteria	Score
Importance of condition (A1) – assessed against the spatial boundaries of human interest it will affect	
Importance to national/international interest	4
Important to regional/national interest	3
Important to areas immediately outside the local condition	2
Important only to the local condition	1
No importance	0
Magnitude of change/effect (A2) – measure of scale in terms of benefit / disbenefit of an impact or condition	
Major positive benefit	3
Significant improvement in status quo	2
Improvement in status quo	1
No change in status quo	0
Negative change in status quo	-1
Significant negative disbenefit or change	-2
Major disbenefit or change	-3
Permanence (B1) – defines whether the condition is permanent or temporary	
No change/Not applicable	1
Temporary	2
Permanent	3
Reversibility (B2) – defines whether the condition can be changed and is a measure of the control over the condition	
No change/Not applicable	1
Reversible	2
Irreversible	3
Cumulative (B3) – reflects whether the effect will be a single direct impact or will include cumulative impacts over time, or synergistic effect with other conditions. It is a means of judging the sustainability of the condition – not to be confused with the permanence criterion.	
Light or No Cumulative Character/Not applicable	1
Moderate Cumulative Character	2
Strong Cumulative Character	3

Table 10-2. Environmental classification (Pastakia 1998)

Environmental Classification	Class Value	Description of Class
72 to 108	5	Extremely positive impact
36 to 71	4	Significantly positive impact
19 to 35	3	Moderately positive impact
10 to 18	2	Less positive impact
1 to 9	1	Reduced positive impact
0	-0	No alteration
-1 to -9	-1	Reduced negative impact
-10 to -18	-2	Less negative impact
-19 to -35	-3	Moderately negative impact
-36 to -71	-4	Significantly negative impact
-72 to -108	-5	Extremely Negative Impact

10.1 RISK ASSESSMENT AND ENVIRONMENTAL MANAGEMENT PLAN

The EMP provides management options to ensure impacts of the facility are minimised. An EMP is a tool used to take pro-active action by addressing potential problems before they occur. This should limit the corrective measures needed, although additional mitigation measures might be included if necessary. The environmental management measures are provided in the tables and descriptions below. These management measures should be adhered to during the various phases of the operation of the facility. This section of the report can act as a stand-alone document. All personnel taking part in the operations of the facility should be made aware of the contents in this section, so as to plan the operations accordingly and in an environmentally sound manner.

The objectives of the EMP are:

- to include all components of construction activities (upgrades, maintenance, etc.) and operations of the facility;
- to prescribe the best practicable control methods to lessen the environmental impacts associated with the project;
- to monitor and audit the performance of operational personnel in applying such controls; and
- to ensure that appropriate environmental training is provided to responsible operational personnel.

Various potential and definite impacts will emanate from the operations and decommissioning phases. The majority of these impacts can be mitigated or prevented. The impacts, risk rating of impacts as well as prevention and mitigation measures are listed below.

As depicted in the tables below, impacts related to the operational phase are expected to mostly be of medium to low significance and can mostly be mitigated to have a low significance. The extent of impacts are mostly site specific to local and are not of a permanent nature. Due to the nature of the surrounding areas, cumulative impacts are possible and include traffic, over abstraction and/or contamination of groundwater and noise as well as positive impacts related to employment.

10.1.1 Planning

During the phase of planning for future operations, construction and decommissioning of operations, it is the responsibility of Proponent to ensure they are and remain compliant with all legal requirements. The Proponent must also ensure that all required management measures are in place prior to and during all phases, to ensure potential impacts and risks are minimised. The following actions are recommended for the planning phase and should continue during various other phases of the project:

- Ensure that all necessary permits from the various ministries, local authorities and any other bodies that governs the construction (maintenance) activities and operations of the facility remains valid (e.g. consumer fuel licences, effluent discharge permits, water abstraction permits, boiler certification, etc.).
- Ensure all appointed contractors and employees enter into an agreement which includes the EMP. Ensure that the contents of the EMP are understood by the contractors, sub-contractors, employees and all personnel present or who will be present on site.
- Make provisions to have a Health, Safety and Environmental Coordinator to implement the EMP and oversee occupational health and safety as well as general environmental related compliance at the site.
- Have the following emergency plans, equipment and personnel on site where reasonable to deal with all potential emergencies:
    - Risk management / mitigation / EMP/ Emergency Response Plan and HSE Manuals
    - Adequate protection and indemnity insurance cover for incidents;
    - Comply with the provisions of all relevant safety standards;
    - Procedures, equipment and materials required for emergencies.
- If one has not already been established, establish and maintain a fund for future ecological restoration of the project site, should project activities cease and the site is decommissioned and environmental restoration or pollution remediation is required.
- Establish and / or maintain a reporting system to report on aspects of construction activities, operations and decommissioning as outlined in the EMP.
- Keep monitoring reports on file for bi-annual submission to allow for environmental clearance certificate renewal as required by the Ministry of Environment, Forestry and Tourism.
- Appoint a specialist environmental consultant to update the EIA and EMP and apply for renewal of the environmental clearance certificate prior to expiry.

10.1.2 Skills, Technology and Development

Various components at the facility are highly specialised, state of the art processes and equipment, that require specialised skills for operations. Skills development and training continuously benefit employees. New technologies are continuously invested in. Periodic maintenance, upgrades and repairs benefit local contractors whose employees are also periodically trained.

Project Activity / Resource	Nature (Status)	(A1) Importance	(A2) Magnitude	(B1) Permanence	(B2) Reversibility	(B3) Cumulative	Environmental Classification	Class Value	Probability
Construction (repairs, upgrades and maintenance)	Employment, technological development and transfer of skills	2	1	2	3	1	12	2	Probable
Daily Operations	Employment, technological development and transfer of skills	3	2	2	3	2	42	4	Definite
Indirect Impacts	Transfer of skills and technological development	2	1	2	3	1	12	2	Definite

Desired Outcome: To see an increase in skills of local Namibians, as well as development and technology advancements in the manufacturing industry.

Actions

Enhancement:

- If the skills exist locally, employees and contractors must first be sourced from the town, then the region and then nationally. Deviations from this practice must be justified.
- Skills development and improvement programs to be made available as identified during performance assessments.
- Employees to be informed about parameters and requirements for references upon employment.

Responsible Body:

- Proponent
- Contractors

Data Sources and Monitoring:

- Record should be kept of training provided.
- Ensure that all training is certified or managerial reference provided (proof provided to the employees) inclusive of training attendance, completion and implementation.
- Bi-annual summary report on all training provided.

10.1.3 Revenue Generation and Employment

The change in land use has led to changes in the way revenue is generated and paid to the national treasury. An increase of skilled and professional labour has and will continue to take place due to the operations of Namibia Breweries. Employment is sourced locally while skilled labour/contractors may be sourced from other regions. Additional revenue will be generated though employment, purchasing of goods and use of services.

Project Activity / Resource	Nature (Status)	(A1) Importance	(A2) Magnitude	(B1) Permanence	(B2) Reversibility	(B3) Cumulative	Environmental Classification	Class Value	Probability
Construction (repairs, upgrades and maintenance)	Employment and contribution to local economy	2	1	2	2	2	12	2	Definite
Daily Operations	Employment contribution to local economy	3	1	3	3	2	24	3	Definite
Indirect Impacts	Decrease in unemployment, contribution to local economy	3	1	3	3	3	27	3	Definite

Desired Outcome: Contribution to national treasury, a positive trade balance and provision of employment to local Namibians.

Actions

Enhancement:

- The Proponent must employ local Namibians where possible.
- If the skills exist locally, employees must first be sourced from the town, then the region and then nationally.
- Deviations from this practice must be justified.

Responsible Body:

- Proponent

Data Sources and Monitoring:

- Bi-annual summary report based on employee records.

10.1.4 Demographic Profile and Community Health

The project is reliant on labour with a significant workforce. Impacts related to the demographic profile and community health relate to the influx of people to the town (job-seekers) and the transport industry, and the potential social ills and deviant behaviour that often accompany such events. This includes the spread of communicable diseases such as HIV/AIDS and increased criminal activities. Additional employment opportunities also mean more spending power which can lead to increased misuse of alcohol and drugs. The cumulative impact on the demographic profile, (immigration towards Windhoek) (urbanisation) of people in search of employment. Urbanisation may lead to an increase of informal settlements within which social ills and communicable disease like HIV/AIDS and alcoholism/drug abuse disease may be more prevalent.

Project Activity / Resource	Nature (Status)	(A1) Importance	(A2) Magnitude	(B1) Permanence	(B2) Reversibility	(B3) Cumulative	Environmental Classification	Class Value	Probability
Construction (repairs, upgrades and maintenance)	In-migration and social ills related to unemployment	2	-1	1	1	2	-8	-1	Improbable
Daily Operations	In-migration and social ills related to unemployment	2	-2	2	2	2	-24	-3	Probable
Indirect Impacts	The spread of disease	2	-1	2	2	1	-10	-2	Improbable

Desired Outcome: To prevent the in-migration and growth in informal settlements, prevent the spread of communicable disease and prevent / discourage socially deviant behaviour.

Actions:

Prevention:

- Employ only local people from the area, deviations from this practice should be justified appropriately.
- Appointment of reputable contractors where applicable.
- Adhere to all local authority by-laws relating to environmental health which includes, but is not limited to, sanitation requirements for employees.
- Provide educational, awareness information for employees on various topics of social behaviour and HIV/AIDs.
- Disciplinary steps, within the legal parameters of Namibia, to be taken for socially deviant behaviour during working hours should be clearly stipulated in employment contracts.

