

**PORT OF WALVIS BAY
COMMERCIAL HARBOUR
UPDATED ENVIRONMENTAL MANAGEMENT PLAN**



Assessed by:



Assessed for:



October 2023

Project:	UPDATED ENVIRONMENTAL MANAGEMENT PLAN FOR THE OPERATIONS OF THE COMMERCIAL HARBOUR: PORT OF WALVIS BAY	
Report Version/Date	Draft October 2023	
Prepared for:	The Namibian Ports Authority P O Box 361 Walvis Bay Namibia	
Lead Consultant	Geo Pollution Technologies (Pty) Ltd PO Box 11073 Windhoek Namibia	TEL.: (+264-61) 257411 FAX.: (+264) 88626368
Main Project Team	André Faul (B.Sc. Zoology, Biochemistry); (B.Sc. (Hons) Zoology); (M.Sc. Conservation Ecology); (Ph.D. Medical Bioscience) Pierre Botha (B.Sc. Geology/Geography); (B.Sc. (Hons) Hydrology/Hydrogeology)	
Cite this document as:	Faul, A., Botha, P. 2023. Updated Environmental Management Plan for the Operations of the Commercial Harbour: Port of Walvis Bay	
Copyright	Copyright on this document is reserved. No part of this document may be utilised without the written permission of Geo Pollution Technologies (Pty) Ltd.	
Report Approval	André Faul Conservation Ecologist	

I _____ acting as the Proponent's representative (Namport), hereby confirm that the project description contained in this report 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 _____ on the _____ day of _____ 2023

Namport

TABLE OF CONTENTS

1	INTRODUCTION	1
2	SCOPE.....	2
3	METHODOLOGY	2
4	THE PORT OF WALVIS BAY	3
4.1	CONTAINERISED, BULK AND BREAK-BULK IMPORTS AND EXPORTS.....	3
4.2	FUEL IMPORTS	5
4.3	VEHICLE IMPORTS.....	5
4.4	PASSENGER TRAFFIC.....	5
4.5	SUPPORT AND LOGISTICS SERVICES.....	5
4.5.1	<i>Ship Repair and Maintenance</i>	<i>5</i>
4.5.2	<i>Transhipments</i>	<i>6</i>
4.5.3	<i>Dry Ports and Storage Facilities.....</i>	<i>6</i>
4.5.4	<i>Fuel Bunkering.....</i>	<i>6</i>
4.5.5	<i>Cold Storage Facilities.....</i>	<i>6</i>
4.5.6	<i>Small Craft Harbour, Yacht Club and Waterfront</i>	<i>6</i>
4.5.7	<i>Dredging.....</i>	<i>6</i>
4.5.8	<i>Fishing Operations and Mariculture.....</i>	<i>7</i>
4.6	TRAFFIC	7
4.7	SECURITY.....	7
4.8	ADDITIONAL INFRASTRUCTURE	7
5	ADMINISTRATIVE, LEGAL AND POLICY REQUIREMENTS.....	9
6	THE RECEIVING ENVIRONMENT	14
6.1	LOCALITY AND SURROUNDING LAND USE.....	14
6.2	CLIMATE.....	15
6.3	HYDRAULIC CONDITIONS	20
6.4	CORROSION ENVIRONMENT	21
6.5	FAUNA OF THE BAY	22
6.5.1	<i>Birds</i>	<i>22</i>
6.5.2	<i>Marine Animals</i>	<i>23</i>
6.6	SOCIO ECONOMIC ENVIRONMENT.....	24
6.6.1	<i>Population</i>	<i>24</i>
6.6.2	<i>Electricity Supply</i>	<i>24</i>
6.6.3	<i>Water Supply</i>	<i>25</i>
6.6.4	<i>Waste Removal</i>	<i>27</i>
6.6.5	<i>Transport.....</i>	<i>28</i>
7	STAKEHOLDER CONSULTATION	29
8	ENVIRONMENTAL MANAGEMENT PLAN	30
8.1	PLANNING.....	30
8.2	EMPLOYMENT	32
8.3	SKILLS, TECHNOLOGY AND DEVELOPMENT	33
8.4	REVENUE GENERATION	34
8.5	DEMOGRAPHIC PROFILE AND COMMUNITY HEALTH.....	35
8.6	TRAFFIC	36
8.7	HEALTH, SAFETY AND SECURITY.....	38
8.8	FIRE AND EXPLOSION.....	40
8.9	AIR QUALITY AND DUST.....	41
8.10	NOISE.....	42
8.11	WASTE PRODUCTION	43
8.12	GROUNDWATER, SURFACE WATER AND SOIL CONTAMINATION	45
8.13	ECOLOGICAL IMPACTS	47
8.14	MARICULTURE AND FISHING INDUSTRY IMPACTS	48
8.15	VISUAL IMPACT	49
8.16	IMPACTS ON UTILITIES AND INFRASTRUCTURE.....	50
8.17	SEABED SCOURING AND MAINTENANCE OF WATER DEPTH	51

8.18 IMPACTS ON SERVICES.....	52
8.19 VESSEL NAVIGATION.....	53
8.20 HERITAGE.....	54
8.21 CUMULATIVE IMPACT.....	55
9 LEGAL REGISTER.....	56
10 NAMPORT OPERATING AND SYSTEMS PROCEDURES AND PLANS.....	59
11 EXISTING ENVIRONMENTAL ASSESSMENTS AND PLANS.....	61
12 IMPLEMENTATION OF THE EMP.....	62
13 CONCLUSION.....	62
14 REFERENCES.....	64

LIST OF APPENDIXES

APPENDIX A: NAMPORT PROPERTIES.....	66
APPENDIX B: PUBLIC PARTICIPATION 2018.....	68
APPENDIX C: ATTENDANCE AND MINUTES OF PUBLIC AND TENANTS MEETING.....	82
APPENDIX D: CONSULTANT’S CURRICULUM VITAE.....	91

LIST OF TABLES

TABLE 5-1 NAMIBIAN LAW AND POLICIES APPLICABLE TO THE PROJECT.....	10
TABLE 5-2 RELEVANT MULTILATERAL ENVIRONMENTAL AGREEMENTS FOR NAMIBIA AND THE PROJECT.....	13
TABLE 5-3 MUNICIPAL BY-LAWS, GUIDELINES AND REGULATIONS.....	14
TABLE 6-1 THE OCEANOGRAPHIC AND HYDRAULIC CONDITIONS OF THE BAY AND THE SEA (ADAPTED FROM TRACTEBEL, 1998; COWI, 2003B; DMC-CSIR, 2010).	20
TABLE 6-2 DEMOGRAPHIC CHARACTERISTICS OF WALVIS BAY, THE ERONGO REGION AND NATIONALLY (NAMIBIA STATISTICS AGENCY, 2011).....	24
TABLE 9-1 LEGAL REGISTER AND APPLICABILITY TO IMPACTS.....	56
TABLE 10-1 NAMPORT OPERATING PROCEDURES.....	60

LIST OF FIGURES

FIGURE 1-1 LOCATION OF THE PORT OF WALVIS BAY.....	2
FIGURE 4-1 PORT LAYOUT AND TENANTS.....	4
FIGURE 4-2 CURRENT PORT GATES.....	8
FIGURE 4-3 NEW GATE COMPLEX.....	9
FIGURE 6-1 LAND USE.....	15
FIGURE 6-2 MAP INDICATING THE INTERTROPICAL CONVERGENCE ZONE, SUBTROPICAL HIGH PRESSURE ZONE (SAH+), BENGUELA CURRENT AND TEMPERATE ZONE SOUTH OF TROPIC OF CAPRICORN (NOT INDICATED) (FROM: HTTP://WWW.METEOWEB.EU).....	16
FIGURE 6-3 MARINE ATMOSPHERIC BOUNDARY LAYER (FROM: CORBETT, 2018).....	17
FIGURE 6-4 WIND DIRECTION AND STRENGTH AT THE WALVIS BAY LAGOON AS MEASURED BETWEEN 2013 AND 2020 (FROM: WWW.WINDFINDER.COM/WINDSTATISTICS/WALVIS_BAY_AIRPORT).....	18
FIGURE 6-5 PERIOD, DAYTIME AND NIGHT-TIME WIND ROSES FOR WALVIS BAY TOWN FOR THE PERIOD 2006 (PETZER, G. & VON GRUENEWALDT, R., 2008).....	18
FIGURE 6-6 TEMPERATURE AND RAINFALL AT WALVIS BAY (FROM: UMOYA-NILU, 2020).....	19
FIGURE 6-7 COMPARISON OF EBB (TOP) AND FLOOD (BOTTOM) SCENARIOS AFTER THE CONSTRUCTION OF PHASE 1 AND PHASE 2 OF THE NEW CONTAINER TERMINAL (SOURCE: HYDRODYNAMIC MODELLING REPORT OF DMC-CSIR 2010).....	21
FIGURE 6-8 TWENTY YEAR CORROSION EXPOSURE RESULTS IN SOUTHERN AFRICAN TOWNS (CALLAGHAN 1991).....	21
FIGURE 6-9 ECOLOGICALLY SIGNIFICANT AREAS.....	23
FIGURE 6-10 ACTUAL ELECTRICITY USAGE 2015 TO 2021 (ECB ANNUAL REPORT 2022) (LPU = LARGE POWER USER).....	25

FIGURE 6-11	CENTRAL NAMIB WATER SUPPLY	26
FIGURE 6-12	POTABLE WATER SUPPLY AND DEMAND STATISTICS FOR THE CENTRAL NAMIB AREA (SOURCE: NAMWATER).....	27
FIGURE 6-13	ROAD CARGO TRANSPORT ROUTES (FAUL & BOTHA, 2017).....	29
FIGURE 8-1	ENVIRONMENTAL MANAGEMENT HIERARCHY OF NAMPORT	31
FIGURE 8-2	PROPOSED GATE DEVELOPMENT (FAUL & BOTHA, 2017)	37

1 INTRODUCTION

The Namibian Ports Authority Act, Act Number 2 of 1994, as proclaimed in Government Gazette No. 810, made provision for “the establishment of the Namibian Ports Authority to undertake the management and control of ports and lighthouses in Namibia and the provision of facilities and services related thereto; and to provide for matters incidental thereto.” Under this act, Namport, a state owned enterprise, was established as the port authority and under their control is the Port of Walvis Bay on the central coast and the Port of Lüderitz on the southern coast of Namibia.

Namport’s key roles are to (www.namport.com.na):

- ◆ Manage the port facilities to cater for current trade needs.
- ◆ Develop the ports for future demands.
- ◆ Contribute to the competitiveness of the SADC region's trade through the efficient, reliable and cost-effective supply of port services.
- ◆ Facilitate economic growth in Namibia by enabling regional development and cross-border trade.
- ◆ Promote the Ports of Walvis Bay and Lüderitz as preferred routes for sea-borne trade between SADC, Europe and the Americas.
- ◆ As the founding architects of the Walvis Bay Corridor Group, assist with developing cross-border trade.
- ◆ Minimize the impact of port operations on the natural environment by applying International Organisation for Standardisation (ISO) 14001.
- ◆ Uplift and support the communities in which Namport operates.

Namport has an existing Environmental Management Plan (EMP) for their operations in the Port of Walvis Bay (Figure 1-1). Situated on the central coast in the Erongo Region, the Port of Walvis Bay is the key port for imports and exports for Namibia. It also plays an important role in servicing land locked countries in southern Africa. The Port of Walvis Bay is central in Namibia’s vision of becoming a logistics hub in southern Africa.

Geo Pollution Technologies (Pty) Ltd was appointed by Namport to update the EMP and apply for renewal of their environmental clearance certificate (ECC). The updated EMP will continue to provide management options to ensure environmental impacts of the port are minimised. The environment being defined in the Environmental Assessment Policy and 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”.

The EMP is thus a tool used to take pro-active action by addressing potential problems before they occur. This limits potential future corrective measures that may need to be implemented and allows for application of mitigation measures for unavoidable impacts.

The ECC renewal is required in compliance with Namibia’s Environmental Management Act (Act No 7 of 2007).

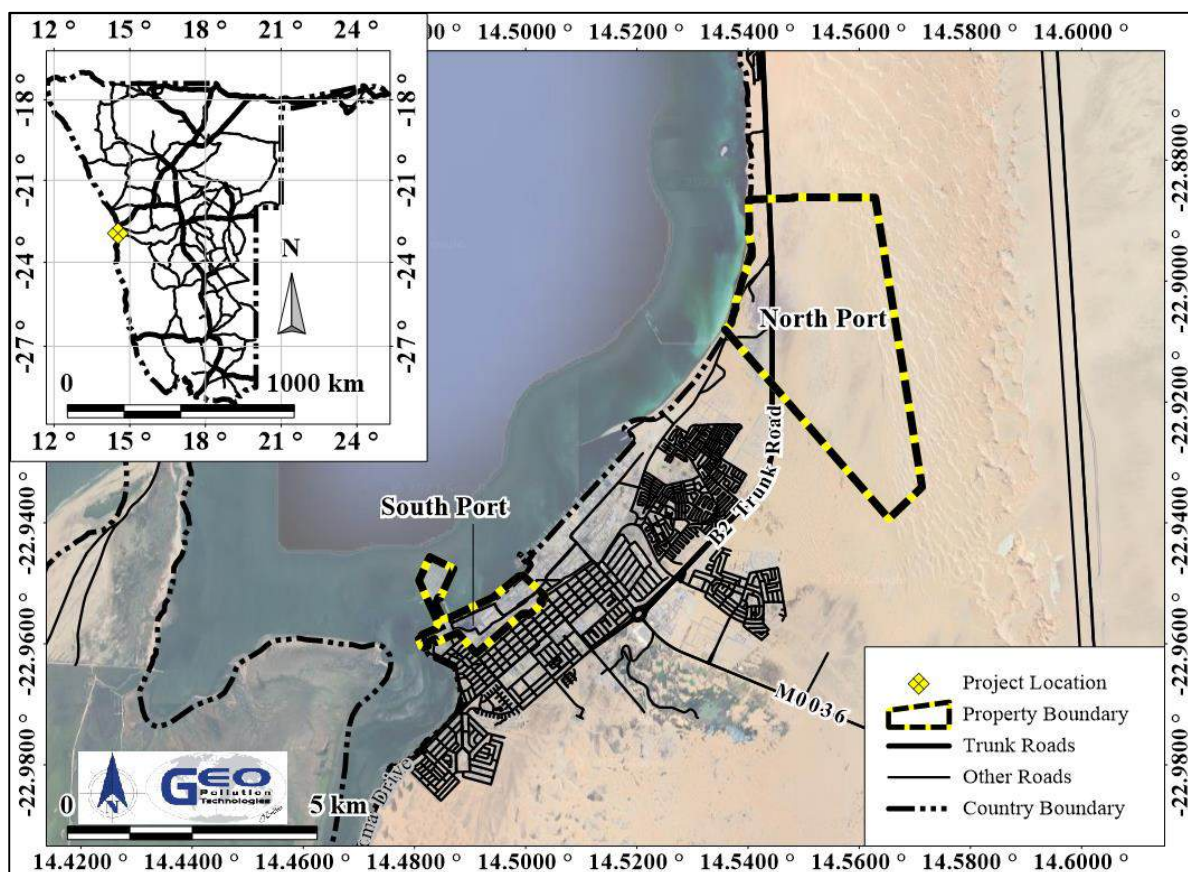


Figure 1-1 Location of the Port of Walvis Bay

2 SCOPE

The scope of the EMP is to:-

- ◆ Provide a brief overview of all components, and their operations, related to the Port of Walvis Bay, inclusive of both Namport and tenants.
- ◆ Summarise the legal and regulatory framework within which the Port of Walvis Bay operates.
- ◆ Provide a brief overview of the environment, i.e. the physical, biological, social and economic conditions, potentially impacted by the port.
- ◆ To identify and assess potential impacts of the port on the environment.
- ◆ Identify a range of management actions which could mitigate the potential adverse impacts to acceptable levels.
- ◆ To provide sufficient information to the relevant competent authorities and the Ministry of Environment and Tourism to make informed decisions regarding the development.