Mitigation:

- Take disciplinary action against employees not adhering to contractual agreements with regard to socially deviant behaviour (e.g. alcohol or drug abuse during working hours).

Responsible Body:

- Proponent

Data Sources and Monitoring:

- Facility inspection sheet for all areas which may present environmental health risks, kept on file.
- Bi-annual summary report based on educational programmes and training conducted.

10.1.5 Traffic

Through the operations of NBL, traffic flow to the site has increased and this contribute to the cumulative collision risk and congestion of surrounding roads, especially during the peak traffic hours. Traffic management and road degradation should however be considered cumulatively for all operations and businesses within the area. Should traffic related problems persist, a combined initiative, from all businesses together with the City of Windhoek, should be considered to address possible issues such as traffic congestion and road degradation.

Project Activity / Resource	Nature (Status)	(A1) Importance	(A2) Magnitude	(B1) Permanence	(B2) Reversibility	(B3) Cumulative	Environmental Classification	Class Value	Probability
Construction (repairs, upgrades and maintenance)	Delivery of equipment and building supplies	1	-1	2	2	2	-6	-1	Probable
Daily Operations	Increased traffic, road wear and tear and accidents	1	-1	2	2	2	-6	-1	Definite

Desired Outcome: Minimum impact on traffic and no transport or traffic related incidents.

Actions

Prevention:

- Erect clear signage regarding access and exit points at the facility.
- All vehicles owned by the Proponent to operate within the Traffic and Transport Act regulation, specifically also in terms of roadworthiness.
- Trucks making deliveries or doing pick-ups may not be allowed to park in streets for extended periods or be allowed to obstruct neighbouring properties' entrances.

Mitigation:

- If any traffic impacts are expected, possibly as a result of delivery of equipment or construction material, traffic management should be performed to prevent these.

Responsible Body:

- Proponent

Data Sources and Monitoring:

- Any complaints received regarding traffic issues should be recorded together with action taken to prevent impacts from repeating itself.
- A bi-annual report should be compiled of all incidents reported, complaints received, and actions taken.

10.1.6 Health, Safety and Security

Activities associated with the operational phase is reliant on human labour and therefore exposes them to health and safety risks. Activities such as the operation of machinery and handling of hazardous chemicals, poses the main risks to employees. Storage of incompatible chemicals in close proximity to each other may result in flammable, explosive or toxic conditions to result when cross-contamination occur. Security risks are related to unauthorized entry, theft and sabotage.

Project Activity / Resource	Nature (Status)	(A1) Importance	(A2) Magnitude	(B1) Permanence	(B2) Reversibility	(B3) Cumulative	Environmental Classification	Class Value	Probability
Construction (repairs, upgrades and maintenance)	Physical injuries, exposure to chemicals and criminal activities	1	-2	3	3	1	-14	-2	Probable
Daily Operations	Physical injuries, exposure to chemicals and criminal activities	3	-2	3	2	2	-36	-4	Probable

Desired Outcome: To prevent injury, health impacts and theft.

Actions

Prevention:

- Implement and maintain an integrated health and safety management system, to act as a monitoring and mitigating tool.
- Comply with all health and safety standards as specified in the Labour Act and related legislation (including those pertaining to the possession and operations of boilers).
- All chemicals must be stored and handled according MSDS instructions. This includes segregation of incompatible products (e.g. acids and reducing agents and alkalis).
- Clearly label dangerous and restricted areas (e.g. chemical store) as well as dangerous equipment and products.
- Provide all employees with required and adequate personal protective equipment (PPE) where required.
- Ensure that all personnel receive adequate training on the operational procedures of equipment and machinery and the handling of chemicals and hazardous substances. Ensure that staff understand the importance of segregating incompatible materials even if it is only empty packaging material with residual traces of chemicals. Also ensure that more than one employee is trained on these aspects to ensure an adequately trained and qualified person is always present on site to ensure appropriate handling and storage of chemicals (e.g. in the event of personnel being on leave).
- Train selected personnel in first aid and ensure first aid kits and equipment are available on site and regularly serviced/replaced.
- The contact details of all emergency services must be readily available.
- Implement a maintenance register for all equipment whose malfunction can lead to injury or exposure to hazardous substances.
- Apply and adhere to all industry specific health and safety procedures and regulations applicable to the handling of food produce for markets.
- Equipment that will be locked away on site must be placed in a way that does not encourage criminal activities (e.g. theft).
- A *Legionella* risk assessment and management plan should be compiled which includes bi-annual inspection and analysis of water sources potentially containing *Legionella*.
- Ammonia has a strong smell and leaks are typically quickly detected by smell only. However, leak detectors should be considered since personnel will not always be present in the compressor rooms.

Responsible Body:

- Proponent
- Contractors

Data Sources and Monitoring:

- Any incidents must be recorded with action taken to prevent future occurrences.
- A bi-annual report should be compiled of all incidents reported. The report should contain dates when training were conducted and when safety equipment and structures were inspected and maintained.

10.1.7 Fire

Chemicals and fuels stored on site may be flammable and pose fire risks. Fires can result from incorrect handling of such chemicals and fuels e.g. incorrect storage or cross-reactivity or from faulty electrical equipment. Ammonia, if released from the refrigeration systems, present in a 15% to 28% mixture with air, is explosive. The site is located next to built-up areas which increases the difficulty of fighting fires.

Project Activity / Resource	Nature (Status)	(A1) Importance	(A2) Magnitude	(B1) Permanence	(B2) Reversibility	(B3) Cumulative	Environmental Classification	Class Value	Probability
Construction (repairs, upgrades and maintenance)	Fire and explosion risk	1	-2	2	2	1	-10	-2	Probable
Daily Operations	Fire and explosion risk	2	-2	2	2	1	-20	-3	Probable

Desired Outcome: To prevent property damage, possible injury and impacts caused by uncontrolled fires.

Actions:

Prevention:

- Prepare a holistic fire protection and prevention plan. This plan must include evacuation plans and signage, an emergency response plan and a firefighting plan.
- Personnel training (safe operational procedures, firefighting, fire prevention and responsible housekeeping practices).
- Ensure all fuel and chemicals, including ammonia, are stored and handled according to MSDS and SANS instructions.
- Regular site, mechanical and electrical inspections and maintenance.
- Regular maintenance of firefighting equipment.
- The compressors rooms must have emergency response plans specific to ammonia related fire risks if leaks or accidental release of ammonia occur. This include explosive proof lighting, extractor fans, PPE and water hoses with water diffusing nozzles. Water absorbs ammonia vapour if sprayed by a fine mist or droplets of water. Refer to MSDA and SANS 10147.
- Ammonia has a strong smell and leaks are typically quickly detected by smell only. However, leak detectors should be considered since personnel will not always be present in the compressor rooms.

Mitigation

- Clean all spills / leaks according to MSDS instructions.

Responsible Body:

- Proponent
- Contractors

Data Sources and Monitoring:

- A register of all incidents must be maintained. This should include measures taken to ensure that such incidents do not repeat themselves.
- A bi-annual report should be compiled of all incidents reported. The report should contain dates when fire drills were conducted and when fire equipment was tested and training given.

10.1.8 Air Quality

HFO and or wood chips are combusted for boiler operations. Such operations are known to contribute to greenhouse gasses (GHG) and reduced local air quality. Fuel vapours, associated with the fuel storage on site, may be released into the air during refuelling of bulk storage tanks. Prolonged exposure may have carcinogenic effects. Spilled chemicals may reduce air quality in the vicinity of the spill, especially where incompatible chemicals get into contact with each other and produce toxic fumes. Ammonia spills pose significant risks related to air quality and the safety of people on site. Dust may be generated during maintenance or upgrade activities on site.

Project Activity / Resource	Nature (Status)	(A1) Importance	(A2) Magnitude	(B1) Permanence	(B2) Reversibility	(B3) Cumulative	Environmental Classification	Class Value	Probability
Construction (repairs, upgrades and maintenance)	Excessive dust generated from maintenance and upgrade activities	1	-1	2	2	2	-6	-1	Probable
Daily Operations	GHG emissions, Fuel and chemical vapours	3	-2	2	2	1	-30	-3	Probable

Desired Outcome: To prevent health impacts and reduce the carbon footprint.

Actions

Prevention:

- Develop an air quality management plan and make the necessary adjustments to the boilers to reduce emissions if required.
- Compressor rooms and ammonia storage rooms must have extractors in case of leaks or accidental ammonia releases.
- Ammonia has a strong smell and leaks are typically quickly detected by smell only. However, leak detectors should be considered since personnel will not always be present.
- Quality checks should be conducted on the HFO used in boiler operations. Good quality HFO will reduce emissions.
- Scrubbers or ceramic filters should be considered to minimise emissions from boilers.
- Incompatible chemicals must be segregated at all times.
- Personnel issued with PPE where vapours/dust are present.
- Employees should be coached on the dangers of fuel and chemical vapours.

Responsible Body:

- Proponent
- Contractors

Data Sources and Monitoring:

- Any complaints received regarding dust, fuel or chemical vapours should be recorded with notes on action taken.
- All information and reporting to be included in a bi-annual report.

10.1.9 Noise

Noise pollution will exist due to heavy motor vehicles accessing the site to offload and load raw materials, commodities and fuel and audible warning signals on trucks and forklifts. Noise generating components of the operations, such as the packaging plant are conducted in enclosed environments (buildings) which acts as a noise buffer to surrounding properties, but still pose a risk to workers. Construction (maintenance and upgrade) may generate excessive noise.