3 METHODOLOGY

The following methods were used to prepare the updated EMP:

- ◆ Baseline information was updated where necessary using existing secondary information.
- ◆ The infrastructure and operational procedures, potential environmental impacts and preventative and mitigating methods were updated where required.
- ◆ The inputs, comments and questions of key identified stakeholders and other interested and affected parties (I&APs) were considered and addressed in the updated EMP.

4 THE PORT OF WALVIS BAY

The Port of Walvis Bay is under jurisdiction of Namport, who acts as landlord and port operator, with a number of tenants operating in the port. It is the principal commercial port in Namibia. During the period April 2017 to March 2018 a total of 866 vessels called at the port (Namport Annual Report 2021/2022). Approximately 5,500,000 freight tonnes of cargo were handled in the Port of Walvis Bay in the same period. The following subsections, categorised by activity, provide brief descriptions of the current activities and facilities in the port. See Figure 4-1 for the port layout and location of tenants within port.

4.1 CONTAINERISED, BULK AND BREAK-BULK IMPORTS AND EXPORTS

Sea ports are typically the main avenue for containerised, bulk and break-bulk imports and exports for a country. The main types of bulk, break-bulk and containerised cargo moving through the Port of Walvis Bay are petroleum products, fish and fish products, salt, sugar, coal, charcoal, various mined resources and mineral ores and/or concentrates, industrial chemicals such as sulphuric acid, vehicles, and various other products such as wood, steel, machinery wheat, tyres, etc. Of these, salt is the main commodity exported and petroleum products the main commodity imported. Loading and offloading of vessels takes place at berths one to eight. Berth one to three with a depth of -14 mCD and four to eight -10.6 mCD.

Loading and offloading of dry bulk cargo are typically performed in two ways: 1) by means of an auger conveyor (screw conveyor) or 2) by means of a grabs. During offloading product is emptied into trucks, hoppers or onto conveyors. Hoppers are used to fill bulk bags and containers, or are emptied directly into trucks for transport. Conveyors transport products to dedicated storage areas from where trucks, bulk bags or containers can be filled for further transport.

Break-bulk cargo is typically handled and transported as bulk bags, crates or drums and is loaded and offloaded by means of cranes. Offloading can be directly to trucks for immediate transport out of the port or to temporary storage areas within the port. Temporary storage areas include various dry ports (see Section 4.5.3), warehouses and rub halls. From these facilities the break-bulk cargo can be loaded and transported to clients in its current break-bulk form, or it can be re-packed into smaller volumes, as per client requirements.

Containerised cargo is temporarily stored, loaded to, and offloaded from, container vessels at the recently commissioned, dedicated container terminal (water depth -14 mCD). The container terminal has capacity to store and handle 750,000 TEU's (twenty foot-equivalent unit) per annum. Containers are also stored and handled at the different dry ports (refer Section 4.5.3). These include reefers for cold storage and associated transport purposes.

Hazardous substances such as caustic soda, sulfuric acid and explosive materials that are imported in bulk through the Port of Walvis Bay are mainly destined for the mining industries in Namibia and neighbouring SADC countries. Namport has various procedures in place for the safe handling and storage of these products. These include dedicated temporary storage areas, specific routes through the port and town and the necessary permits and permissions from various authorities.

Transport of bulk, break-bulk and containerised cargo to and from the port is by means of trucks or trains. Trucks and trains include flatbed, side tipper and tanker trucks / rail cars.

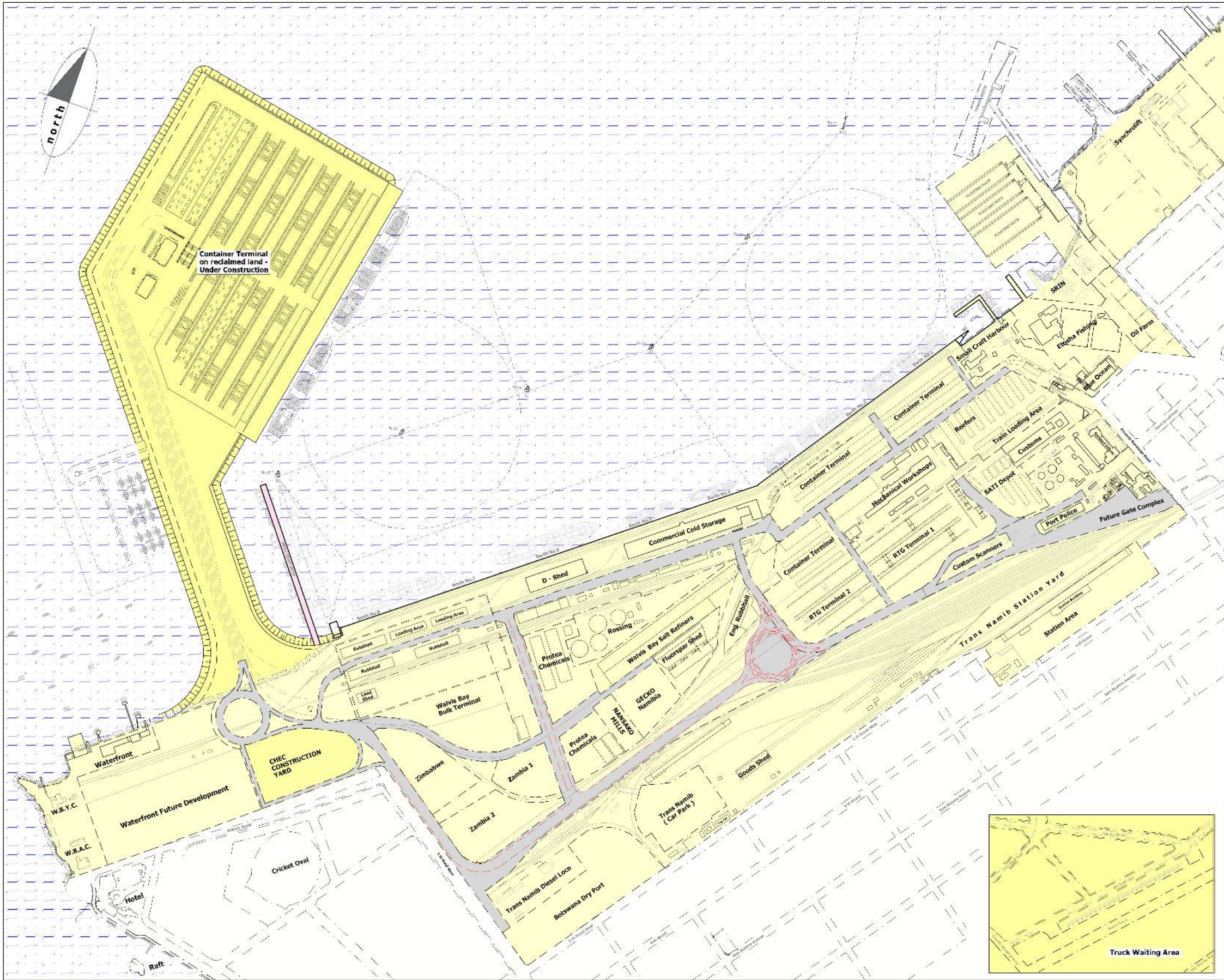


Figure 4-1 Port layout and tenants

4.2 FUEL IMPORTS

In terms of freight tonnes of cargo imported, fuel (diesel, unleaded petrol, Jet-A1 and heavy fuel oil) by far exceeds any other commodity. During 2021/2022 a total of 1,422,263 freight tonnes of fuel products were imported. This accounts for 42.2% of the freight tonnes landed in the port for this period. Fuel is offloaded at the new fuel terminal at the North Port. The jetty can accommodate two tanker ships at a time and fuel is pumped via the trestle and then through underground pipelines to the various bulk fuel storage facilities in Walvis Bay.

The newly constructed fuel terminal north of Walvis Bay consists of a 1,600 m long concrete jetty with two dolphin berths. To service the fuel terminal, new pipelines to the bulk fuel storage facilities in the industrial area of Walvis Bay were constructed. The operations of the newly constructed fuel terminal and the bulk fuel storage facilities are subject to their own environmental clearance certificates.

The fuel terminal currently has its own dedicated entrance channel. Should the proposed Port of Walvis Bay SADC Gateway realise, the entrance channel will also serve this port facility. Furthermore, the fuel terminal has adequate firefighting equipment, emergency fuel spill containment materials and protocols, and support infrastructure.

4.3 VEHICLE IMPORTS

Vehicle imports are an important component of the services provided by the Port of Walvis Bay. Vehicles are typically shipped in roll-on/roll-off (Ro-Ro) vessels. Ro-ro's allow for vehicles to be driven onto, and off from, the vessels under their own power or onto other self-propelled platforms.

4.4 PASSENGER TRAFFIC

The growth in the tourism industry has seen an increase in the number of cruise liners calling at the Port of Walvis Bay. With the construction of the new container terminal, a dedicated cruise-vessel berth was constructed. The berth can accommodate vessels up to 300 m in length, with a draft of -11 meters to chart datum. In addition to increasing the port's passenger traffic handling ability, it also allows Namport to move passenger traffic away from berths one to eight and thus away from the central hub of port activity.

4.5 SUPPORT AND LOGISTICS SERVICES

In addition to the import and export of goods and raw materials, a number of support services are also provided by Namport and its tenants. The following section provides an overview of the most important of these services.

4.5.1 Ship Repair and Maintenance

Ship repair and maintenance is performed at three locations. Major repairs and maintenance are performed at the Syncrolift and the floating dry docks, while minor repairs and maintenance can be performed alongside quays and jetties.

Namport manages the Syncrolift and operates the dry docks in partnership with NAMDOCK. The Syncrolift can lift vessels of up to 2,000 tonnes from the water. A lifted vessel is moved to one of five land-based bays where repairs and maintenance are conducted. There are three Panamax floating dry docks with a combined lifting capacity of 29,500 tonnes. Namdock I can lift vessels of 8,000 tonnes, Namdock II 6,500 tonnes and Namdock III 15,000 tonnes.

Repair and maintenance activities at the Syncrolift and floating dry docks may include hull cleaning, grit blasting, spray painting and mechanical and electrical repairs. A number of private industries in Walvis Bay offer services to the repair and maintenance facilities. Among these services are engineering and machine works, ship integrity inspections, equipment and consumable supplies as well as domestic and hazardous waste removal and disposal.

Jetty and quay-side maintenance and repairs are conducted where no need for dry docking or land-based repair is needed. It is limited to minor structural, electrical and mechanical repairs. These types of repairs are typically associated with the fishing industry which falls outside of the commercial harbour onshore, but offshore (jetties) within port limits.

4.5.2 Transhipments

The Port of Walvis Bay acts as an intermediate destination for transhipments. This can be in the form of sea cargo temporarily stored in the port before being re-loaded onto another vessel for further transport, or shipments via for example dry ports (see section 4.5.3). Transhipments comprised of 234,612 freight tonnes during the period 2021/2022.

4.5.3 Dry Ports and Storage Facilities

The Port of Walvis Bay hosts dry ports for SADC countries. Dry ports are inland terminals directly connected to a seaport by rail or road. It acts as a hub for transhipments of sea cargo to and from inland destinations. At the Port of Walvis Bay dry ports serves the neighbouring land-locked countries Zambia, Zimbabwe and Botswana. Cargo stored and handled at the dry ports can include anything from mineral ores, chemicals, vehicles and general goods mainly in break-bulk and containerised form.

Various privately operated storage facilities are present within the commercial harbour. These range from bulk storage of mineral ores in the open to storage of goods in warehouses and rumb halls. Many of these are operated under their own EIAs and EMPs which will have to be in accordance with Namport's EMP and operating procedures.

4.5.4 Fuel Bunkering

Namport as well as its tenants need to refuel vessels docked, anchored or underway within the port. For this purpose various smaller bulk fuel installations are present at different locations within the port. Fuel bunkering methods include: 1) underground pipelines from bulk tanks to the quay areas and concrete jetties, where hose trolleys are used for bunkering purposes; 2) by road tankers where bunker points are not available; or 3) by offshore tanker vessels where vessels cannot be fuelled from land. Permission for the latter ship-to-ship transfer method of fuel supply is obtained from the Directorate of Maritime Affairs (DMA), Ministry of Works and Transport. Within port limits, the pollution combating officer of Namport monitors and oversees ship-to-ship transfers.

4.5.5 Cold Storage Facilities

A commercial cold storage facility is present within the commercial harbour and is operated by a private company. The facility provides temporary cold storage space (refrigeration and freezing) for the import and export of perishable goods (e.g. fruit, vegetables, meat and fish) via the port.

4.5.6 Small Craft Harbour, Yacht Club and Waterfront

A small craft harbour is situated in the port and serves to provide a launch site for small motorised craft. This serves among others the tourism and mariculture industries. The yacht club and waterfront further contribute to nautical recreation and maritime tourism activities. Numerous private sightseeing cruises operate from the waterfront area.

4.5.7 Dredging

Sedimentation and seabed scouring decreases water depth in the entrance channels and alongside jetties and quays. Maintenance dredging is therefore occasionally required to deepen these areas to allow for the safe navigation of vessels. Capital dredging is performed when new channels, turning areas or berthing space are required or existing ones are deepened. Dredging is covered by its own EIA and EMP and is performed under its own environmental clearance certificate (Faul et al. 2022).

4.5.8 Fishing Operations and Mariculture

Fishing and fish processing is a very important industry in Walvis Bay and Namibia as a whole. The land-based infrastructure of the fishing industry is outside of the commercial harbour and is located in the industrial area of Walvis Bay. Offshore infrastructure like jetties and all related offshore activities within port limits performed by fishing companies are under Namport's jurisdiction. This includes any jetty construction and modification, dredging, docked ships' repair and maintenance activities, anchoring and navigation.

Mariculture of oysters and mussels occur within port limits. It is a growing industry regarded as an important industry by the various Namibian development plans. Mariculture activities also fall outside the scope of Namport's EMP.

Although the fisheries and mariculture activities are not included in the EMP, operations of the commercial harbour may impact on the fishing and mariculture industry and vice versa. This will mostly be related to deterioration of seawater quality as a result of activities of the respective parties. For example, ship repair activities, dredging and accidental spills may decrease the quality of the seawater abstracted for fish processing, while effluent discharge from fish factories can in turn increase the biological and chemical oxygen demand of water in the harbour. Water which is essentially Namport's responsibility to protect.

4.6 TRAFFIC

Vehicle traffic into and out of the port is regulated at security controlled gates. Access is permit controlled and regular alcohol testing is conducted. The main access gate is off 3rd Street East and limited off-street parking space for light vehicles is provided outside the access gate. A truck staging area is located near the gate in 4th Street East.

Currently, the Port of Walvis Bay was serviced by three gates (Figure 4-2). Container traffic was handled through the container gate, situated in Rikumbi Kandanga Road. General traffic, bulk and break bulk cargo, after hour container traffic and container traffic to private container depots inside the port were handled through the main gate. The third gate, situated at the northern end of 5th Road (South Gate), was used for abnormal loads which include the trucks transporting salt and explosives as well as construction vehicles as for example during the construction of the new container terminal.

With the commissioning of the new container terminal, and to manage the current and expected increase in traffic, Namport proposed the design and construction of a new gate complex. The design includes the following main components: 1) the closure of the existing container gate; 2) the conversion of the existing main gate into an exit gate only; 3) construction of a multi-lane entrance gate; and 4) construction of a truck staging/queuing area (Figure 4-3). See *Faul A, Botha P. 2017. Environmental Management Plan for the Design and Construction of the New Main Gate Complex and Truck Staging Area in the Port of Walvis Bay* for more details.

Dangerous cargo which may have the added danger of being explosive is carefully managed in terms of transport. Various predetermined transport routes and management methods are implemented for dangerous cargo. Transport routes through the town can be seen in Figure 6-13.

The railways and sidings in the Port are actively used, mainly for the transport of cargo to the mining sector within Namibia.

4.7 SECURITY

The entire landside of the port area is fenced off and security personnel man all entrance gates. No unauthorised access is allowed in the port area and all visitors must obtain an entrance permit from Namport security. Access to all dry port storage and handling areas are via port security and the internal roads, except the administrative building of the Botswana Dry Port which can be accessed directly from the street.

4.8 ADDITIONAL INFRASTRUCTURE

Apart from the infrastructure and operations within the commercial harbour, Namport has some additional infrastructure outside of the commercial harbour area. This include the yacht club and

fishing club off Atlantic Street, the waterfront area, as well as various properties throughout Walvis Bay. Namport also owns the properties that host the Pelican Point and Swakopmund lighthouses together with their buildings and related infrastructure. Both the lighthouses are important tourism attractions (see Appendix A for Namport properties).



Figure 4-2 Current port gates

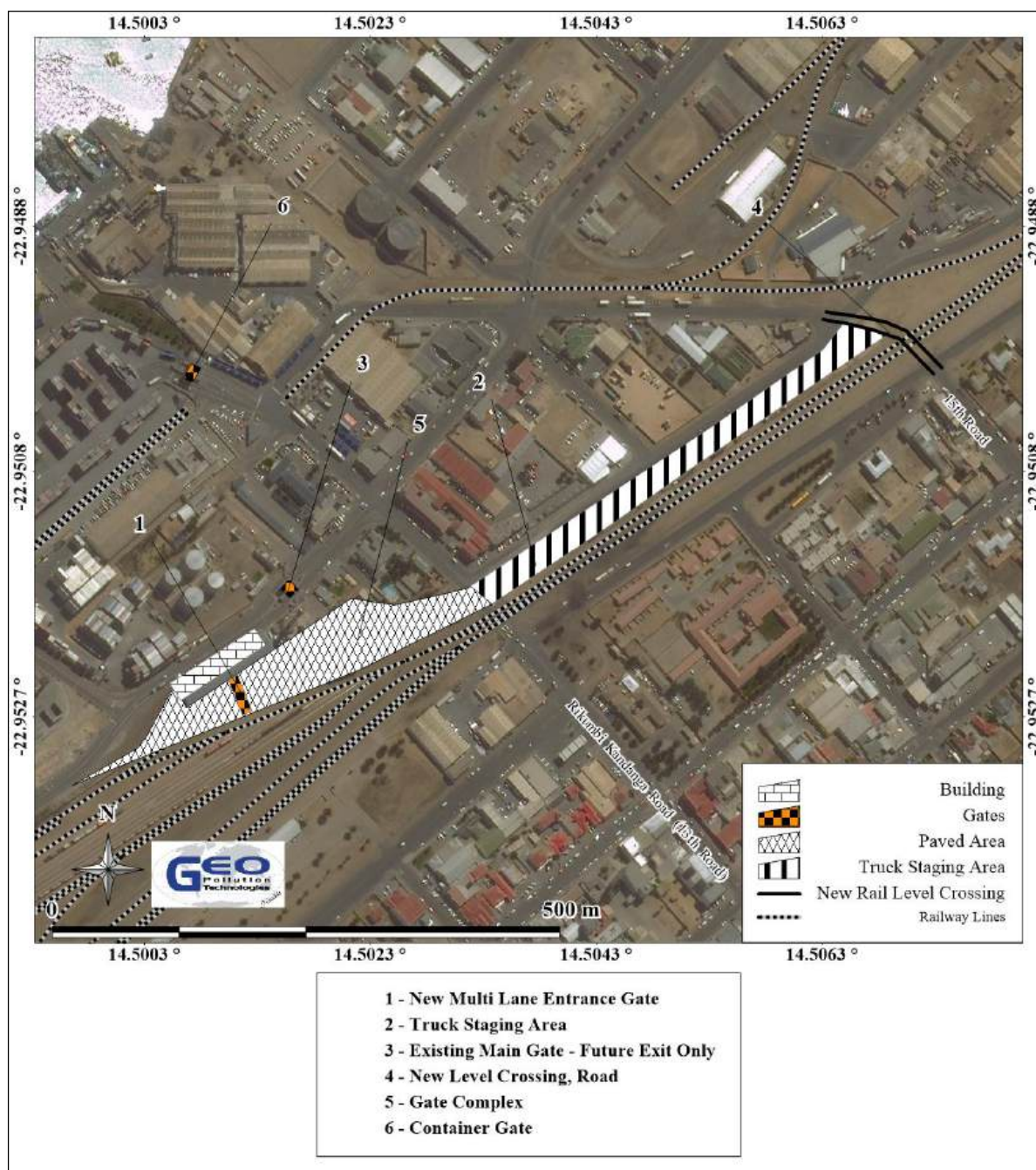


Figure 4-3 **New gate complex**

5 ADMINISTRATIVE, LEGAL AND POLICY REQUIREMENTS

Namport operates within a regulatory and legal framework which can be described as being related to the protection, management and utilization of the environment and natural resources for sustainable development and/or intergenerational equity as well as to the protection of human rights. The following is a brief summary of the most important regulatory and legal aspects binding on the Port of Walvis Bay.

Table 5-1 Namibian law and policies applicable to the project

Law	Key Aspects
The Namibian Constitution	<ul style="list-style-type: none"> ◆ Promotes 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	<ul style="list-style-type: none"> ◆ Defines the environment ◆ Promotes sustainable management of the environment and the use of natural resources ◆ Provides 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	<ul style="list-style-type: none"> ◆ Commencement of the Environmental Management Act ◆ List activities that requires an Environmental Clearance Certificate ◆ Provides Environmental Impact Assessment Regulations
Namibia Ports Authority Act Act No. 2 of 1994	<ul style="list-style-type: none"> ◆ Provides for the establishment of the Namibian Ports Authority to undertake the management and control of ports ◆ Outlines the functions of the Namibian Ports Authority among which is the protection of the environment
Territorial Sea and Exclusive Economic Zone of Namibia Act Act No. 3 of 1990	<ul style="list-style-type: none"> ◆ Determines and define the territorial sea, internal waters, contiguous zone, exclusive economic zone and continental shelf of Namibia
Marine Resources Act Act No. 27 of 2000	<ul style="list-style-type: none"> ◆ Provides for the conservation of the marine ecosystem and the responsible administration, conservation, protection and promotion of marine resources on a sustainable basis ◆ Under this act the following were determined: <ul style="list-style-type: none"> ○ Regulations relating to the exploitation of marine resources (2001) ○ Declaration of the Namibian Islands' Marine Protected Area: Marine Resources Act (2009) ○ Regulations relating to Namibian Islands' Marine Protected Area: Marine Resources Act, 2000 (2012)
Marine Notice No. 02 of 2017 Ministry of Works and Transport	<ul style="list-style-type: none"> ◆ Sets forth the conditions and requirements under which the Minister of Works and Transport may grant permission for the transfer of oil within the prohibited area of the Namibian waters.
Marine Notice No. 04 of 2018 Ministry of Works and Transport	<ul style="list-style-type: none"> ◆ Provides guidance on shipboard garbage management requirements in Namibia, in terms of the International Convention for the Prevention of Pollution from Ships (MARPOL)
Dumping At Sea Control Act Act No. 73 of 1980	<ul style="list-style-type: none"> ◆ Provide for the control of dumping of substances in the sea ◆ Provides for permits to be issued to allow dumping at sea of scheduled substances
Petroleum Products and Energy Act Act No. 13 of 1990, Government Notice No. 45 of 1990	<ul style="list-style-type: none"> ◆ Regulates petroleum industry ◆ Makes provision for impact assessment ◆ Petroleum Products Regulations (Government Notice No. 155 of 2000) ◆ Prescribes South African National Standards (SANS) or equivalents for construction, operation and decommissioning of petroleum facilities (refer to Government Notice No. 21 of 2002)

Law	Key Aspects
Prevention and Combating of Pollution of the Sea by Oil Act, 1981 (Act No. 6 of 1981)	<ul style="list-style-type: none"> ◆ Provides for the prevention of pollution of the sea where oil is being or is likely to be discharged
Prevention and Combating of Pollution of the Sea by Oil Amendment Act (No. 24 of 1991)	<ul style="list-style-type: none"> ◆ Amends the Prevention and Combating of Pollution of the Sea by Oil Act of 1981 to be more relevant to Namibia after independence
Aquaculture Act (2002)	<ul style="list-style-type: none"> ◆ Provides for water quality monitoring to protect aquaculture activities
Marine Traffic Act Act No. 2 of 1981	<ul style="list-style-type: none"> ◆ Regulates marine traffic in Namibia
Water Resources Management Act Act No. 11 of 2013	<ul style="list-style-type: none"> ◆ Provides for management, protection, development, use and conservation of water resources ◆ Prevention of water pollution and assignment of liability
Atomic Energy and Radiation Protection Act Act No. 5 of 2005, Government Notice No. 50 of 2005	<ul style="list-style-type: none"> ◆ Provides for adequate protection of the environment and of people in current and future generations against the harmful effects of radiation by controlling and regulating the production, processing, handling, use, holding, storage, transport and disposal of radiation sources and radioactive materials. ◆ Provides for authorisation, licences and registrations with regard to import into or export from Namibia any radiation source or nuclear material or transport any radiation source or nuclear material ◆ Provides for regulations (Government Notice No. 221 of 2011) with regard to radiation protection and waste disposal.
Explosives Act Act No 26 of 1956	<ul style="list-style-type: none"> ◆ Regulates the manufacture, storage, sale, transport, import, export, use and possession of explosives. ◆ Numerous Amendments.
Road Traffic and Transport Act Act No. 52 of 1999 Government Notice No 282 of 1999	<ul style="list-style-type: none"> ◆ Provides for the control of traffic on public roads and the regulations pertaining to road transport
Road Traffic and Transport Regulations Government Notice No 53 of 2001	<ul style="list-style-type: none"> ◆ Prohibits the transport of goods which are not safely contained within the body of the vehicle; or securely fastened to that vehicle, and which are not properly protected from being dislodged or spilled from that vehicle.
National Heritage Act of Namibia Act No. 27 of 2004	<ul style="list-style-type: none"> ◆ Provides for the protection and conservation of places and objects of heritage significance and the registration of such places and objects ◆ Defines as protected any remains of human habitation or occupation that are 50 or more years old found on or beneath the surface on land. ◆ Provides for reporting of heritage finds, issuing of permits, and archaeological impact assessments.
Local Authorities Act Act No. 23 of 1992	<ul style="list-style-type: none"> ◆ Define the powers, duties and functions of local authority councils
Regional Councils Act Act No. 22 of 1992	<ul style="list-style-type: none"> ◆ Sets out the powers, duties, functions, rights and obligations of Regional Councils. ◆ Provides the legal basis for the drawing up of Regional Development Plans.
Public and Environmental Health Act Act No. 1 of 2015	<ul style="list-style-type: none"> ◆ Provides a framework for a structured more uniform public and environmental health system, and for incidental matters ◆ The objects of this Act are to -

Law	Key Aspects
	<ul style="list-style-type: none"> ○ promote public health and wellbeing; ○ prevent injuries, diseases and disabilities; ○ protect individuals and communities from public health risks; ○ encourage community participation in order to create a healthy environment; and ○ provides for early detection of diseases and public health risks. ◆ Not in force yet
<p>Labour Act Act No 11 of 2007</p>	<ul style="list-style-type: none"> ◆ 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) ◆ Provides for the availability of chemical safety data sheets (material safety data sheets or MSDS) to be available for all hazardous or dangerous goods ◆ Makes provision for regulations on the transport of hazardous substances (regulations not in force yet)
<p>Atmospheric Pollution Prevention Ordinance Ordinance No. 11 of 1976</p>	<ul style="list-style-type: none"> ◆ 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
<p>Hazardous Substances Ordinance Ordinance No. 14 of 1974</p>	<ul style="list-style-type: none"> ◆ 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
<p>Pollution Control and Waste Management Bill (draft document)</p>	<ul style="list-style-type: none"> ◆ Not in force yet ◆ Provides for prevention and control of pollution and waste ◆ Provides for procedures to be followed for licence applications
<p>Integrated Coastal Zone Management Bill (2014)</p>	<ul style="list-style-type: none"> ◆ Aims at coastal management and give effect to Namibia's obligations in terms of international law regulating coastal management ◆ Not adopted yet
<p>Draft Wetland Policy of 2003</p>	<ul style="list-style-type: none"> ◆ Considering the Walvis Bay Lagoon, the Wetland Policy of 2003 is of importance and includes: <ul style="list-style-type: none"> ○ Protection and conservation of wetlands and ecosystems.
<p>National Marine Pollution Contingency Plan of 2017</p>	<ul style="list-style-type: none"> ◆ Coordinated and integrated national system for dealing with oil and other spills in Namibian waters.
<p>The National Environmental Health Policy</p>	<ul style="list-style-type: none"> ◆ Promotes and facilitates in improving the working and living environment of Namibians ◆ Regulates the availability of environmental health services at various levels.
<p>Namport Safety, Health, Environment and Quality Policy</p>	<ul style="list-style-type: none"> ◆ Provides guidance to all members responsible for managing Safety, Health, Environment and Quality related aspects. ◆ Ensures compliance with all applicable legal SHEQ and related requirements.

Table 5-2 Relevant multilateral environmental agreements for Namibia and the project

Agreement	Key Aspects
Benguela Current Convention of 2013	<ul style="list-style-type: none"> ◆ The Convention is a formal treaty between the governments of Angola, Namibia and South Africa that sets out the countries' intention "to promote a coordinated regional approach to the long-term conservation, protection, rehabilitation, enhancement and sustainable use of the Benguela Current Large Marine Ecosystem, to provide economic, environmental and social benefits."
Convention on Biological Diversity (CBD)	<ul style="list-style-type: none"> ◆ Primary goal is the conservation of biodiversity ◆ Prescribes the precautionary principle ◆ Parties to the convention are obliged to: ◆ Establish a network of protected areas; ○ Create buffer areas adjacent to these protected areas using environmentally sound and ○ sustainable development practices; and ○ Rehabilitate degraded habitats and populations of species.
The Convention on Wetlands of International Importance especially as Waterfowl Habitat (referred as the Ramsar Convention)	<ul style="list-style-type: none"> ◆ It is a framework for international cooperation in the conservation and wise use of wetlands and their resources. ◆ Recognizes the Walvis Bay Nature Reserve – a tidal lagoon consisting of Pelican Point, adjacent intertidal areas, sandbars serving as roosting sites and mudflats exposed during low tide (12,600 ha) as a Wetland of International Importance.
UN Convention for the Prevention of Marine Pollution from Land-based Sources	<ul style="list-style-type: none"> ◆ Concerns itself with the protection of marine fauna and flora by preventing marine pollution from land-based sources. ◆ Contracted parties, are committed to take all possible steps to prevent pollution of the sea as well as the direct or indirect introduction of substances or energy by humans into the marine environment resulting in such adverse effects as harm to living resources and to marine ecosystems, hazards to human health, damage to services/ facilities or interference with other legitimate uses of the area.
International Convention on Oil Pollution Preparedness, Response and Cooperation of 1990	<ul style="list-style-type: none"> ◆ International maritime convention establishing measures for dealing with marine oil pollution incidents nationally and in co-operation with other countries.
International Convention for the Prevention of Pollution from Ships (MARPOL 73/78)	<ul style="list-style-type: none"> ◆ Dealing with the prevention of pollution of the sea by oil, sewage and garbage from ships.
United Nations Convention on the Law of the Sea	<ul style="list-style-type: none"> ◆ Namibia is obligated to protect and preserve the marine environment. ◆ Includes the prevention, reduction and control of pollution of the marine environment.
Convention on the Prevention of Marine Pollution by Dumping Wastes and Other Matter (London Convention, 1972)	<ul style="list-style-type: none"> ◆ Aims at controlling and preventing marine pollution and contains guidelines for dredged material known as the Dredged Material Assessment Framework (DMAF). ◆ Provides guidelines for dredging and disposal operations to minimize environmental damage
IMO Guidelines on Marine Security: International Ship and Port Facility ISPS Code	<ul style="list-style-type: none"> ◆ Legislative framework for maritime security issues. ◆ Aimed at Government, Port Authorities and shipping companies.