Project Activity / Resource	Nature (Status)	(A1) Importance	(A2) Magnitude	(B1) Permanence	(B2) Reversibility	(B3) Cumulative	Environmental Classification	Class Value	Probability
Construction (repairs, upgrades and maintenance)	Excessive noise generated from construction activities – nuisance and hearing loss	1	-1	2	2	1	-5	-1	Probable
Daily Operations	Noise generated from the operational activities – nuisance and health impacts	1	-2	2	2	2	-12	-2	Definite

Desired Outcome: To prevent any nuisance and hearing loss due to noise generated.

Actions

Prevention:

- Follow the City of Windhoek guidelines for limits on noise pollution (Council Resolution 215/09/2006). The facility is situated in an industrial area. Noise should be limited to 70 decibels (limit for industrial properties).
- All machinery must be regularly serviced to ensure minimal noise production.
- Hearing protectors as standard PPE for workers in situations with elevated noise levels.
- Consider noise reduction methods such as switching from audible warning signals on trucks and forklifts to flashing lights or white noise systems.

Responsible Body:

- Proponent
- Contractors

Data Sources and Monitoring:

- City of Windhoek guidelines.
- Maintain a complaints register.
- Bi-annual report on complaints and actions taken to address complaints and prevent future occurrences.

10.1.10 Waste Production

Various waste streams are produced during the operational phase. Waste may include hazardous waste associated with the handling of hydrocarbon products, chemicals, medical waste, etc.; recyclable wastes such as glass, metal, paper and plastic as well as organic waste that can be used as food source for livestock (e.g. spent grains); and domestic waste. Waste presents a contamination risk and when not removed regularly may become a fire hazard. Construction waste may include building rubble and discarded equipment contaminated by hydrocarbon products. Contaminated soil and water are considered as hazardous wastes.

Project Activity / Resource	Nature (Status)	(A1) Importance	(A2) Magnitude	(B1) Permanence	(B2) Reversibility	(B3) Cumulative	Environmental Classification	Class Value	Probability
Construction (repairs, upgrades and maintenance)	Excessive waste production, littering, illegal dumping, contaminated materials	1	-2	2	2	2	-12	-2	Definite
Daily Operations	Excessive waste production, littering, contaminated materials	1	-2	2	2	2	-12	-2	Definite

Desired Outcome: To reduce the amount of waste produced, and prevent pollution and littering.

Actions

Prevention:

- Waste reduction measures must continue to be implemented and all waste that can be re-used / recycled must be kept separate.
- Ensure adequate temporary waste storage facilities are available and that waste cannot be blown away by wind.
- Prevent scavenging (human and non-human) of stored waste.
- All regulations and by-laws relating to environmental health should be adhered to.
- Waste should be disposed of regularly and at appropriately classified disposal facilities, this includes hazardous material (empty chemical containers, contaminated rugs, paper water and soil).
- See the MSDS available from suppliers for disposal of contaminated products and empty containers.
- Continue to liaise with the municipality regarding waste, handling of hazardous waste and waste water.

Responsible Body:

- Proponent
- Contractors

Data Sources and Monitoring:

- A register of hazardous waste disposal should be kept. This should include type of waste, volume as well as disposal method/facility.
- Any complaints received regarding waste should be recorded with notes on action taken.
- All information and reporting to be included in a bi-annual report.

10.1.11 Ecosystem and Biodiversity Impact

The property is already developed. A few indigenous trees such as *Acia erioloba* were incorporated into the site as it was developed. No significant impact on the biodiversity of the area is predicted as operations is ongoing on the site. Impacts are mostly related to pollution of the environment.

Project Activity / Resource	Nature (Status)	(A1) Importance	(A2) Magnitude	(B1) Permanence	(B2) Reversibility	(B3) Cumulative	Environmental Classification	Class Value	Probability
Construction (repairs, upgrades and maintenance)	Impact on fauna and flora. Loss of biodiversity	1	-1	3	2	2	-7	-1	Improbable
Daily Operations	Impact on fauna and flora. Loss of biodiversity	1	-1	3	2	2	-7	-1	Improbable

Desired Outcome: To avoid pollution of and impacts on the ecological environment.

Actions.

Mitigation:

- Report any extraordinary animal sightings to the Ministry of Environment, Forestry and Tourism.
- Mitigation measures related to waste handling and the prevention of groundwater, surface water and soil contamination should limit ecosystem and biodiversity impacts.
- Avoid scavenging of waste by fauna.
- The establishment of habitats and nesting sites at the facility should be prevented where possible.

Responsible Body:

- Proponent

Data Sources and Monitoring:

- All information and reporting to be included in a bi-annual report.

10.1.12 Groundwater, Surface Water and Soil Contamination

Operations entail the storage and handling of large volumes of hazardous fuel and chemicals which present an environmental contamination risk. Contamination may either result from failing storage facilities, pumps and pipelines, or spills and leaks associated with incorrect handling or human error. Such spills may contaminate surface water, soil and groundwater.

Project Activity / Resource	Nature (Status)	(A1) Importance	(A2) Magnitude	(B1) Permanence	(B2) Reversibility	(B3) Cumulative	Environmental Classification	Class Value	Probability
Construction (repairs, upgrades and maintenance)	Contamination from hazardous material spillages and hydrocarbon leakages	2	-1	2	2	1	-10	-2	Probable
Daily Operations	Contamination from hazardous material spillages and hydrocarbon leakages	2	-1	2	2	1	-10	-2	Probable

Desired Outcome: To prevent the contamination of water and soil.

Actions

Prevention:

- Spill control structures and procedures must be in place according to SANS standards or better for all fuel and chemical storage and handling areas.
- All surfaces where fuel is handled must have spill traps that are regularly cleaned.
- All fuelling should be conducted on surfaces provided for this purpose. E.g. Concrete slabs with regularly maintained seals between slabs.
- The procedures followed to prevent environmental damage during service and maintenance, and compliance with these procedures, must be audited and corrections made where necessary.
- Proper training of operators must be conducted on a regular basis (fuel and chemical handling, spill detection, spill control).
- All drains leading directly into sewers must be closed off, and locked where possible, to prevent any unwanted products from entering sewers should an accidental spill, pipe burst, valve malfunction, etc. occur. Where drains are present to drain wash water, these should only be opened during times of washing and closed immediately thereafter.
- Ensure tank vents do not become blocked due to the high viscosity of HFO as this can lead to tank failure during filling.
- Industrial effluent must adhere to the City of Windhoek's effluent disposal permit conditions.

Mitigation:

- Any fuel spillage of more than 200 litre must be reported to the Ministry of Mines and Energy as per permit conditions.
- Any spill must be cleaned up immediately and spill clean-up means must be readily available on site as per the relevant MSDS.
- Following a spill, relevant chemicals of concern must be identified and all boreholes sampled on an interval advised by a specialist after risk of groundwater contamination was assessed.
- A groundwater remediation plan must be drafted relevant to the spilled material if the risk of groundwater contamination justifies such plan.

Responsible Body:

- Proponent
- Contractors

Data Sources and Monitoring:

- Quarterly groundwater sampling and testing for hydrocarbons (gasoline and diesel range organics) to ensure no fuel leaks are present on site. Initially all boreholes must be sampled, but this can be reduced to three suitable boreholes which should be chosen based on borehole design. Specialist input should be obtained to devise a water sampling and testing programme.
- A report should be compiled bi-annually of all spills or leakages of fuel or chemicals as well as all effluent monitoring results.
- The report should contain the following information: date and duration of spill, product spilled, volume of spill, remedial action taken, where applicable comparison of pre-exposure baseline data (previous pollution conditions survey results) with post remediation data (e.g. soil/groundwater hydrocarbon concentrations) and for fuel spills a copy of documentation in which spill was reported to Ministry of Mines and Energy.

10.1.13 Groundwater Quality

The shallow alluvial aquifer under the project site is highly permeable and runs over a large distance through a portion of Windhoek. Just upstream of the project location are bulk fuel storage facilities belonging to various members of the oil Industry. These facilities are equipped with groundwater monitoring holes for the monitoring of contamination from these facilities and monitoring started as early as 2006. In the last few years all these monitoring holes dried up and no groundwater monitoring can be conducted. This would thus leave downstream users vulnerable. The alluvial aquifer is further associated with the Klein Windhoek River, and sewerage infrastructure located in this river are known to regularly overflow, causing pollution of the aquifer. These are just two examples of potential water quality concerns. The shallow alluvial aquifer is very likely to recharge the underlying schist aquifer as the schist is dipping at 15-35° to the north-northwest, thereby exposing flow within the schistosity, but also through faults in the schist. Some contaminants from upstream sources may pass through the NBL water treatment system, resulting in quality issues to the final treated water, as the water treatment system might not be designed for such contaminants.

Project Activity / Resource	Nature (Status)	(A1) Importance	(A2) Magnitude	(B1) Permanence	(B2) Reversibility	(B3) Cumulative	Environmental Classification	Class Value	Probability
Daily Operations	Contamination from upstream sources	2	-2	2	2	3	-28	-3	Probable

Desired Outcome: To prevent water quality issues in the final treated water.

Actions

Mitigation:

- Stop groundwater abstraction until water treatment plant is upgraded to handle contaminants.
- Report observations to City of Windhoek and to Ministry of Agriculture, Water and Land Reform (Law Admin)

Responsible Body:

- Proponent

Data Sources and Monitoring:

- A water quality analysis must be conducted quarterly to keep record of the borehole water quality and to ensure early detection of any potential contamination that may be from industries upstream.
- Water analysis parameters should be determined based on a study of possible chemicals of concern, as per identified upstream industries. This list must be updated annually. As a start analysis should be for hydrocarbons (gasoline and diesel range organics) as this will assess for the nearest upstream bulk chemical storage)

10.1.14 Groundwater Abstraction

Over abstraction of groundwater may lead to declining water levels. This will not only impact on the Proponent's operations, but also on nearby users of groundwater.