Agreement	Key Aspects
IMO Biofouling Guidelines	<ul style="list-style-type: none"> ◆ Guidelines for the control and management of ships' biofouling to minimize the transfer of invasive aquatic species
Abidjan Convention of 1981	<ul style="list-style-type: none"> ◆ The Convention for Cooperation in the Protection, Management and Development of the Marine and Coastal Environment of the Atlantic Coast of the West, Central and Southern Africa Region ◆ Provides an overarching legal framework for all marine-related programmes in West, Central and Southern Africa.
Convention Concerning the Protection of the World's Cultural and Natural Heritage	<ul style="list-style-type: none"> ◆ The objective is that effective and active measures are taken for the protection, conservation and presentation of the cultural and natural heritage.
Stockholm Declaration on the Human Environment, Stockholm 1972.	<ul style="list-style-type: none"> ◆ 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

Table 5-3 Municipal by-laws, guidelines and regulations

Municipal By-laws, Guidelines or Regulations	Key Aspects
Integrated Urban Spatial Development Framework for Walvis Bay	<ul style="list-style-type: none"> ◆ Overall vision to transform Walvis Bay to being the primary industrial city in Namibia ◆ Aims to ensure that appropriate levels of environmental management is enforced for all developments in Walvis Bay
Integrated Environmental Policy of Walvis Bay (Agenda 21 Project)	<ul style="list-style-type: none"> ◆ Indicates the directions that the Municipality of Walvis Bay will move towards in the forthcoming years to fulfil its responsibilities to manage the environment of Walvis Bay together with the town's residents and institutions ◆ Focus on conservation and protection of environment
Drainage and Plumbing By-Law of 1958 (updated in 1982)	<ul style="list-style-type: none"> ◆ Regulations regarding discharges into sewers

6 THE RECEIVING ENVIRONMENT

For purposes of this EMP a detailed environmental description is not provided. However, this section briefly summarises the most important environmental characteristics of the study area, as well as a short statement on the potential impacts/implications of the port operations on each.

6.1 LOCALITY AND SURROUNDING LAND USE

The commercial harbour of the Port of Walvis Bay is situated centrally on the west coast of Namibia. The port town of Walvis Bay is the biggest coastal town of Namibia and originated around the harbour. The harbour holds its value due to the natural deep waters of the bay, protected by the Pelican Point sand spit. Walvis Bay was originally established as mainly a fishing and port town and these two industries remain the main driving force behind the town's economy. The port is surrounded by a variety of land uses including residential, business and industrial (Figure 6-1).

Of specific importance near the harbour are the Walvis Bay Lagoon, the salt works and the southern part of the bay west of the lagoon, which are the key components of a 12,600 ha Ramsar site (Wetland of International Importance). On land, Walvis Bay is further mostly surrounded by the Dorob National Park which falls under the management of the Ministry of Environment, Forestry and Tourism (Figure 6-9).

Implications and Impacts

On its land side, the port is surrounded by residential, commercial and industrial properties. Noise emanating from port related activities may negatively impact on residents directly neighbouring the port. In addition, development and operations of the port may lead to increased traffic impacts. A shortage of available land surrounding the port places constraints on the potential development of the port. Therefore, an alternative location may be required for future large scale development.

The Port of Walvis Bay operates near a sensitive environment (Ramsar Site) and thus extra environmental consideration should be given and additional legislation may apply to the port. Significant environmental impacts could result in degradation of the environment.

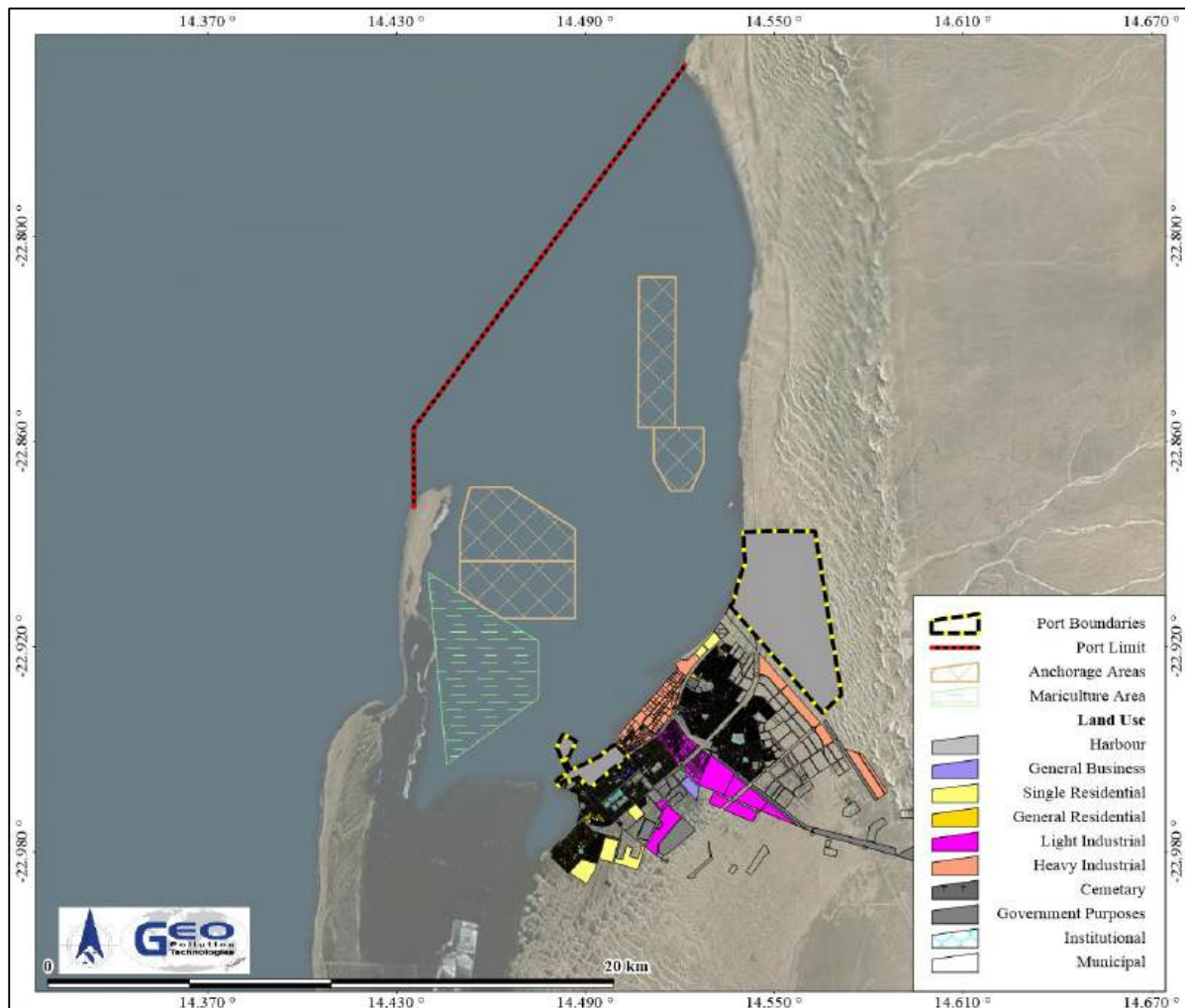


Figure 6-1 Land use

6.2 CLIMATE

Namibia's climate is dominated by dry conditions for most of the year and particularly so in the west. The location of Namibia with respect to the Intertropical Convergence Zone, Subtropical High Pressure Zone and Temperate Zone is what determines the climate, with the Subtropical High Pressure Zone being the major contributor to the dry conditions (Atlas of Namibia Project, 2002; Bryant, 2010), see Figure 6-2.

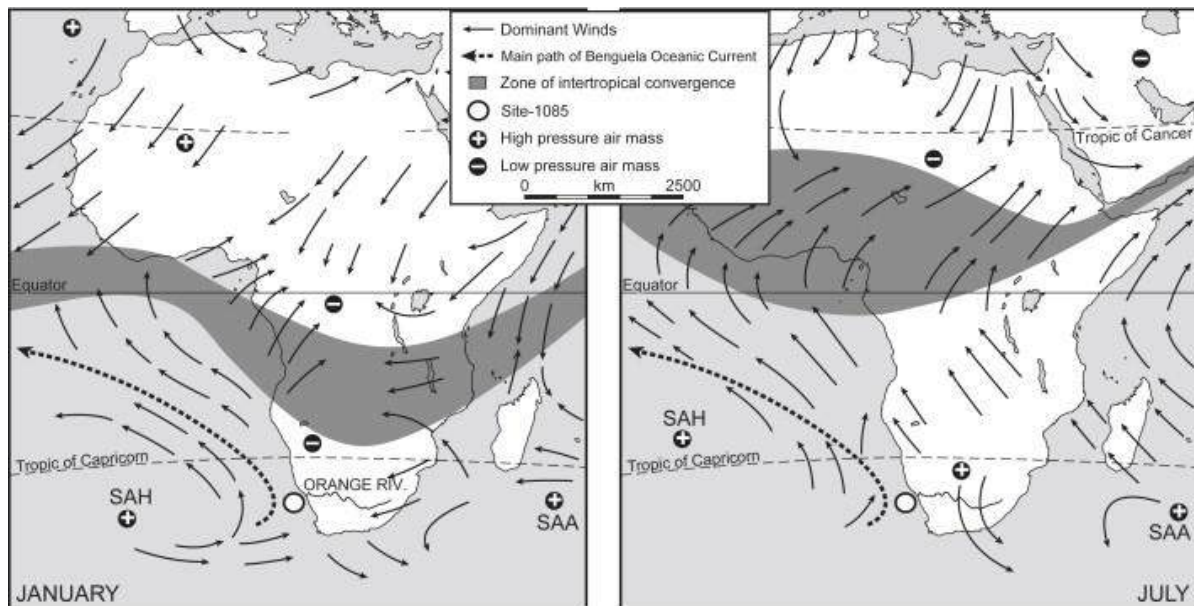


Figure 6-2 Map indicating the Intertropical Convergence Zone, Subtropical High Pressure Zone (SAH+), Benguela Current and Temperate Zone south of Tropic of Capricorn (not indicated) (from: <http://www.meteoweb.eu>)

Precipitation over Namibia is mainly controlled by the South Atlantic High (SAH), a high pressure cell (anticyclone) situated west of Namibia in the Subtropical High Pressure Zone. The SAH shifts during the year and is at higher latitudes in winter and lower latitudes in summer. In winter, as a result of being situated more north, the high pressure cell pushes any moisture originating from the Intertropical Convergence Zone northwards, preventing rain over Namibia. In summer, because the high pressure cell moves further south, and has less of an effect on the Intertropical Convergence Zone, moist air reaches Namibia, resulting in summer rains.

Studies indicate the presence of a thermal inversion layer at Walvis Bay. Originally this was thought to be at approximately 500 mamsl (Taljaard and Schumann 1940), but recent studies indicate it as low as 200 mamsl (Patricola and Chang, 2017; Corbett, 2018). A marine atmospheric boundary layer (MBL) exists offshore of the coastline that thins from more than 500 mamsl to 200 mamsl as it nears the coast (Figure 6-3). The MBL is a layer of cool, well-mixed, stable air that is capped by a thermal inversion (Patricola and Chang, 2016; Corbett 2018). This thermal layer or inversion layer will prevent the escape of pollutants such as smoke higher into the atmosphere. The MBL however contribute to high velocity wind speeds by funnelling the winds created by the SAH, resulting in what is referred to as the Benguela Low-Level Coastal Jet (Figure 6-3). Since the MBL overlap partially with the coastal plain, the wind generated by the Benguela Low-Level Coastal Jet also reaches inland, but diminishes relatively quickly further inland.

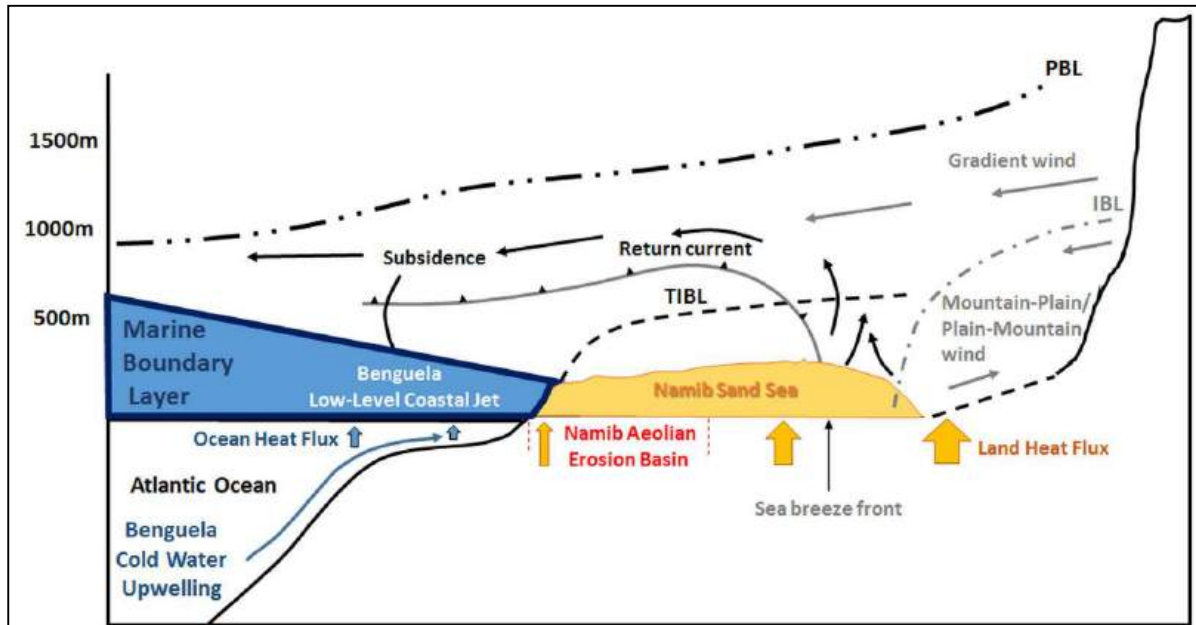


Figure 6-3 Marine atmospheric boundary layer (from: Corbett, 2018)

On a more localised scale, the climatic conditions on the central Namibian coast, and inland thereof (coastal plains), are strongly influenced by the cold Benguela Current, the SAH and the relatively flat coastal plains that are separated from the central highlands by a steep escarpment.

The anticlockwise circulation of the high pressure SAH and the action of the earth's Coriolis force results in strong southerly (longshore) winds blowing northwards up the coastline of Namibia (Bryant, 2010; Corbett, 2018). This longshore wind is responsible for upwelling of the cold, deep waters of the Benguela Current. As a result of the temperature difference between the cold surface water of the Benguela Current and the warm coastal plains, the southerly wind is diverted to a south-south-westerly to south-westerly wind along the coast. At Walvis Bay the temperature gradient that forms over the warmer darker sands south of the Kuiseb River, compared with the cooler, lighter coloured gravel plain to the north of the river, leads to the formation of cyclonic circulation (localised low-pressure systems) centred over the dune area, due to warm air that rises over the dune area. This, together with topographical changes and land-use, causes a local deflection of wind flow over the Walvis Bay area, from south to southwest in Walvis Bay (Figure 6-4), to more southwest to westerly further inland, as well as reduced wind speeds. The more low speed, westerly winds are for example experienced at the Walvis Bay Airport (Rooikop).

The winds are strongest in early to mid-summer (September to January) when the SAH is at its strongest and most persistent, and the temperature difference between the sea and the desert plains are at its greatest. Wind speeds then occasionally exceed 32 km/hr and usually peak late morning to early afternoon. In winter, the SAH loses strength and the southerly to south-westerly winds are at their weakest. Winter winds do not have enough strength to reach far inland. Autumn to winter conditions do however promote the formation of east wind conditions (berg winds) that can reach speeds of more than 50 km/hr and transport a lot of sand. East winds occur when the inland plateau is cold with a localised high pressure cell, while a low pressure system is present at the coast. The high pressure cell forces air off the escarpment and as the air descends, it warms adiabatically as well as create a low pressure system due to the vertical expansion of the air column. The warm air flows toward the coastal low and as it passes over the Namib plains, it heats up even further. The wind manifests itself as very strong, warm and dry wind during the mornings to early afternoon, but dissipate in the late afternoon.

Throughout the year the prevailing night time regional wind is a weak easterly wind. This results when the mainland cools to below the temperature of the coastal water. This results in a coastal low versus an onshore high pressure system with first no wind in the early evening, when temperatures between water and land is similar, and then weak easterly winds as the temperature

difference increase. Wind within the MBL remains dominated by the Benguela Low-Level Coastal Jet, causing a localised southerly wind over Walvis Bay, see Figure 6-4.