Project Activity / Resource	Nature (Status)	(A1) Importance	(A2) Magnitude	(B1) Permanence	(B2) Reversibility	(B3) Cumulative	Environmental Classification	Class Value	Probability
Daily Operations	Declining groundwater levels	2	-2	2	2	2	-28	-3	Probable

Desired Outcome: To prevent the over abstraction of groundwater and declining groundwater levels

Actions

Prevention:

- Abstraction from boreholes should not exceed the recommendations as below (Gustavo and Sanzila, 2020)

Boreholes	Recommended Abstraction Rate (m^3/h)	Recommended Abstraction Rate (m^3/day)	Pump Inlet Depth (mbs)	Pump Water Level (mbs)
WW204606	15	300	55	15
WW204607	25	500	70	20
WW204636	25	500	70	15
WW204633	15	300	70	18
WW204637	25	500	70	20
WW204635	Standby production borehole			
WW204634	Monitoring borehole of the shallow alluvial aquifer			
Total	**105**	**2,100**		

- Real time water level and abstraction rate monitoring should be conducted and it must be ensured that the recommendations above is not exceeded.
- The cone of depression must be monitored to not reach the Oil Industry monitoring boreholes where vital pollution monitoring is taking place.
- Comply with conditions placed on the relevant abstraction permit.

Mitigation:

- Reduce abstraction volumes so that groundwater levels recover to acceptable limits.

Responsible Body:

- Proponent

Data Sources and Monitoring:

- Real time water level and abstraction data.
- Appropriately calibrate groundwater monitoring equipment – regular inspections and calibration of equipment should be undertaken in line with the equipment specifications and all calibration actions must be recorded.
- Comply with permit reporting conditions
- Review abstraction scenarios every six months, based on measured water level data.

10.1.15 Visual Impact

This is an impact that not only affects the aesthetic appearance, but also the integrity of the facility.

Project Activity / Resource	Nature (Status)	(A1) Importance	(A2) Magnitude	(B1) Permanence	(B2) Reversibility	(B3) Cumulative	Environmental Classification	Class Value	Probability
Construction (repairs, upgrades and maintenance)	Aesthetic appearance and integrity of the site	1	-1	2	2	2	-6	-1	Probable
Daily Operations	Aesthetic appearance and integrity of the site	1	-1	2	2	2	-6	-1	Probable

Desired Outcome: To minimise aesthetic impacts associated with the facility.

Actions

Mitigation:

- Regular waste disposal, good housekeeping and routine maintenance on infrastructure will ensure that the longevity of structures are maximised and a low visual impact is maintained.

Responsible Body:

- Proponent
- Contractors

Data Sources and Monitoring:

- A maintenance record should be kept.
- A bi-annual report should be compiled of all complaints received and actions taken.

10.1.16 Cumulative Impact

Possible cumulative impacts associated with the operational phase include increased traffic in the area, noise, over abstraction of groundwater and potential water contamination.

Project Activity / Resource	Nature (Status)	(A1) Importance	(A2) Magnitude	(B1) Permanence	(B2) Reversibility	(B3) Cumulative	Environmental Classification	Class Value	Probability
Daily Operations	The build-up of minor impacts to become more significant	2	-2	2	2	2	-24	-3	Probable

Desired Outcome: To minimise cumulative all impacts associated with the facility.

Actions

Mitigation:

- Addressing each of the individual impacts as discussed and recommended in the EMP would reduce the cumulative impact.
- Reviewing biannual reports for any new or re-occurring impacts or problems would aid in identifying cumulative impacts and help in planning if the existing mitigations are insufficient.

Responsible Body:

- Proponent

Data Sources and Monitoring:

- Bi-annual report on all other impacts must be created to give an overall assessment of the impact of the operational phase.

10.2 DECOMMISSIONING AND REHABILITATION

Decommissioning is not foreseen during the validity of the environmental clearance certificate. Decommissioning was however assessed as construction activities include modification and decommissioning. Should decommissioning occur at any stage, rehabilitation of the area may be required. Decommissioning will entail the complete removal of all infrastructure including buildings and underground infrastructure. Any pollution present on the site must be remediated. The impacts associated with this phase include noise and waste production as structures are dismantled. Noise must be kept within City of Windhoek standards and waste should be contained and disposed of at an appropriately classified and approved waste facility and not dumped in the surrounding areas. Should the facility be decommissioned, the positive impacts of employment, revenue generation and development will no longer be present. Future land use after decommissioning should be assessed prior to decommissioning and rehabilitation initiated if the land would not be used for future purposes. The Environmental Management Plan for the facility will have to be reviewed at the time of decommissioning to cater for changes made to the site and implement guidelines and mitigation measures.

10.3 ENVIRONMENTAL MANAGEMENT SYSTEM

The Proponent could implement an Environmental Management System (EMS) for their operations. An EMS is an internationally recognized and certified management system that will ensure ongoing incorporation of environmental constraints. At the heart of an EMS is the concept of continual improvement of environmental performance with resulting increases in operational efficiency, financial savings and reduction in environmental, health and safety risks. An effective EMS would need to include the following elements:

- A stated environmental policy which sets the desired level of environmental performance;
- An environmental legal register;
- An institutional structure which sets out the responsibility, authority, lines of communication and resources needed to implement the EMS;
- Identification of environmental, safety and health training needs;
- An environmental program(s) stipulating environmental objectives and targets to be met, and work instructions and controls to be applied in order to achieve compliance with the environmental policy; and
- Periodic (internal and external) audits and reviews of environmental performance and the effectiveness of the EMS.
- The EMP.

11 CONCLUSION

The operations of NBL's beverage manufacturing plant contributes positively impact to the business sector operational in Namibia, see Table 11-1. In addition to beverage supply to local and international markets, the facility contributes locally to employment, skills transfer and training which in turn develops the local workforce. The Proponent also drives various corporate and social investment initiatives which benefit Namibia as a whole. By producing and exporting award-winning beverages, NBL is promoting Namibia on the world stage.

Potential and definite positive and negative impacts can be expected from NBL's operations. Positive impacts can be promoted/enhanced while negative impacts can be prevented or mitigated. The Proponent must appoint local contractors and employees as far as is practically possible and adhere to Namibian labour and health and safety legislation and regulations. All chemicals and fuel must be stored and handled according to the applicable MSDS and/or SANS standards or better. All personnel should be trained in the handling and storage of chemicals and dangerous goods. Noise levels should at all times meet the prescribed City of Windhoek guidelines for limits on noise pollution (Council Resolution 215/09/2006). Fire prevention should be adequate and meet the requirements of the local fire brigade. Any waste produced must be removed from site and disposed of at an appropriate facility or re-used or recycled where possible. Hazardous waste must be disposed of at an approved hazardous waste disposal site.

The environmental management plan, Section 10, should be used as an on-site reference document for the operations. Parties responsible for transgressing of the environmental management plan should be held responsible for any rehabilitation that may need to be undertaken. The Proponent should continue to implement the ISO 9000 quality management system and SANS 10330 Hazard Analysis and Critical Control Point system, as well as the EMP and their in-house health, safety, security and environmental management policies and procedures. All operational personnel must be taught the contents of these documents.

Should the DEA find that the impacts and related mitigation measures, which have been proposed in this report, are acceptable, an environmental clearance certificate may be granted to Namibia Breweries Limited. The environmental clearance certificate issued, based on this document, will render it a legally binding document which should be adhered to. Focus could be placed on Section 10, which includes an EMP for this project. It should be noted that the assessment process's aim is not to stop the proposed activity, or any of its components, but to rather determine its impact and guide sustainable and responsible development as per the spirit of the EMA.

Table 11-1. Impact summary class values

Impact Category	Impact Type	Construction	Operations
	Positive Rating Scale: Maximum Value	5	5
	Negative Rating Scale: Maximum Value	-5	-5
EO	Skills, Technology and Development	2	4
EO	Revenue Generation and Employment	2	3
SC/EO	Demographic Profile and Community Health	-1	-3
EO	Traffic	-1	-1
SC/EO	Health, Safety and Security	-2	-4
EO	Fire	-2	-3
PC	Air Quality	-1	-3
PC	Noise	-1	-2
PC/BE	Waste production	-2	-2
PC/BE	Ecosystem and Biodiversity Impact	-1	-1
PC	Groundwater, Surface Water and Soil Contamination	-2	-2
PC	Groundwater Quality		-3
PC/EO	Groundwater Abstraction		-3
SC	Visual Impact	-1	-1

BE = Biological/Ecological EO = Economical/Operational PC = Physical/Chemical SC = Sociological/Cultural

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Appendix A: Permits

Effluent Discharge Permit (First Page Only)

Department of Economic Development and Community Services

✉ 59
80 Independence Avenue
WINDHOEK, NAMIBIA

Fax: (+264) 61 290 2111 Tel. (+264) 61 290 2911

June 2021

WASTEWATER DISCHARGE PERMIT

COMPANY NAME:	**Namibia Breweries Limited**
NATURE OF INDUSTRY:	Brewing and Packaging Beer. Manufacturing and bottling of other Liquids
PHYSICAL ADDRESS:	Iscor Street, Northern Industrial Area
REPRESENTATIVE:	Bernd Esslinger
CONTACT NUMBER:	061- 320 4097
ASSESSOR:	LA !Gaoses

Namibia Breweries Limited is hereby authorized to discharge industrial wastewater to the Municipal Council of Windhoek's (Council) sewer system in compliance with the Municipality of Windhoek's Sewerage and Drainage Regulation of 2010, Section 42, and in accordance with industrial effluent limits, monitoring requirements, and other conditions set forth herein.