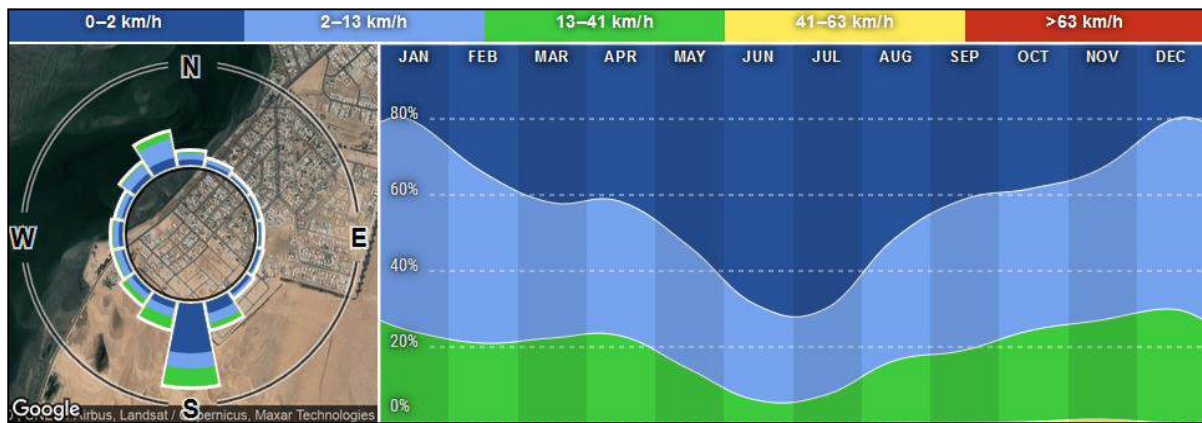


Figure 6-4 Wind direction and strength at the Walvis Bay Lagoon as measured between 2013 and 2020 (from: www.windfinder.com/windstatistics/walvis_bay_airport)

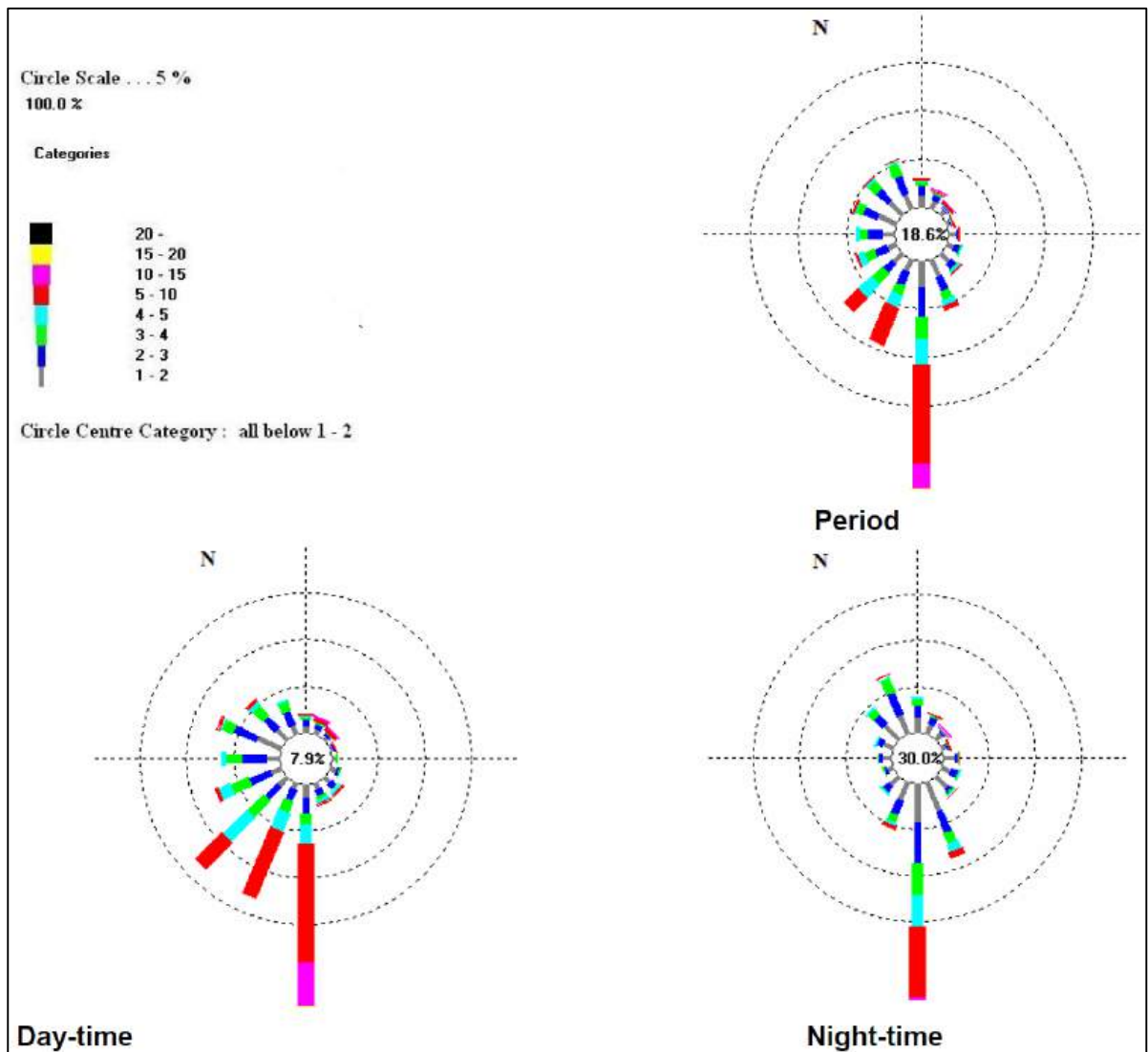


Figure 6-5 Period, daytime and night-time wind roses for Walvis Bay town for the period 2006 (Petzer, G. & von Gruenewaldt, R., 2008)

Temperature at Walvis Bay is strongly regulated by the cold Benguela current. As a result, there is typically limited variation between diurnal and seasonal temperatures. Average annual temperatures are approximately 18 °C to 19 °C with the maximum temperature seldom above

30 °C and minimums rarely below 5 °C (Figure 6-6). The only real temperature extremes are experienced during east wind conditions in the autumn to early winter months when temperatures can reach the upper thirties or even low forties. This results in these months having an average maximum temperature ranging from 30 °C to 35 °C. As one moves inland from Walvis Bay, daytime temperatures increases rather quickly while night time temperatures can get significantly colder in the desert environment.

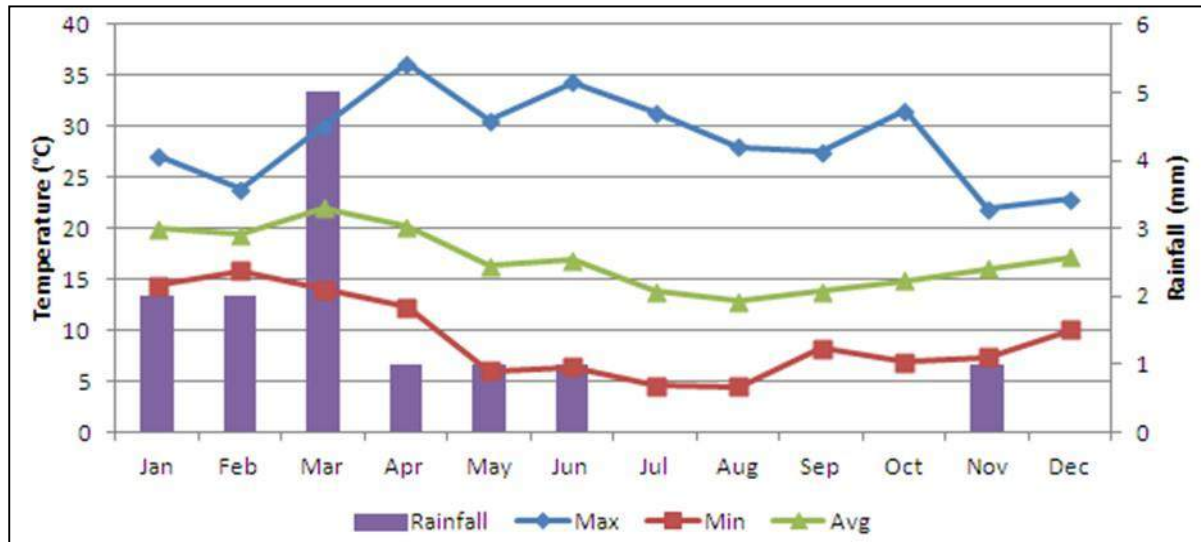


Figure 6-6 Temperature and rainfall at Walvis Bay (from: uMoya-NILU, 2020)

As explained above, the SAH severely limits the amount of rainfall over Namibia and especially at the coast and over the Namib Desert. As such, the average annual rainfall in Walvis Bay is below 50 mm (Figure 6-6), with 100% variation in annual rainfall. Infrequent, heavy rainfall does occur and typically results in rather chaotic conditions as Walvis Bay, and other coastal towns, has not been developed to cater for large volumes of storm water. Fog plays a very significant role as source of water for many plants and animals along Namibia's coast and the Namib Desert. Walvis Bay has up to 900 hours of fog per year and it results from the cold Benguela water cooling the humid air above it to such a temperature that the water vapour condenses to form fog and low level clouds (Mendelsohn et al., 2002).

Implications and Impacts

Due to the ability of the strong winds to carry sand as well as mineral ore and chemical dusts to sensitive receptors, wind is an important factor to be considered for the port operations. It has to be given serious consideration in the respective EMPs of Namport and the tenants. Wind is predominantly a strong south-westerly wind with occasional northerly winds. This means dust pollution at the port will normally be carried northeast to receptors such as industries in the town while it will be carried south to south east into town and residential areas during northerly winds. During east winds, contaminants carried by wind will travel into the bay and the lagoon entrance.

In terms of climate change and sea level rise, the port should be safe in the short to medium term future. Considering worst case scenarios in sea level change however, careful planning is needed to ensure the future integrity and safety of the port is maintained.

6.3 HYDRAULIC CONDITIONS

The Benguela Current flows in a north-westerly direction along the Namibian coast. The average speed of the current is between 0.25 and 0.35 m/s (DMC-CSIR, 2010). The most important hydraulic conditions are shown in Table 6-1 (Tractebel, 1998; COWI, 2003a; DMC-CSIR, 2010).

Water enters and exits the bay at the northern tip of Pelican Point (DMC-CSIR 2010). Incoming cold and denser water flows below the outflowing warmer water. Current velocities are on average 0.12 m/s with sporadic maximums up to 0.25 m/s.

A study in 1965 indicated a pre-dominant clockwise circulation of currents in the bay (Tractebel, 1998). This was later confirmed in the COWI (2003b) and DMC-CSIR (2010) studies. Circulation occurs mostly in the upper layers in the water column and is dependent on the wind direction and strength. The current pattern is clockwise in the morning, towards the south of the bay. At Pelican Point, the current flows mostly northward for the whole day. A general northward current is found along the east side of the bay, very close to the coast.

Modelling of water currents after construction of the new container terminal are depicted in Figure 6-7. Note that these are for the entire envisaged container terminal of which the first phase only was recently completed. From this figure it can be seen that, in the vicinity of the commercial harbour weak currents are expected while at the fishing harbour, the current flow is expected to be in a strong north-easterly direction along the quay walls.

Implications and Impacts

Pollutants entering the water at the commercial harbour will result in reduced water quality at sensitive receptors down current, specifically seawater intakes of the fishing industry. This may potentially render the water unsuitable for use. Discharge of effluent from various industries in the area may lead to a greater cumulative impact on the water quality.

Pollutants may also be carried northward up the coastline by currents or by wind in the case of floating pollutants. The newly constructed container terminal offers some protection to the lagoon by providing a physical barrier which would limit pollutants from reaching its entrance channel.

Table 6-1 The oceanographic and hydraulic conditions of the bay and the sea (adapted from Tractebel, 1998; COWI, 2003b; DMC-CSIR, 2010).

Hydrological Conditions	Description
Tides and sea level statistics for Walvis Bay from SA Tide Tables	-Tide Highest Astronomical Tide +1.97 Mean High Water of Spring Tide +1.69 Mean High Water of Neap Tide +1.29 Mean Level +0.98 Mean Sea Level +0.966 Mean Low Water of Neap Tide +0.67 Mean Low +0.27 Lowest Water of Spring Tide Astronomical Tide 0.00
Waves	60 % southerly 23 % south-south-westerly 7 % south-westerly
Ocean current	The Benguela current runs north-westerly along the Namibian coastline at a speed between 0.25 m/s to 0.35 m/s
Tidal current	Negligible

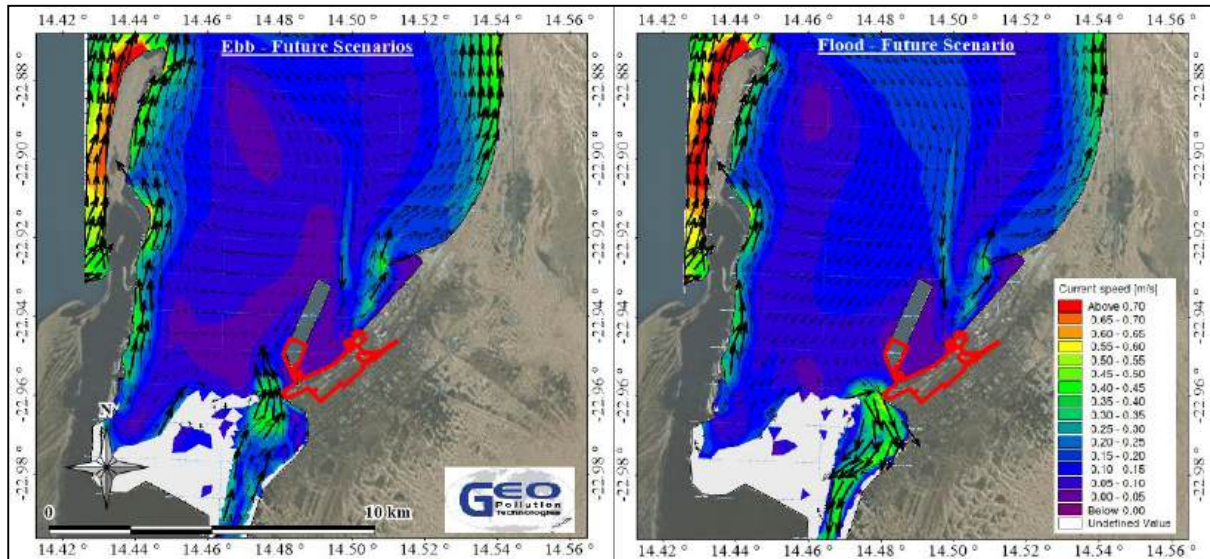


Figure 6-7 Comparison of ebb (top) and flood (bottom) scenarios after the construction of phase 1 and phase 2 of the new container terminal (Source: Hydrodynamic Modelling Report of DMC-CSIR 2010)

6.4 CORROSION ENVIRONMENT

The Namibian coastline is well known for being a very corrosive environment, which may be attributed to the frequent occurrence of salt-laden fog, periodic winds and abundance of aggressive salts (dominantly sodium chloride and sulphates) in the soil. The periodic release of hydrogen sulphide (H₂S) from the ocean is also expected to contribute to corrosion potential. Figure 6-8 presents corrosion comparison data for a number of locations in southern Africa, including Walvis Bay. The combination of high moisture and salt content of the surface soil can lead to rapid deterioration of metal and concrete structures.

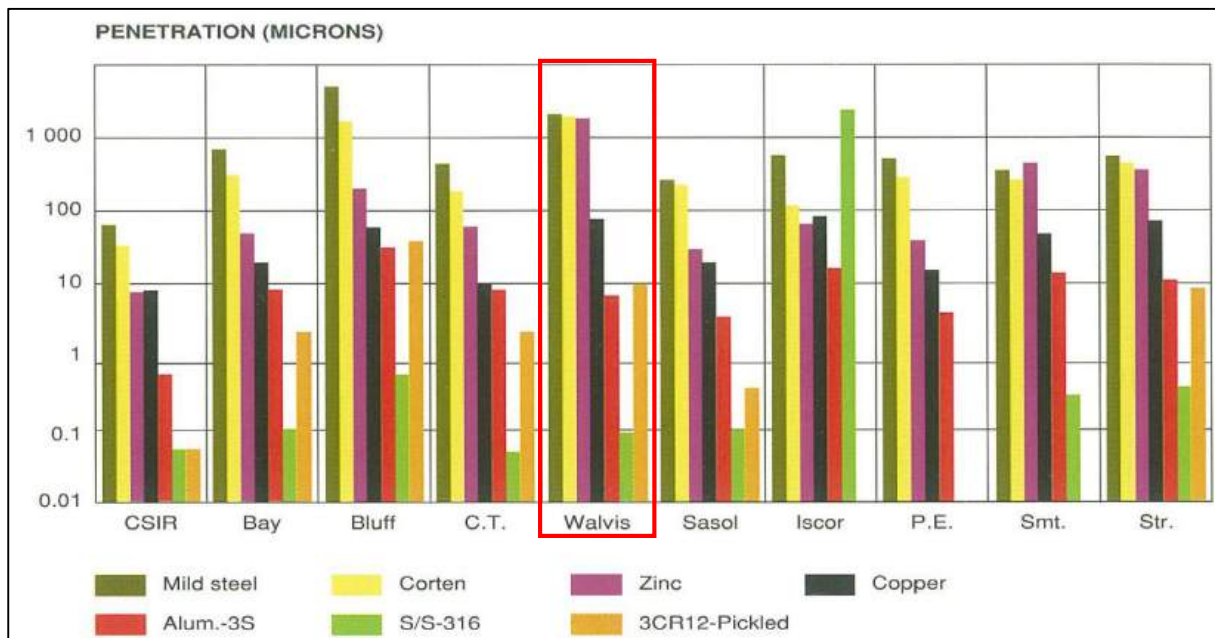


Figure 6-8 Twenty year corrosion exposure results in southern African towns (Callaghan 1991)

Implications and Impacts

Chemical weathering of metal and concrete structures is a concern. Due to the extreme corrosive environment the choice of building materials is important and regular maintenance is essential to maintain the integrity of all infrastructure.

6.5 FAUNA OF THE BAY

6.5.1 Birds

Walvis Bay falls within Important Bird Area (IBA) NA014 and NA013 (Figure 6-9). Important Bird Area NA014 can be regarded as the most important coastal wetland area in southern Africa (Simmons et al. 1999). Of note is the Walvis Bay Lagoon, the salt works and the southern part of the bay west of the lagoon, which are the key components of the 12,600 ha Ramsar site (Wetland of International Importance) (Figure 6-9). It is important both as an over-wintering area for Palaearctic migrant wader species as well as for African species such as Greater and Lesser Flamingos, Great White Pelican and Chestnut-Banded Plovers. The sewerage ponds, situated about 3 km southeast of the study area, are regarded as sensitive artificial wetland. Although a manmade fresh water source, it is an attraction for pelicans and flamingos. The artificial wetland also support 53% of the duck and geese population in the area. The wetland is formed by the constant inflow of semi-purified water and supports extensive stands of reeds. There are flight paths for birds between the sewerage ponds, the lagoon and the offshore bird breeding platform (Ghwano Island) north northeast of the harbour.

Important Bird Area NA013 consist of the coastal area between Walvis Bay and Swakopmund, and is approximately 30 km long and 700 m wide. Bird counts on this exceed 13,000 shorebirds of approximately 31 species, most of which are Palearctic migrants. IBA NAO13 is not only the richest shoreline in terms of shorebird density anywhere in southern Africa, but also supports the densest colony of breeding Damara Terns known (Scott & Scott 2013). Important in this area is the guano platform, or bird island, that provides roosting and breeding sites to large numbers of birds.

Implications and Impacts

The aforementioned areas surrounding the harbour are important bird breeding and bird feeding grounds. Pollution events, specifically oil spills, can have serious negative effects on species like the Bank Cormorant. Bright lights used at night, such as leading lights, has the potential of disorientating birds like flamingos that fly at night. This may lead to collisions with man-made structures.

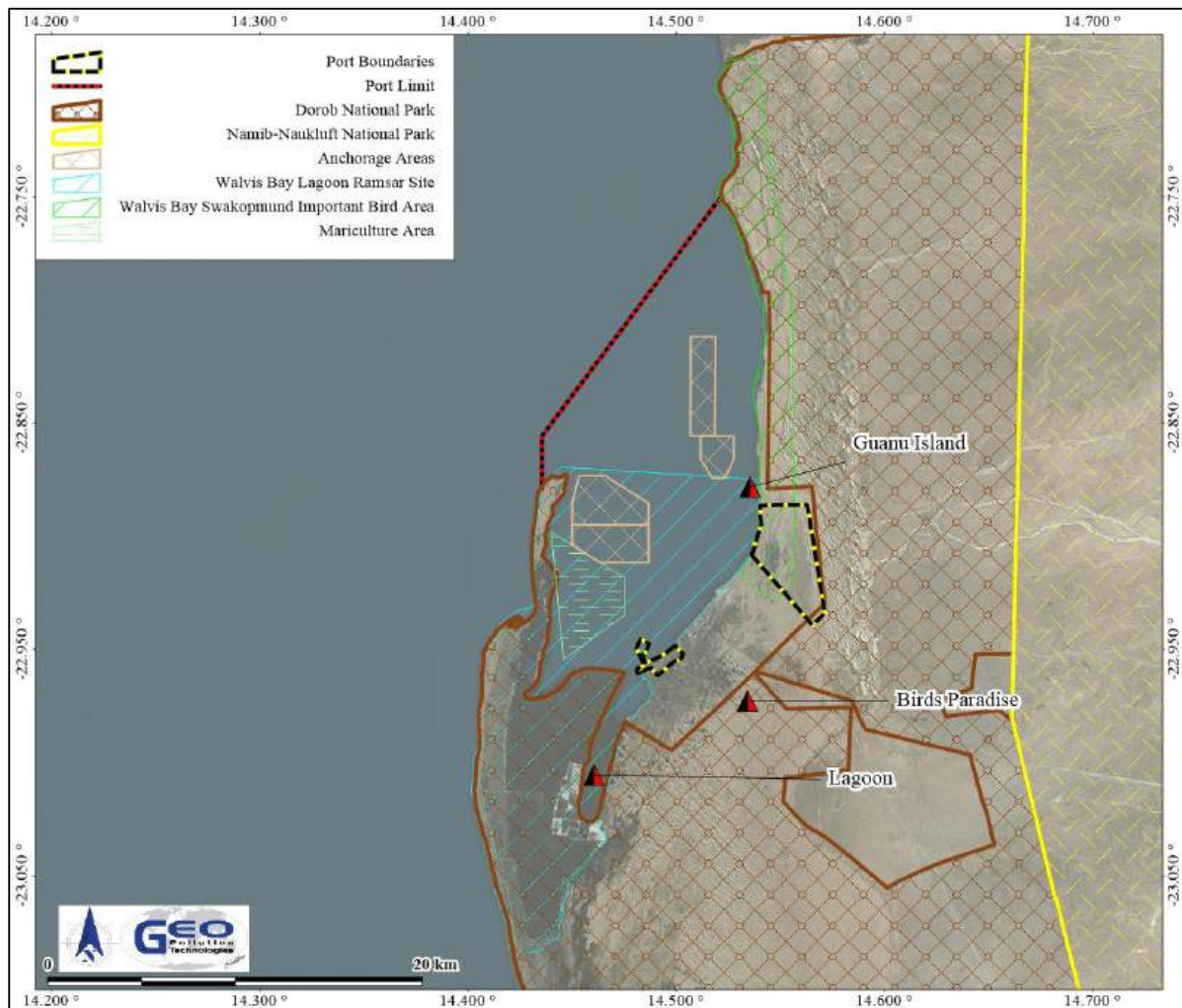


Figure 6-9 Ecologically significant areas

6.5.2 Marine Animals

The marine mammals occurring at various times in the Walvis Bay area are cetaceans: Common Bottlenose Dolphins, the Namibian endemic Heaveside's Dolphins, Dusky Dolphins, Humpback Whales, Southern Right Whales and Pigmy Right Whales; as well as Cape Fur Seals. The Common Bottlenose Dolphin, Heaveside's dolphin and Cape Fur Seal are seen most frequently (daily), the Pigmy Right Whale less frequently (monthly) and the rest infrequently as they are seasonal or infrequent visitors. The Common Bottle Nose Dolphin with a population of less than a 100 individuals is thought of as quite unique in being one of the smallest mammal populations in Africa.

Namibia has quite a large population of Cape fur seals. A large colony are present at Pelican Point. Historically, Cape fur seal populations showed significant declines in population numbers due to overharvesting. However, the Namibian population has shown significant increases over the last two decades with new populations of seals establishing all along the coast.

The Namibian coastal waters are home to five species of turtles and all five species are listed as threatened under the IUCN which is controlled through CITES. The most common occurring turtles near the proposed development are the Leatherback Turtle and Green Sea Turtle, with the Hawksbill Sea Turtle occurring occasionally.

Implications and Impacts

Whales, dolphins and seals are often considered as flagship species to which people attach great inherent value. This is evident from the million dollar tourism industry based on the presence of these mammals. Pollution may have a negative impact on locally occurring populations. Increased ship

traffic may also result in more frequent ship strikes with whales, dolphins and turtles. Excessive noise producing events in the marine environment may also negatively impact on marine mammals. Pollution of the marine environment may negatively impact on all marine animals.

6.6 SOCIO ECONOMIC ENVIRONMENT

It is important that the key socio-economic trends in Walvis Bay are understood as a basis for the EMP.

6.6.1 Population

At local level, the 2011 population census indicates that Walvis Bay has an urban population size of 62,096 (Namibia Statistics Agency, 2011). However, a more recent estimate is in the vicinity of 100,000. Walvis Bay is the most populated town in the Erongo Region, mainly as a result of the harbour and related industries depending on it. This include the fishing sector, an important employment sector. Operations of the port itself, as well as various port linked operations such as the fishing industry operating through the port, contributes significantly towards employment in Walvis Bay and Namibia. The total employment of the fishing sector alone is estimated at 2% of the total Namibian workforce.

Table 6-2 Demographic characteristics of Walvis Bay, the Erongo Region and Nationally (Namibia Statistics Agency, 2011)

	Walvis Bay	Erongo Region	Namibia
Population (Males)	30,500	79,823	1,021,912
Population (Females)	29,000	70,986	1,091,165
Population (Total)	62,096	150,809	2,113,077
Unemployment (15+ years)	30%	22.6%	33.8%
Literacy (15+ years)	99%	96.7%	87.7%
Education at secondary level (15+ years)	86%	71.8%	51.2%
Households considered poor	N/A	5.1%	19.5%

Implications and Impacts

The operations of the port provide direct and indirect employment opportunities. This includes employment within Namport as well as the various industries utilising the port (e.g. mining, fishing, fuel, etc.). The potential significant population growth in Walvis Bay as a result of in-migration of job seekers will add strain to service delivery.

Social ills and the spread of diseases are potential negative social impacts. These are often related to the shipping and trucking industry which are central to the port's continued existence.

6.6.2 Electricity Supply

Over recent years, Namibia and the rest of the Southern African Power Pool (SAPP) have struggled to meet the demand to supply electrical power. In 2021, the total electricity usage in Namibia was 2,297,000 MWh (Figure 6-10).

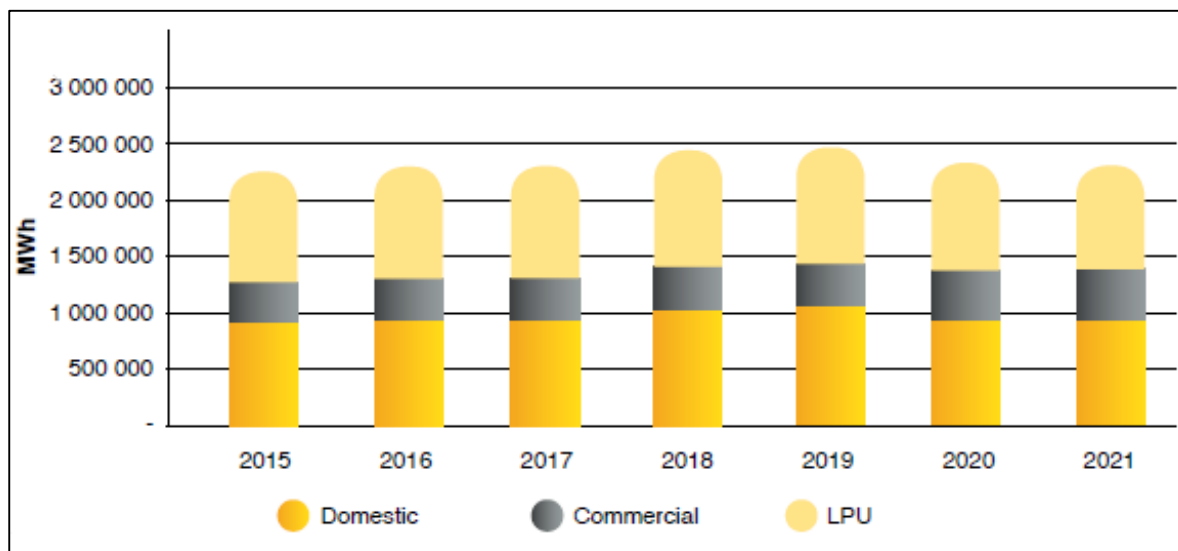


Figure 6-10 Actual electricity usage 2015 to 2021 (ECB Annual Report 2022) (LPU = Large Power User)

Implications and Impacts

The cumulative effect of mining, industrial, tourism and residential development in Namibia will exacerbate the current power shortages unless investment in additional generation capacity is made. It is therefore imperative that NamPower be regarded as one of the key stakeholders in the operation of the port and its future planning.

6.6.3 Water Supply

Potable water is a scarce resource in the central coastal areas. Water is managed as an interconnected system consisting of the Omdel and Kuiseb aquifers, as well as the Orano owned Wlotzkasbaken Desalination Plant (Figure 6-11 and Figure 6-12). In 2020/2021, approximately 23,800,000 m³ of water was supplied to NamWater from the system and it served the local authorities of Walvis Bay, Swakopmund, Arandis and Henties Bay, as well as mines and individual clients (NamWater 2020/21). Current demand estimates exceeds the supply capacity. NamWater however plans to meet the demand by increasing its reliance on desalinated water. (Figure 6-12). Walvis Bay used 6,500,000 m³ water during the 2020/2021 period (NamWater 202/21).