This permit is granted in accordance with the application filed on **26 May 2021** with the Health and Environment Services Division (HESD), of the Department of Economic Development and Community Services and in conformity with plans, specifications, and other data submitted to Council in support of the above application.

Effective Date: 1 July 2021 **Expiration Date: 30 June 2022**

PART I: Limitation regarding Activities/Production/Manufacturing

Manufacturing shall be limited to: **production of alcoholic beverages and soft drinks,** which is the main business where effluent is generated.

- Boilers constitutes about 0.12% of water use and
- Condensers about 3.6% of water use.
- About 28% of water used on site is required for the products.
- Chemicals used on site: **caustic, and acids**

The by-products generated: brewers grain, CO_2

Waste generated: Brewers grain – sold to farmers as animal fodder
Glass, paper, plastic - disposed of at landfill and some recycling
CO_2 –recovered for reuse or sold.
Effluent – discharged to Ujams Wastewater treatment

Deviation from the above manufacturing activity will warrant a new discharge permit application.

All official correspondence must be addressed to the Chief Executive Officer

Groundwater Abstraction Permit

Department of Infrastructure, Water and Technical Services
✉ 59
80 Independence Avenue
WINDHOEK, NAMIBIA

Fax: (+264) 61 290 2114 Tel. (+264) 61 290 2335 www.cityofwindhoek.org.na

Enquiries: S. Mulele
Tel: 061- 290 3067

07 Oct 2021

Ref: 2021/01/AB

The Managing Director
P.O Box 206
Northern Industria
Windhoek

For Attention: Mr M. Wenk

Dear Sir

RE: APPLICATION FOR RENEWAL OF THE NAMIBIA BREWERIES LTD (NBL) ABSTRACTION PERMIT FOR WATER ABSTRACTED FROM ONSITE BOREHOLES.

1. This letter references your correspondence dated 12 May 2021, in response to the City's communication of 8 February 2021.

2. Your letter requests the City to issue a letter of consent, renewing Abstraction Permit no 11149 for a period of three (3) years. This requested renewal, allowing NBL to abstract a minimum flow requirement of 40 m^3/h, but subject to review should drought conditions recur or dam supply state worsen during validity.

3. The above request to the City is made based on;

   3.1 The specialist modelling studies of the northern aquifer indicating its potential to sustain envisaged recommended abstraction scenarios during drought conditions and normal years, presented to all stakeholders including the City in preceding years

   3.2 Minutes recording prior engagements of all stakeholders on NBL's plans to develop a water quality treatment plant, its operational requirements and consensus drawn thereof.

4. In response to above relayed information, the City would like to bring to your attention the following matters;

   4.1 The City's communication of 8th February 2021 relays the following developments relating to issuance of consent;

      4.1.1 The overall administration to authorize the drilling of boreholes and abstraction of groundwater within local authority area of Windhoek was delegated to the City of Windhoek by the Ministry of Agriculture, Water and Land Reform (MAWLR), however the former subject to water legislation, regulations and other directives of the Ministry.

      4.1.2 Subsequently, the City applied and was issued a drilling permit for the entire extended boundaries and abstraction permits with limited quotas for its southern, the northern

and the extended boundaries aquifers. The validity of the above-mentioned permits is subject to conditions contained in these permits.

4.1.3 Taking in consideration the above information, the issuance of consent letters has been abolished with the new development and the City holds the rights to consider and approve or disapprove application for drilling or abstraction of groundwater. However the City remains subject to comply and report to the Ministry as required on overall administration of the issued permits.

4.2 The City acknowledges that;

4.2.1 It was indeed part of stakeholders group engaged by NBL, when presenting the specialist studies of the northern aquifer.

4.2.2 As part of the engaged stakeholders group, in principle aligned to the proposed plans by NBL to develop a water treatment plant and subsequent envisaged operations, cognisant of prevailing water supply situation at the time and in future, and seen in positive light.

4.3 Notwithstanding the above, the City recognises;

4.3.1 Tremendous efforts devoted by NBL to study and bring about an understanding of the northern aquifer system. Such understanding now a preliminary basis upon which the City administers the northern aquifer abstraction permit issued by the Ministry.

4.3.2 NBL's commitment in assisting the City to alleviate supply pressures in drought times is seen in positive light.

4.3.3 The pro-active approach and foresight of NBL recognising the growth and developmental agenda of the City, consequence of the opportunity that arise of reduced offtake from Municipal supply, thus freeing up volumes which the City can potentially use to support other consumers or reserve for new growth, is also highly acknowledged.

4.4 However, the City's position is as follows:

4.4.1 The matter raised in your application along with associated supporting documents are considered to have operational implication on a local authority's duties and obligation as provided in the presiding legislation. Therefore, these implications will necessitate a formal memorandum of understanding, consent or operational and supply agreement established and approved between the two entities involved. In the absence of prior formal consent, agreement or memorandum of understating, or other instruments, a local authority is obligated to administer its affairs in line with presiding legislative provisions. This therefore applies in case of consideration of applications for drilling or abstraction of groundwater as delegated by the regulatory authority to the City. Furthermore, the City takes in consideration the annual Central Areas of Namibia (CAN) workshop outcomes on water supply security outlook.

4.4.2 The City is aware of the minimum flow requirement concept and envisaged modus operandi as proposed by NBL from engagements; it however remains unclear if maintenance of the treatment plant can only be achieved primarily through abstraction of water from the aquifer. The City is unaware from previous engagements or through other means, why Municipal supplied portable water cannot be utilised for maintenance of the treatment plant in non-drought times.

2

5. Bearing all above information in mind, the City has considered and resolved that;

5.1 Your application for renewal is approved for **abstraction of 20 m³/h totalling 172 800 m³ per year valid until June 30, 2022 from boreholes onsite, subject to;**

5.1.1 Review during the validity period, based on CAN stakeholders review of the water security outlook and subsequent agreed operational amendments.

5.1.2 Renewal and review of quantities in this approval shall be subject to provision of an independent opinion/report that the treatment plant cannot use water from any other source for maintenance except that abstracted from onsite boreholes.

5.1.3 Further to above, the renewal is subject to compliance to the general conditions.

You are herewith requested to confirm your acceptance of the above conditions by signing and returning this notice within 7 days of receipt, failure shall be construed in agreement.

We trust the above is found in order

Sincerely,

07/10/2021

.....

Mr L. Narib

Strategic Executive: Infrastructure, Water and Technical Services

Cc: Mr S. Husselmann (Chief Engineer: Bulk Water and Waste Water); Mr D. Louw (Section Engineer: Water Resources Management), Mr S. Mulele (Hydrogeologist)

3

Appendix B: List of Chemicals

List of chemicals with main ingredients stored and handled on site. The list is subject to change as new or alternative chemicals are used

Trade or Common Name	Main Ingredients	Concentration (%)
Hydrochloric Acid 9%	Hydrochloric Acid	< 9
Sodium Chlorite	Sodium Chlorite	≈ 7.5
Hydrex 7120	Sodium Chlorite	20 ≤ 30
Hydrochloric Acid 30%	Hydrochloric Acid	≥ 25
Sulpheric Acid 96%	Sulpheric Acid	≥ 96
Hydrex 4301	Sodium Bisulfite	28 ≤ 30
Hydrex 4201	Methylchloroisothiazolinone + Methylisothiazolinone Copper Sulfate	1 ≤ 5 < 0.2
Caustic Soda 45% - 50%	Sodium Hydroxide	45 - 50
Sodium Hypochlorite	Sodium Hypochlorite	12 - 15.5
Hydrex 4104	Phosphonic Acid	10 ≤ 20
Ferric Chloride	Iron (III) Chloride	42.5 - 44.5
Genesol 721	Sulphamic Acid Citric Acid	10 - 25 2.5 - 10
Genesol 704	Tetrasodium Ethylenediaminetetraacetate Sodium Percarbonate Sodium Hydroxide	2.5 - 10 2.5 - 10 2.5 - 10
Genesys SI	Acrylic Acid Polymer	≤ 2.5
Hydrex 2461	Isopropanol Sodium Dioctylsulfosuccinate	10 ≤ 20 5 ≤ 10
Hydrex 2916	Zinc Chloride 2-Phosphonobutane-1,2,4-Tricarboxylic Acid 1-Hydroxyethylidene-1,1-Diphosphonic Acid Hydrochloric Acid	10 ≤ 20 5 ≤ 10 1 ≤ 5 1 ≤ 5
Hydrex 7310	5-Chloro-2-Methyl-4-Isothiazolin-3-One + 2-Methyl-4-Isothiazolin-3-One Magnesium Chloride Magnesium Nitrate 2-Methyl-4-Isothiazolin-3-One Copper Sulfate	1 ≤ 5 1 ≤ 5 1 ≤ 5 < 1 < 0.3
Hydrex 7521	Glutaraldehyde N-Methylmethanamine Polymer with (Chloromethyl)Oxirane	5 ≤ 10 1 ≤ 5
Hydrex 2220	Organic Phosphonate	5 ≤ 10
Hydrex 2525	Sodium Nitrite Sodium Hydroxide Sodium Molybdate Sodium Silicate Sodium Tetraborate Tolytriazole	20 ≤ 30 1 ≤ 5 1 ≤ 5 1 ≤ 5 1 ≤ 5 0.1 - 1
Hydrex 1255	Nitrilotrimethylenetris(Phosphonic Acid) Maleic Acid	1 ≤ 5 < 1
Hydrex 1325	Potassium Hydroxide	5 ≤ 10
Hydrex 1571	Sodium Hydoxide	10 ≤ 20
Nitric Acid 30%	Nitric Acid	25 - 35