Figure 6-11 Central Namib water supply

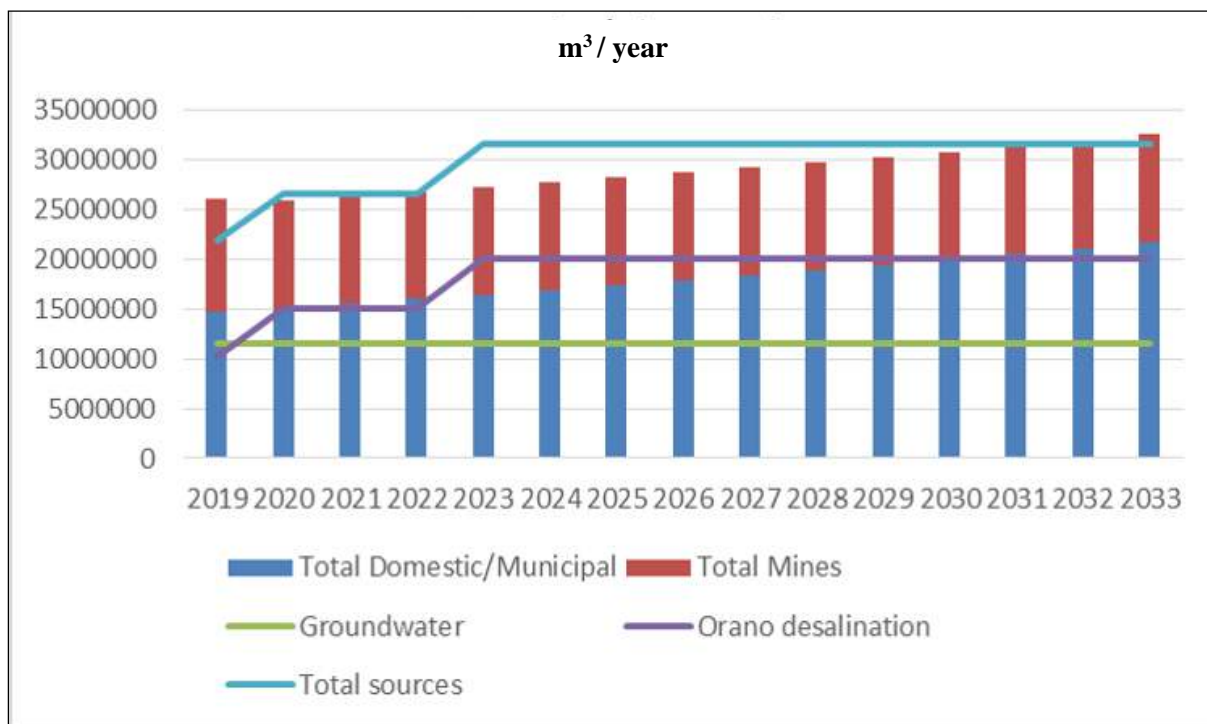


Figure 6-12 Potable water supply and demand statistics for the central Namib area (source: NamWater)

Implications and Impacts

With increased operations in the Port of Walvis Bay, the demand for potable water will increase. The envisioned increase in port activities may increase water consumption through for example dust suppression activities. It is therefore imperative that NamWater be regarded as one of the key stakeholders in the operation of the port and its future planning.

6.6.4 Waste Removal

Namport follows its in-house operating procedures for waste management. Namport's waste management at the commercial harbour is currently outsourced to the Walvis Bay Municipality. Under the IMO all ports should provide sufficient waste disposal facilities for visiting vessels.

General and hazardous waste are removed by the municipality and sorted at the municipal landfill site or hazardous waste site as necessary. Waste is then classified into types such as hazardous, general and recyclable. This may include the following: black sand (oil polluted), boxes, general domestic waste, industrial waste, metals, tyres and other. The municipal hazardous waste disposal facility was constructed in 2002 to aid in the disposal of various hazardous wastes, including contaminated soils and materials and oil sludge.

Future development of the port, increased cargo throughput, as well as an increase in population of the town, will increase the amount of waste generated. The landfill site itself currently has sufficient capacity in terms of the space available, and sand resource to cover the waste, to cope with the expected increases. Planning is more critical for the conveyance efficiencies that will be challenged as volumes and tonnage increase.

Implications and Impacts

Development of the port will only contribute a small portion to the total waste received by the waste disposal site. Domestic waste due to the population increase in Walvis Bay may be likely to have a greater impact. As responsible authority, the Walvis Bay Municipality must ensure that provision is made for waste disposal and sewage removal given the projected growth of the town.

6.6.5 Transport

A network of road transport routes (corridors) connects Walvis Bay to multiple SADC countries such as Angola, Zambia, Botswana and South Africa. The Walvis Bay Corridor Group was established in 2000 as a public-private partnership in order to promote utilisation of these corridors, both on land and by ship to and from Namibian ports. Walvis Bay is accessible from central Namibia by two Roads, the B2 main road and the M36. Walvis Bay is serviced by the second largest airport in Namibia, with daily national flights as well as direct flights to South Africa. The railway line to the port of Walvis Bay is also used for the import and export of cargo such as mining goods, ore, chemicals etc., alleviating the loads on the roads to some extent.

In terms of transportation of cargo by road from the port, all trucks leaving the port must proceed to the Roads Authority weighbridge (Figure 3). Dangerous goods and normal cargo proceed on different routes through Walvis Bay. Dangerous goods access and leave the port through the South Gate and from there proceed down 5th Road to Union Street and to the weighbridge when required. Trucks transporting explosives are also only allowed to operate during certain times of the day, specified by the Ministry of Safety and Security and the local authorities, in order to minimize the risk of potential explosions, and to reduce the injury of people should an explosion occur. Explosive goods are transported in small convoys escorted by the Namibian Police. The chance of an explosion is extremely small if all material safety data sheet regulations are adhered to (Faul & Botha, 2017).

Recent years have seen a significant increase in the export of mineral ores originating not only from Namibia, but also from other southern African countries, via the Port of Walvis Bay. The demand for specifically manganese ore, iron ore and copper concentrates and cathodes have increased significantly.

Implications and Impacts

With increased imports and export via the Port of Walvis Bay the road and rail network to Walvis Bay may be impacted. Cargo may also pose a health and safety risk to nearby receptors. It is therefore imperative that TransNamib and Roads Authority be regarded as key stakeholders in the operation of the port and its future planning.

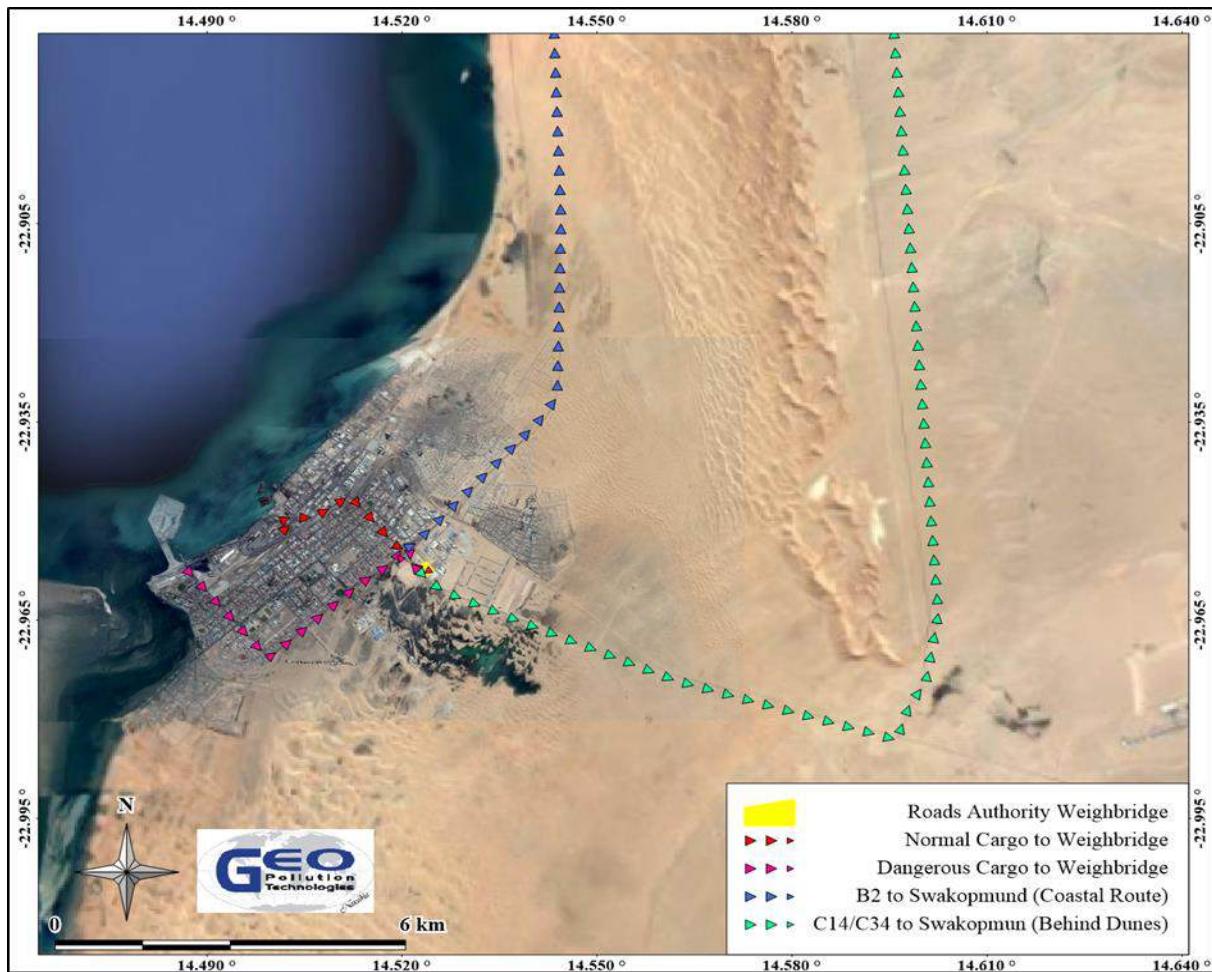


Figure 6-13 Road cargo transport routes (Faul & Botha, 2017)

7 STAKEHOLDER CONSULTATION

Consultation with stakeholders and the public formed an integral part of the environmental assessment processes. Although only an EMP was prepared in support of the 2019 ECC application, public participation in line with the requirements of the EMA was conducted. Identified stakeholders were invited via e-mail and a public meeting was advertised twice in two separate national newspapers. The public meeting was conducted in Walvis Bay.

Views, comments and opinions expressed by I&APs attending the meeting were noted and incorporated into this report. A list of registered stakeholders and I&APs together with proof of the public consultation process as conducted in 2019 are presented in Appendix B and the minutes and attendance lists of the meeting are presented in Appendix C.

Through stakeholder communication and the public meetings, it became evident that some of the major expectations and concerns regarding operations of the Port of Walvis Bay are:

Positive:

- ◆ Jobs are created and contracts sustained through operations of the port and this helps alleviate unemployment and poverty.
- ◆ Options for economic diversification through for example the provision of support services for the port.

Negative:

- ◆ Deterioration of the marine environment and impacts on protected areas through pollution e.g. dust, oil spills and litter from vessels.
- ◆ Impact of noise and dust on residential properties.
- ◆ Deterioration of roads, and traffic impacts due to heavy vehicles accessing and leaving the port.

8 ENVIRONMENTAL MANAGEMENT PLAN

The purpose of this section is to list the most pertinent environmental impacts that are expected from the operational and possible minor construction and maintenance activities of the Port of Walvis Bay. The EMP provides management options to ensure possible negative impacts 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 / in the port. This section of the report can act as a stand-alone document. All Namport personnel and contractors taking part in the operations of the port should be made aware of the contents in this section, so as to plan the operations accordingly and in an environmentally sound manner. In addition, respective tenant EMPs, where required, should take into consideration the conditions stipulated in the overarching Namport EMP and these should be incorporated into lease contracts.

The scope of the EMP is:

- ◆ to include all components of any construction activities (upgrades, maintenance, etc.) and operations of / in the port;
- ◆ to prescribe the best practicable control methods to limit the environmental impacts associated with the operation of the port;
- ◆ to monitor and audit the performance of operational personnel and tenants in applying such controls; and
- ◆ to ensure that appropriate environmental training is provided to responsible operational personnel, including those of tenants.

Various potential and definite impacts will emanate from the construction and operational phases. The majority of these impacts can be mitigated or prevented. Due to the nature of the surrounding areas, cumulative impacts are possible and include surface water contamination, noise and traffic impacts.

8.1 PLANNING

During all phases of planning, operations, construction/maintenance and possible decommissioning of the port, it is the responsibility of Namport to ensure they, and their tenants, remain compliant with all legal requirements. Namport 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 operations, maintenance/construction and possible decommissioning of the port or components of the port:

- ◆ Ensure that all necessary permits from the various ministries, local authorities and any other bodies that govern the operations and construction activities of Namport and the port tenants are obtained and remain valid throughout project execution. These include permits from the Ministry of Mines and Energy for fuel handling and storage and effluent disposal permits from the Ministry of Agriculture, Water and Forestry.
- ◆ Ensure all appointed contractors, employees and tenants enter into an agreement which includes the need to adhere to the stipulations within the EMP. Ensure that the contents of the EMP are understood by the contractors, sub-contractors, employees, tenants and all personnel present or who will be present on site.
- ◆ Make provisions to have an environmental management division to implement the EMP and oversee occupational health and safety as well as general environmental related compliance. Namport's environmental management hierarchy can be seen in Figure 8-1.
- ◆ Have emergency plans, equipment and personnel on site, where applicable, to deal with all potential emergencies. Documents and planning related to this include:
 - EMP / risk management / mitigation / Emergency Response Plan and HSE Manuals;
 - Adequate protection and indemnity insurance cover for incidents;
 - Compliance with the provisions of all relevant safety standards;
 - Procedures, equipment and materials required for emergencies, inclusive of firefighting and oil spill contingency plans;

- ◆ If one has not already been established, establish and maintain a fund for future ecological restoration of the project site should a spill occur or project activities cease and the site is decommissioned and environmental restoration or pollution remediation is required.
- ◆ Establish a reporting system to report on aspects of construction activities, operations and decommissioning as outlined in the EMP.
- ◆ Submit monitoring reports bi-annually, as per the requirements of the Department of Environmental Affairs, to ensure compliance and future environmental clearance certificate renewal.
- ◆ Regularly review and update the EMP and related documentation to include all new developments or projects where applicable.
- ◆ Appoint a specialist environmental consultant to update the EMP and apply for renewal of the environmental clearance certificate prior to expiry.

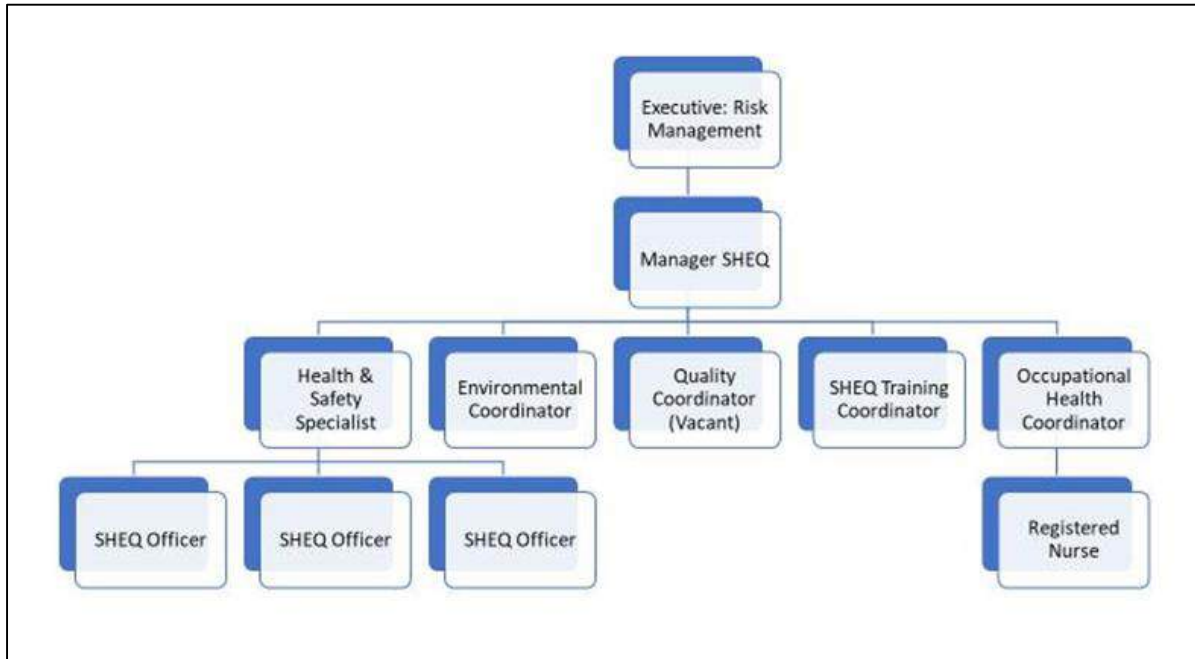


Figure 8-1 Environmental management hierarchy of Namport

8.2 EMPLOYMENT

Skilled and professional labour are required for the operations of the port. Employment should preferably be sourced locally while skilled labour/contractors should only be sourced from elsewhere if not locally available.

Desired outcome: Provision of employment to local Namibians.

Actions

Mitigation:

- ◆ 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.
- ◆ Local businesses and industries should be supported.