Trade or Common Name	Main Ingredients	Concentration (%)
Hyprox 500	Hydrogen Peroxide	50
Lactic Acid	2 Hydroxypropanoic Acid	N/A
Calcium Chloride 6-Hyd/Bag 25kg FD	Calcium Chloride Hexahydrate	≤ 100
Vanguard S	Oleyl Diamine	5 - 10
Acidbrite 9	Phosphoric Acid	> 30
Alkad SBW	Sodium Hydroxide	0.5 ≤ 2
Alkafoam CL	Sodium Hypochlorite Potassium Hydroxide	< 20 < 10
Chlorcip	Sodium Hypochlorite Sodium Hydroxide	< 25 > 10
Chlorine Dioxide Solution	Chlorine Dioxide	+/- 1,600 ppm
Chlorpower	Sodium Carbonate Sodium Alkylbenzene Sulphonate Sodium Dichloroisocyanurate Anhydrous	30 < 5 < 5
C.I.P. Acid	Nitric Acid Phosphoric Acid	> 30 < 5
Diverclean F7	Potassium Hydroxide Sodium Silicate Solution Sodium Tripolyphosphate Anionic Surfactant Sodium Hypochlorite	5 - 15 5 - 15 < 5 < 5 < 5
Divergard VP4	Tetraethylene Glycol 2,2-Dibromo-2-Cyanoacetamide	30 - 50 20 - 30
Divergard VP10	Not Known	Not Known
Divo PS	1-Hydroxyethane-1, 1-Diphosphonic Acid Nitrilotris(Methylene Phosphoric Acid)	5 - 15 5 - 15
Divobrite Y81-S Additive	Not Known	Not Known
Noxfoam	Blend of Surfactants	N/A
Perasan	Hydrogen Peroxide Acetic Acid Peracetic Acid	5 - 15 15 - 30 5 - 15
Servac	Phosphoric Acid Anionic Surfactant	> 30 5 - 15
Shureclean	Formaldehyde	< 5
Speedloob	Acetic Acid Quaternary Ammonium Compounds	< 5 5 - 15
Suredis	N-(3-Aminopropyl)-Ndodecylpropane-1.3-Diamine C12-14-Alkyldimethyl Betaine	< 5 < 5

Appendix C: Proof of Public Participation Process

Proof of Notification of Neighbours

Notification of Environmental Assessment – Namibia Breweries Limited, Windhoek

Name & Surname	Organisation/Address	Tel / Mobile	Email	Signature
Danelle Wilson	TEC	Privacy Block		
Omagano Nanyeni	Distell Namibia			
Lucille Platt	Namib Mills			
BJ v Niekerk	Flamingo Park/Mello Foods			
E.M. Orlet	Trau Bros			
Benney Kayenge	CLW			
Waldo Nieuwoudt	ANTI CCA			
Manuela Maye	Analytical Laboratory			
Retha Mulder	Truck Craft Panelbeating			
Jennifer Schiefer	Motovac			
Michelle Britz	RB Hydraulics CC			
Rudolf Neethling	HJJ Estates/Northern Industrial Park			By E-mail.

Geo Pollution Technologies
EIA – NBL, Windhoek

November 2021

Proof of Notification of City of Windhoek

GEO Pollution Technologies

TEL.: (+264-61) 257411 ♦ FAX.: (+264) 88626368
CELL.: (+264-81) 1220082
PO BOX 11073 ♦ WINDHOEK ♦ NAMIBIA
E-MAIL: gpt@thenamib.com

25 November 2021

To: **Interested and Affected Parties**

Re: **Environmental Scoping Assessment and Environmental Management Plan for the Operations of Namibia Breweries in Windhoek**

Dear Sir/Madam

In terms of the Environmental Management Act (No 7 of 2007) (EMA) and the Environmental Impact Assessment Regulations (Government Notice No 30 of 2012), notice is hereby given to all potential interested and/or affected parties (IAPs) that an application will be made to the Environmental Commissioner for an environmental clearance certificate (ECC) for the following project:

Project: Environmental Scoping Assessment and Environmental Management Plan for the Operations of Namibia Breweries in Windhoek

Proponent: Namibia Breweries Limited

Environmental Assessment Practitioner: Geo Pollution Technologies (Pty) Ltd

Namibia Breweries Limited was established in 1920 and is one of the leading beverage manufacturers in Namibia and one of the last few independently owned commercial-scale breweries in Southern Africa. Their existing facility in Iscor Street, in the Northern Industrial Area of Windhoek (Figure 1), manufactures non-alcoholic, low alcohol and alcoholic beverages for the Namibian and international markets.

Geo Pollution Technologies (Pty) Ltd was requested to conduct an environmental assessment for the proposed project. The assessment is required in terms of the EMA and will be conducted according to the EMA regulations as published in 2012. As part of the assessment we consult with IAPs who are invited to register with the environmental consultant to receive further documentation and communication regarding the project. By registering, IAPs will be provided with an opportunity to provide input that will be considered in the drafting of the environmental assessment report and its associated management plan.

The deadline for registration and providing of any comments is 03 December 2021.

To register, please contact: Email: **nbl@thenamib.com** or **Fax: 088-62-6368**

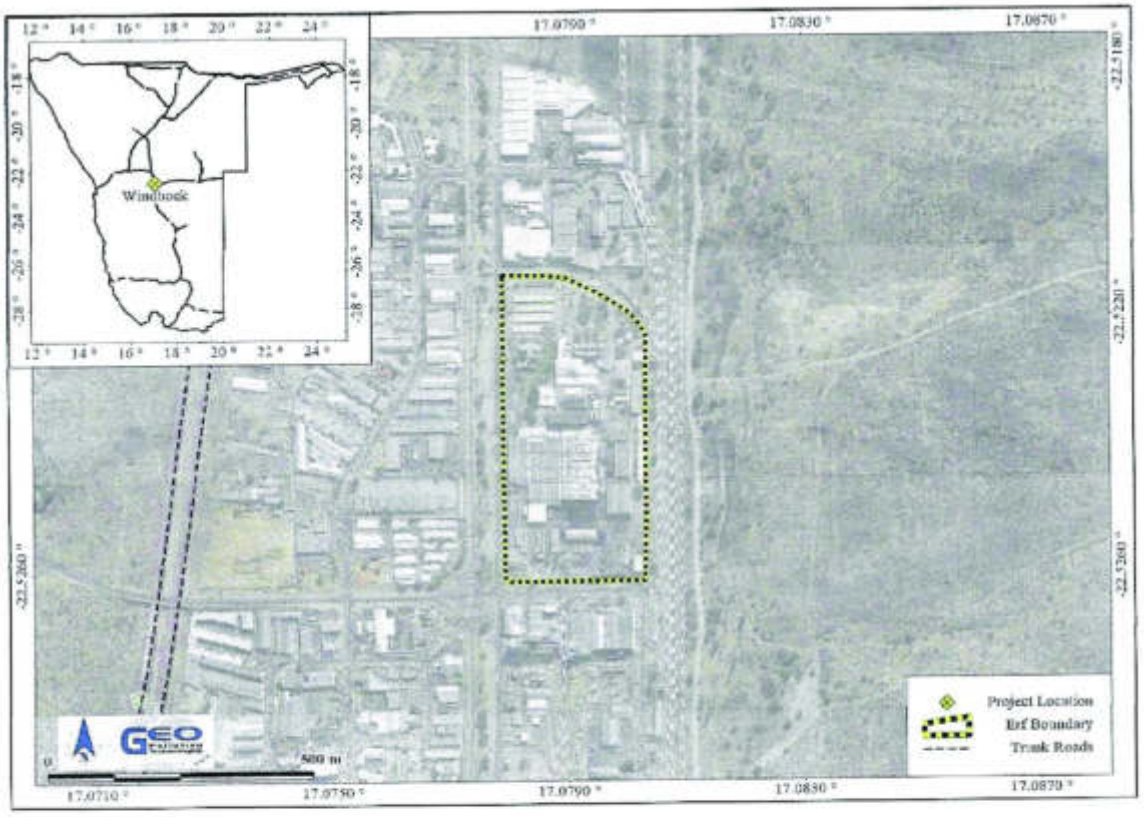
Should you require any additional information please contact Geo Pollution Technologies at telephone 061-257411.

Thank you in advance.

Sincerely,
Geo Pollution Technologies

Chief Executive Officer Act 23 of 1992 - Accounting Officer in line with 27 (1) Local Authority
26 NOV 2021
Box 56 Windhoek Tel: 061 - 290 2615

André Faul
Environmental Scientist


Windhoek
17.0710 °
17.0750 °
17.0790 °
17.0830 °
17.0870 °
-22.5260 °
-22.5220 °
-22.5180 °
Project Location
Erf Boundary
Trunk Roads
500 m

Advertisements
The Namibian – 16 November 2021

Man gang-raped at Keetmans

ELIZABETH JOSEPH
KEETMANSHOOP

A 24-year-old man was allegedly gang-raped while on his way home from a nightclub between 02:00 and 03:00 on Friday morning.

Two men allegedly raped him until he passed out momentarily. When he woke up, the suspects were gone. Investigations into the matter continue and no arrests have been made yet.

It is alleged that the complainant was on his way home from a nightclub when he came across two men sitting in front of a shebeen in Tseiblaagte location.

The suspects asked him to show them where they could buy beer. The complainant agreed and took them to a house but nobody was home.

The suspects then lured him back to the shebeen and raped him.

• INCREASING CARRYING CAPACITY OF LIVESTOCK FARMS

De-bushing of 45 million hectares planned

A project to rehabilitate rangeland will increase farm productivity and create jobs **and business opportunities in the biomass sector.**

ELIANE SMIT
WINDHOEK

A project to rehabilitate rangeland in Namibia will contribute to the sustainable de-bushing and rejuvenation of 45 million hectares of rangeland that is currently bush encroached.

It is expected to increase the productivity and carrying capacity of livestock farms, as well as to revive the livestock industry and to improve the contribution of the agriculture sector to the GDP, which has been decreasing over the years.

The project is entitled, 'Rangeland Improvement through Bush Control and Sustainable Intensification to Mitigate Climate Change and Improve Livelihoods and Food Security in Southern Africa (RIBSI)'.

It is being implemented under Phase II of the Southern African Science Centre for Climate Change and Adaptive Land Management (SASSCAL).

This is according to agriculture minister Calle Schlettwein, who last week gave a motivational speech on the ratification of the Treaty of SASSCAL.

Schlettwein said this project will also enable farmers to turn the estimated 450 million tonnes of invader bush biomass into business and job creation opportunities through value addition.

Jobs

He said that this specifically referred to the production of charcoal, animal fodder, biochar, firewood and wood chips for industrial heat.

He said the charcoal value chain alone employs 8 000 people and generates more than N$500 million per year in export earnings.

"This means that more employment can be created if the business potential and opportunities presented by the 450 million tonnes of biomass are fully exploited."

Schlettwein further said that the challenges of climate change compounded by the lack of scientific research capacity and funding in SADC prompted Angola, Botswana, Namibia, South Africa and Zambia, and Germany to take the initiative to establish SASSCAL, with its head office based in Windhoek.

He said the five SADC member countries agreed on a treaty as the legal instrument for the operations of SASSCAL, which has so far been signed by four of the five member states, Namibia included, on 29 September 2018.

The treaty needs to be ratified by member states in order for SASSCAL to acquire full legal personality, and for the said member states to affirm their full commitment and support towards the organisation.

"In addition, the ratification of the treaty will make it possible for SASSCAL to be transformed into an international organisation, which will be registered at the United Nations and accorded all rights and obligations under the international status," said Schlettwein.

He said the main objectives of SASSCAL are to strengthen regional scientific capacity within the Southern African region in the areas of agriculture, biodiversity, climate change, forestry, water and green hydrogen.

Schlettwein said that overall, the work of SASSCAL is expected to build resilience in the agricultural sector and improve response, mitigation and adaptation to the impact of climate change and variability, as well as to promote sustainable adaptive land management.

Projects

Schlettwein said that the implementation of scientifically informed policies is expected to minimise the high cost that the government currently incurs when implementing emergency response interventions to assist affected farmers and communities whenever climate change induced calamities strike.

Since its inception, SASSCAL has been implementing its research and capacity building programmes through two main research portfolios. Under Phase I of SASSCAL, a total of 88 research projects were implemented in the SASSCAL member countries, and 18 of these were implemented in Namibia.

The total budget for the 18 projects was about N$32.096 million. These projects were funded by Germany as a development partner.

Phase II of SASSACAL will focus on research and will be funded by the German Federal Ministry of Education and Research (BMBF) to the tune of approximately N$170 million. Under this phase, 13 research projects will be implemented in. Namibia will directly coordinate two of the 13 projects. The specific projects to be coordinated by Namibia are on water and food security, and are valued at approximately N$46.5 million.

RECOVERY: A project to rehabilitate rangeland in Namibia can create more employment. PHOTO: CONSERVATION NAMIBIA

Livestock, meat important contributors to export earnings

ELIANE SMIT
WINDHOEK

The livestock and meat industries are some of the most important contributors to Namibia's gross domestic product, mainly because of the country's ability to export livestock and world-class beef and mutton products to lucrative markets.

According to the Meat Board of Namibia, for the month of July, Namibia exported N$267 million worth of livestock, meat and meat products out of an export portfolio of N$4.8 billion, accounting for 5.8% of total exports.

It said further increasing exports has the capacity to narrow the current account deficit and will be beneficial to the country's balance of payments.

Africa's development partly depends on a reduction of trade transaction costs, which are currently extremely high, the Meat Board said.

It pointed out that Namibia is a small open economy that heavily depends on trading with other countries for economic growth.

"At national level, it is important to look at legal frameworks and how policies can be improved to facilitate the movement of goods between trading partners."

The Meat Board added that it continues to contribute to the implementation of measures to make trade procedures in the industry simpler, better and faster and rationalised.

"This is with the understanding that trade is in an important driver of economic growth and development in Namibia," it said.

The Namibian – 23 November 2021

• ELECTRICAL 'GLITCH' COSTS FAMILIES THOUSANDS

Residents demand reimbursement for damaged property

DAMAGES: At least 40 houses have been affected by an electrical blunder which stretched over three streets in Damara location. PHOTOS: ESTER KAMATI

Stanley Isaacks said he has spent at least N$33 000 in the repair and replacement of appliances damaged on the day, while 71-year-old Dorothea Karigus' television exploded.

ESTER KAMATI
WINDHOEK

About 40 families in Katutura's Damara Location suffered damages to electrical appliances due to a 'technical glitch'.

During the replacement of a transformer by the City of Windhoek in August 2020, several appliances were damaged, and the families are now demanding compensation.

Stanley Isaacks said he has spent at least N$33 000 in the repair and replacement of appliances damaged on the day.

When the 'glitch' took place, the City sent employees to assess the damaged property.

"We showed them our electrical appliances that got damaged and they told us we have to go to furniture shops and get quotations. We sent these to the electrical department. "Since last year, we've been fighting with them until now. We can't take this. We need a solution for our damaged property," he said.

In a letter seen by Namibian Sun, the City's insurer, Momentum Insurance, rejected the claim and will not pay for the damages.

"We regret to advise that we cannot entertain the claim as the loss is not covered in the terms of the City of Windhoek liability policy," it read.

'They are liable'

"We don't want to fight with the insurance [company] – that's their stuff. We have to fight with the City of Windhoek. They are liable for the damage of our property," Isaacks said.

"It's [been over] a year. A lot of our equipment, we fixed them and we bought new stuff for ourselves. We just want to be compensated, because we already helped ourselves."

He said some appliances are a necessity and had to be repaired or replaced urgently.

Isaacks, who is unemployed, said he had to fork out cash to replace the electrical wires in his house on top of replacing his television, microwave, laptop, cell phone and main switch.

Pensioner's TV explodes

Amongst those whose property was damaged is 71-year-old Dorothea Karigus, who recalls the incident.

"The kettle went on without anybody switching it on. The TV burst, so I said 'take the children out of the house so that we can stand outside'.

"Would it have been good if it was a person who perished instead of all these appliances? What would they have said?" The pensioner said she is not able to walk and visit offices to enquire and relies on information from other members of the community.

'We want compensation'

Catherine Boois said she has been enquiring since last year, and initially an official from the technical department admitted fault, has since changed their mind.

"This year, we have been communicating with finance department people. They told us that they are aware of the rejection from the insurer and that basically this is an internal issue and they will discuss it internally and communicate with us.

"It is the responsibility of City of Windhoek. We want compensation. We don't want anyone telling us 'we are waiting for an answer'. They can claim from their insurance but us here, we want to be compensated for our damaged electrical appliances."

In September, the City's Rauna Haipinge told residents a claim to their insurance company for a goodwill payment had been under review. This week, communications manager Harold Akwenye told Namibian Sun they resubmitted the request and are still waiting for feedback.

"We are in constant communication with the insurance broker with regards to this matter. The City is also in constant communication with the representatives of this group, who visited our offices on several occasions," he said.

Nangombe calls for practicality in healthcare sector

ESTER KAMATI
WINDHOEK

Health ministry executive director Ben Nangombe last week urged stakeholders not to let down the people who have entrusted them with delivering healthcare services.

He said this in his opening statement at a weeklong review of the health ministry's systems.

The review is long overdue, Nangombe said.

"If the last review was in 2016, can we claim that we have sufficient data to help us plan effectively? I don't think so," he said.

The ministry's existing strategic plan is set to terminate in March 2022.

Poor return on investment

Nangombe said the ministry, which receives one of the highest budgetary allocations, needs to improve its delivery to match the resources provided.

"Why is it that we are spending upwards of 15% of the national budget on the health sector but the results that we are getting are far behind other countries at the same level? Where are we getting it wrong?"

He highlighted a consistent shortage of medication and medical equipment as some of the issues that need to be addressed, adding that the ministry was not making the needed impact on communities.

Be practical

"Those are the things that matter because those are the things that are felt by people on a day-to-day basis.

"The provision of public healthcare services in this country rests on your shoulders; nobody else's. If we get it wrong at this level, then everything would possibly crumble," he told the delegates.

"It is here where we must make policy recommendations. It is here where we must provide the necessary guidance of what it is that needs to be done to provide healthcare services that impact the person in Opuwo or in Maltahöhe. And we dare not betray the trust bestowed upon us.

"These are the practical realities that need to occupy our minds as we talk about reviewing the health systems. We cannot be abstract, we cannot be theoretical, because at the end of the day, it's about people," he said.

Nangombe added that development partners who have worked in other countries are assets in strengthening Namibia's healthcare system, and encouraged the delegation not to shy away from learning from others.

He said the review exercise would be fruitless if the challenges are not called out frankly and solutions recommended.

TACKLE CHALLENGES: Health ministry executive director Ben Nangombe. PHOTO: NBRN

Republikein – 16 November 2021

» Koeël glo steeds in sy nek

Man eis N$3,3 m. ná skietvoorval

Die ministerie van binnelandse sake en die Namibiese polisie ontken nie 'n insident wat op 1 April in Walvisbaai plaasgevind het nie en wil die eis buite die hof skik.

Kristien Kruger

'n Inwoner van Kuisebmond daagvaar die ministerie van binnelandse sake, immigrasie, veiligheid en sekuriteit vir sowat N$3,3 miljoen nadat 'n lid van die Namibiese polisie hom glo onregmatig geskiet het.

Mnr. Nemushi Timanuel Amandus beweer 'n lid van die Namibiese polisie het hom op 1 April vanjaar in Walvisbaai in sy nek geskiet en hy het kort daarna 'n eis teen die ministerie en die inspekteur-generaal van die polisie aanhangig gemaak.

"Die insident het in die openbaar gebeur en lede van die publiek het dit aanskou," lui die besonderhede van sy eis.

Volgens hofstukke het hy mediese behandeling ontvang, maar die koeël in sy nek kon glo nie verwyder word nie, aangesien dit hom kon verlam het, óf selfs tot sy dood kon lei.

Mnr. Nemushi Timanuel Amandus het in Augustus vanjaar dié foto op sy Facebook-blad geplaas met die woorde: "Toe die lewe vir my so moeilik was. Ek sal altyd vir die Here dankie sê." FOTO FACEBOOK

"Hy het baie fisieke pyn gehad en ervaar steeds pyn, omdat die koeël steeds in sy liggaam is." Volgens hofstukke wat gister by die hoërhof in Windhoek ingedien is, ontken die ministerie en die Namibiese polisie nie die insident nie en is hulle bereid om die eis buite die hof te skik. Hulle is wel nie bereid om die volle eis van N$3,3 miljoen te betaal nie.

Amandus eis sowat N$1,5 miljoen vir pyn en lyding, N$1 miljoen vir emosionele en psigiese lyding, N$100 000 vir mediese sorg en ondersoeke wat hy moes betaal en N$700 000 vir verdere mediese unkostes en operasies wat hy moes ondergaan.

SKADEVERGOEDING

In 'n ander saak teen dieselfde ministerie, eis twee mans altesaam N$500 000.

Mnre. Reinhold Dhigiina Nangolo en Naftal Fiindje Nafital bewoon hulle is in Januarie vanjaar onwettig in hegtenis geneem en elkeen eis 'n bedrag van N$250 000 vir skadevergoeding. Die duo was glo twee dae in aanhouding voor hulle op borgtog vrygelaat is.

Al twee sake het gister in die hoërhof in Windhoek gedien en is nog nie afgehandel nie.

– kristien@republikein.com.na

Wetenskapweek het in Windhoek begin, en skuif volgende maand na Swakopmund. FOTO FACEBOOK

Wetenskapweek skop af

Wetenskapweek het gister in die hoofstad begin.

Die omtelliks program duur tot Vrydag en herval vanaf 6 tot 11 Desember op Swakopmund.

Die Verenigde Nasies se Onderwys-, Wetenskap- en Kultuurorganisasie (Unesco), die Goethe-instituut, die Swakopmund-museum en die ministerie van myne en energie het kragte saamgesnoer om vanjaar dié week onder die tema "Beter gesondheid deur beter begrip", te reël.

Volgens die organiseerders is wetenskapweek 'n geleentheid om uit te reik na 'n groter gehoor, veral die publiek.

Vanjaar se tema oorweeg die impak van Covid-19 op wetenskaplikes, skole en die publiek, en dit ondersoek wetenskaplike maniere om welstand soos geestesgesondheid, te verbeter.

In Namibië is daar 'n sterk vraag na wetenskaplike uitreike, sê die organiseerders.

Stel jong kinders op verskillende maniere aan wetenskap bloot om vir hulle die belangrikheid van inklusiewe wetenskap te wys en hy te dra tot verantwoordelike wetenskap in die toekoms, sê hulle.

Wetenskapweek is 'n mengelmoes van vermaaklike, praktiese opvoedkundige aktiwiteite deur plaaslike wetenskaplikes, en niekommersiële wetenskaplike films wat wetenskapgeletterdheid bevorder, en bewusmaking van kontemporêre wetenskaplike, tegnologiese en omgewingskwessies verbeter.

Van Wyk spreek UPM se uitvoerende komitee toe

Roselle Radenoyer

Die waarnemende president van die United People's Movement (UPM) sê dié party verwerp die bedrag waarop Namibië en Duitsland ooreengekom het as vergoeding vir die volksmoord van 1904-'08.

Hy sê dit is 'n belediging vir die geraakte partye.

Van Wyk het dié opmerkings Saterdag gemaak toe hy 'n vergadering van die party se nasionale uitvoerende komitee in Windhoek toegespreek het.

Hy het ook gesê die UPM sal voortgaan om die insluiting van die leiers van alle geraakte gemeenskappe by die onderhandelinge te eis. Dit sluit die San, Damaras en die Ruhoboth Basters in. Hy het verder gesê dit wil byk of daar verwarring bestaan oor die UPM se betrekkinge met die Popular Democratic Movement (PDM).

Van Wyk sê hoewel die twee partye ooreengekom het om tydens die 2019 presidensiële en nasionale verkiesings saam te werk, bly dit twee afsonderlike partye.

"Ek wil dit duidelik maak die UPM het nooit by die PDM geaffilieer nie en het ook nie as 'n party sy registrasie by die Verkiesingskommissie van Namibië (ECN) opgegee nie."

Hy sê die feit dat die UPM die minderheidsparty in dié alliansie is, beïnvloed nie sy gesag as 'n politieke party nie.

"Ons verwerp die behandeling wat die UPM in die parlement kry, ten sterkste," was sy woorde.

Van Wyk, wat die waarnemende president is sedert die afsterwe van die party se president, mnr. Piet Junius, aan Covid-19 vroeër vanjaar, het ook aan lede van die uitvoerende komitee gesê die UPM sal aanhou om hom vir die regte van onderdrukte mense in die land te beywer.

Hy sê die party sal gefokus bly op 'n beter môre vir toekomstige geslagte deur kwessies soos geslagsgelykheid, geslagsgeweld en alkohol- en dwelmmisbruik in gemeenskappe te takel.

Die party sal ook voortgaan om hom te beywer vir 'n basiese inkomstetoelaag (BIG).

Wat pleidooie vir die wettiging van aborsie betref, het Van Wyk gesê die UPM steun dit nie.

– roselle.r@republikein.com.na

Die uitvoerende komitee van die UPM het Saterdag by die parlementsgebou vergader. FOTO VERSKAF

Republikein – 23 November 2021

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– roselle.radenoyer@republikein.com.na

Die uitvoerende komitee van die UPM het Saterdag by die parlementsgebou vergader. FOTO VERSAM

Site Notice

Appendix D: Consultant's Curriculum Vitae

ENVIRONMENTAL SCIENTIST **André Faul**

André entered the environmental assessment profession at the beginning of 2013 and since then has worked on more than 150 Environmental Impact Assessments including assessments of the petroleum industry, harbour expansions, irrigation schemes, township establishment and power generation and transmission. André's post graduate studies focussed on zoological and ecological sciences and he holds a M.Sc. in Conservation Ecology and a Ph.D. in Medical Bioscience. His expertise is in ecotoxicological related studies focussing specifically on endocrine disrupting chemicals. His Ph.D. thesis title was The Assessment of Namibian Water Resources for Endocrine Disruptors. Before joining the environmental assessment profession he worked for 12 years in the Environmental Section of the Department of Biological Sciences at the University of Namibia, first as laboratory technician and then as lecturer in biological and ecological sciences.

CURRICULUM VITAE ANDRÉ FAUL

Name of Firm	:	Geo Pollution Technologies (Pty) Ltd.
Name of Staff	:	ANDRÉ FAUL
Profession	:	Environmental Scientist
Years' Experience	:	20
Nationality	:	Namibian
Position	:	Environmental Scientist
Specialisation	:	Environmental Toxicology
Languages	:	Afrikaans – speaking, reading, writing – excellent
		English – speaking, reading, writing – excellent

EDUCATION AND PROFESSIONAL STATUS:

B.Sc. Zoology	:	University of Stellenbosch, 1999
B.Sc. (Hons.) Zoology	:	University of Stellenbosch, 2000
M.Sc. (Conservation Ecology)	:	University of Stellenbosch, 2005
Ph.D. (Medical Bioscience)	:	University of the Western Cape, 2018

First Aid Class A	EMTSS, 2017
Basic Fire Fighting	EMTSS, 2017

PROFESSIONAL SOCIETY AFFILIATION:
Environmental Assessment Professionals of Namibia (Practitioner)

AREAS OF EXPERTISE:
Knowledge and expertise in:
- Water Sampling, Extractions and Analysis
- Biomonitoring and Bioassays
- Biodiversity Assessment
- Toxicology
- Restoration Ecology

EMPLOYMENT:

2013-Date	:	Geo Pollution Technologies – Environmental Scientist
2005-2012	:	Lecturer, University of Namibia
2001-2004	:	Laboratory Technician, University of Namibia

PUBLICATIONS:

Publications:	5
Contract Reports	+150
Research Reports & Manuals:	5
Conference Presentations:	1