Responsible Body:

- ◆ Proponent
- ◆ Contractors
- ◆ Tenants

Data Sources and Monitoring:

- ◆ Namport Operating and System Procedures.
- ◆ Bi-annual summary report based on employee records.

8.3 SKILLS, TECHNOLOGY AND DEVELOPMENT

The nature of port operations is such that training of the workforce is essential. Skills are transferred to an unskilled workforce for general tasks. The technology required for port-related operations continuously improve and new technological developments are introduced. Development of people and technology are key to the economic development of the town and region.

Desired outcome: To see an increase in skills levels of local Namibians, as well as development and technological advancements in the port-related industry.

Actions

Mitigation:

- ◆ 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.
- ◆ Training must be provided to Namibians to employ a predominantly Namibian workforce.
- ◆ Skills development, training and improvement programs to be made available as identified during performance assessments.
- ◆ Employees to be informed about parameters and requirements for employer references upon employment.

Responsible Body:

- ◆ Proponent
- ◆ Tenants
- ◆ Contractors

Data Sources and Monitoring:

- ◆ Namport Operating and System Procedures.
- ◆ Record should be kept of all assessments of personnel and requirements for training that are identified.
- ◆ All training provided must be recorded and kept on employee files.
- ◆ Ensure that all training is certified, or managerial references provided (proof provided to the employees), inclusive of training attendance, completion and implementation.
- ◆ Bi-annual summary report based on all training related records kept.

8.4 REVENUE GENERATION

The port supports the fishing and mining industry, two of the major national revenue sources for Walvis Bay and Namibia. The Port of Walvis Bay also acts as a gateway for international trade for Namibia and the neighbouring landlocked countries. Export and import of products via the port as well as other port services such as stevedoring and ship repair further contributes to local, regional and national income.

Desired outcome: Contribution to National Treasury through taxes, as well as, the local and regional economy.

Actions

Mitigation:

- ◆ The port should be promoted as part of the vision of Namibia in becoming a logistics hub.
- ◆ Local businesses and industries should be supported as far as is practically possible.
- ◆ Sound financial accounting processes and adherence to all laws pertaining to the payment of revenue.

Responsible Body:

- ◆ Proponent
- ◆ Tenants
- ◆ Contractors

Data Sources and Monitoring:

- ◆ Namport Operating and System Procedures.
- ◆ Financial related legislation governed by the Ministry of Finance.
- ◆ Bi-annual summary report based on contributions towards the national economy.

8.5 DEMOGRAPHIC PROFILE AND COMMUNITY HEALTH

Developments attract job seekers and this may lead to in-migration and growth in informal settlements. The various components of the port are reliant on a relatively large labour force during operational and construction phases. Being an existing port, a change in the demographic profile of the local community is not likely in the immediate future. Community health impacts may include factors such as communicable disease like HIV/AIDS and alcoholism/drug abuse. This is typically associated with trucking and shipping (transport of products to international markets). The increase in passenger liners to the port may lead to an increased amount of tourist visiting the town. The presence of foreign people in the area may potentially increase the risk of criminal and socially/culturally deviant behaviour.

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

Actions:

Prevention:

- ◆ Employ only local people from the area, deviations from this practice should be justified appropriately.
- ◆ Provide suitable housing for employees of the port, especially when employing non-local staff.
- ◆ Adhere to all municipal by-laws relating to environmental health which includes but is not limited to sanitation requirements.
- ◆ Ensure the port is sufficiently equipped to handle the number of tourist disembarking passenger liners.
- ◆ Provide measures to manage informal traders from targeting tourists originating from the port.

Mitigation:

- ◆ Educational programmes for employees on HIV/AIDs and general upliftment of employees' social status.
- ◆ Appointment of reputable contractors.

Responsible Body:

- ◆ Proponent
- ◆ Tenants

Data Sources and Monitoring:

- ◆ Namport Operating and System Procedures.
- ◆ Port inspection sheets and checklists for all areas, which may present environmental health risks, kept on file.
- ◆ Bi-annual summary report based on educational programmes and training conducted.
- ◆ Bi-annual report and review of employee demographics.

8.6 TRAFFIC

An increase in traffic to and from the port may increase congestion in the town and port, increase the risk of accidents, result in deterioration of road surfaces, and cause vibration related damage to historic buildings. With the construction of the new container terminal, container traffic is expected to increase significantly. An increase in passenger liners through the Port of Walvis Bay is also expected. This, along with traffic increases, may also result in an increase in informal traders in the streets, resulting in safety risks and further traffic related impacts. This may also negatively impact on the tourism industry. With the increase in rail transport to and from the port, traffic may be blocked at rail level crossings. Train and vehicle accidents may also occur.

Currently the Port of Walvis Bay is serviced mainly by two separate gates (Figure 4). The main gate and the container gate, with a third gate situated at the northern end of 5th Road (South Gate) used for abnormal loads which include the trucks transporting salt, explosives and construction vehicles during the construction of the new container terminal. With the current and future increase in imports and exports through the port, the volume of vehicles moving through these gates may congest the related streets. Further, due to the way in which the town developed around the port, access to the port is only possible through the town. This presents problems in terms of traffic and its associated impacts like noise, traffic congestion and potential accidents.

To manage this, Namport proposed the design and construction of a new gate complex, to include the following main components: 1) the closure of the existing container gate; 2) the conversion of the existing main gate into an exit gate only; 3) construction of a multi-lane entrance gate; and 4) construction of a truck staging/queuing area. See *Faul A, Botha P. 2017. Environmental Management Plan for the Design and Construction of the New Main Gate Complex and Truck Staging Area in the Port of Walvis Bay* for more detail.

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

Actions

Prevention:

- ◆ In cooperation with the local authority, erect clear signage regarding restricted areas and roads, access and exit points to the port, speed limits, traffic rules, rail level crossings, etc.
- ◆ New and existing operations in the port, which result in high traffic volumes, must be assessed and suitable preventative and mitigation measures explored. This includes rail transport impacts.

Mitigation:

- ◆ Trucks should not be allowed to obstruct any traffic or access points to any other businesses and facilities on the routes through Walvis Bay.
- ◆ If any extraordinary traffic impacts are expected, traffic management should be performed in conjunction with the local traffic department.
- ◆ Should hazardous cargo be transported, cognisance should be taken of Namport's operating procedures for Handling and Storage of Dangerous Cargo. This will involve planning of the route as well as arrangements with the Municipality and the Ministry of Safety and Security.
- ◆ The placement of signs to warn and direct traffic will mitigate traffic impacts.
- ◆ The development of the proposed new main gate complex and truck staging area is expected to mitigate traffic impacts.

Responsible Body:

- ◆ Ministry of Works and Transport
- ◆ Proponent
- ◆ Tenants
- ◆ Contractors

Data Sources and Monitoring:

- ◆ Namport Operating and System Procedures.
- ◆ Transport Regulations.
- ◆ Any complaints received regarding traffic issues should be recorded together with action taken to prevent impacts from repeating itself.

- ◆ A report should be compiled every 6 months of all incidents reported, complaints received, and actions taken.

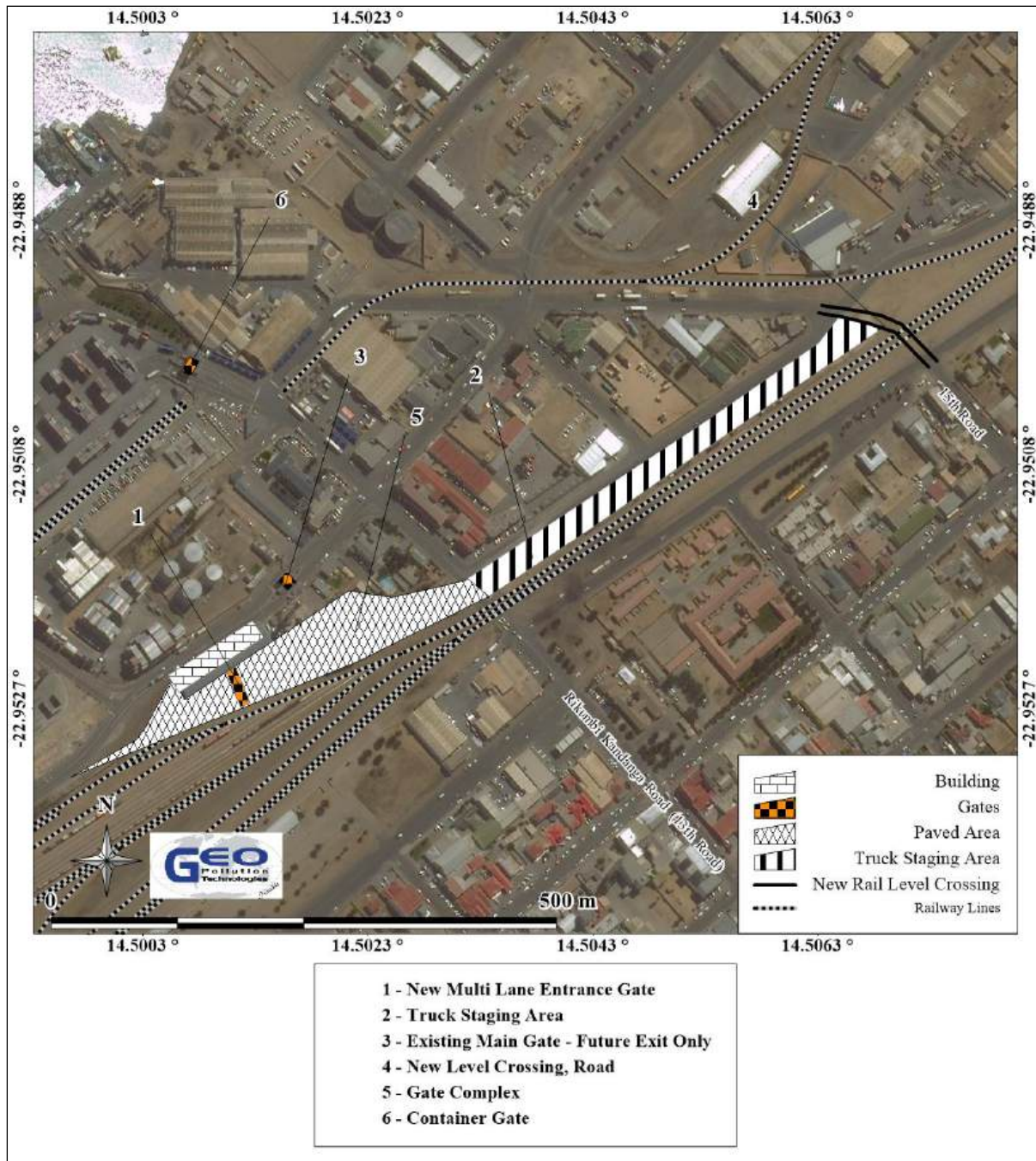


Figure 8-2 Proposed gate development (Faul & Botha, 2017)

8.7 HEALTH, SAFETY AND SECURITY

Every activity associated with the port is reliant on human labour and therefore exposes individuals to health and safety risks. Injuries can occur due to incorrect lifting of heavy equipment and materials, falling from heights, stacked items tipping over, getting caught in moving parts of machines, accidents involving forklifts and vehicles, exposure to hot and cold temperatures, grit blasting activities and inhalation of grit blasting dust and paint fumes. Some chemicals handled and stored in the port are hazardous with inherent health risks to personnel on site when inhalation, accidental ingestion, eye or skin contact occurs. Security risks are related to unauthorized entry, theft and sabotage.

Asbestos may be present in old buildings. These present a health risk, especially during demolition.

Mining concentrate and ore that is transported via the port may contain materials that have inherent health risks. This may include for example asbestos. Materials may also have radioactive properties.

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

Actions

Prevention:

- ◆ All Health and Safety standards specified in the Labour Act should be complied with.
- ◆ Consider the World Health Organisation: International Health Regulations (2005) with specific reference to Section 4 (no. 3): “Strengthen public health security in travel and transport”.
- ◆ Strict security control at the entrance gates including alcohol testing and access permit checks.
- ◆ For any mining ore that will be transported via the port, the health related risks should be assessed, including whether asbestos is present or whether the ore has radioactive properties. Liaison with the Ministry of Health and Social Services and the National Radiation Protection Authority is essential.
- ◆ Clearly label dangerous and restricted areas as well as dangerous equipment and products.
- ◆ Clearly demarcate areas where access is prohibited without special permission or areas where specific personal protective equipment (PPE) is required.
- ◆ Provide all employees with required and adequate PPE where needed.
- ◆ Equipment and products on site must be placed in a way that does not encourage criminal activities (e.g. theft).
- ◆ Ensure that all personnel receive adequate training on operation of equipment and handling of hazardous substances.
- ◆ Always follow safe stacking and storage methods.
- ◆ Implementation of maintenance register for all equipment, fuel and hazardous substance storage areas.
- ◆ Lockout / tagout procedures should be followed where applicable.
- ◆ Compile and maintain hazard analysis and critical control points (HACCP) program for all activities.

Mitigation:

- ◆ Selected personnel should be trained in first aid and a first aid kit must be available on site. The contact details of all emergency services must be readily available.
- ◆ Implement and maintain an integrated health and safety management system, to act as a monitoring and mitigating tool, which includes: colour coding of areas, operational, safe work and medical procedures, permits to work, emergency response plans, housekeeping rules, MSDS's and signage requirements (PPE, flammable etc.).
- ◆ Security procedures and proper security measures must be in place to protect workers and clients.
- ◆ Strict security that prevents unauthorised entry into restricted areas.
- ◆ Asbestos structures, if any, must be replaced or made inert. All asbestos demolitions must be performed by accredited contractors.

Responsible Body:

- ◆ Proponent
- ◆ Tenants
- ◆ Contractors

Data Sources and Monitoring:

- ◆ Namport Operating and System Procedures
- ◆ Applicable legislation and regulations (e.g. health act, labour act, atomic energy act regulations, etc., World Health Organisation (WHO) guidelines)
- ◆ Any incidents must be recorded with action taken to prevent future occurrences.
- ◆ A report should be compiled every 6 months of all incidents reported. The report should contain dates when training was conducted and when safety equipment and structures were inspected and maintained.

8.8 FIRE AND EXPLOSION

Operational and construction activities may increase the risk of the occurrence of fires. Fuel stored in the bulk fuel storage facilities, in tanker ships and in vessels presents a fire and explosion risk. Similarly do chemicals imported and exported in bulk via the port such as sulphur and mining explosives. Other flammable chemicals may also be on site in small quantities. The first line of defence against a fire will therefore have to be Namport crew and tenants, as there may be a delay in the response time of the firefighting department.

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

Actions:

Prevention:

- ◆ Ensure all fuel and chemicals are handled, transported and stored according to MSDS instructions.
- ◆ Incompatible chemicals must be segregated at all times.
- ◆ Maintain regular site, mechanical and electrical inspections and maintenance.
- ◆ Clean all spills / leaks without delay.
- ◆ Follow SANS standards for operations and maintenance of fuel handling and storage.

Mitigation:

- ◆ A holistic fire protection and prevention plan is needed. This plan must include an emergency response plan, firefighting plan and spill recovery plan and should be developed in conjunction with all tenants and the firefighting department of the port and the Municipality of Walvis Bay.
- ◆ All tenants must submit, to Namport, emergency response plans for firefighting procedures related to the products they handle. These should be concise, to the point and immediately accessible and should outline the firefighting methods relevant to the specific products that may be on fire. This will enable Namport and the town's firefighting department to respond to a fire with the correct firefighting techniques and materials. This is crucial since incompatible materials may aggravate fires and lead to explosions. Where toxic gasses may be generated the appropriate PPE must be recommended.
- ◆ Firefighting methods and products must be compatible with the type of fire (i.e. electrical, hydrocarbon, chemical, etc.).
- ◆ For fuel storage and handling, special notice must be taken of the regulations stipulated in sections 47 and 48 of the Petroleum Products and Energy Act, 1990 (Act No. 13 of 1990).
- ◆ Maintain firefighting equipment, good housekeeping and personnel training (firefighting, fire prevention and responsible housekeeping practices).

Responsible Body:

- ◆ Municipal firefighting department
- ◆ Proponent
- ◆ Tenant
- ◆ Contractors

Data Sources and Monitoring:

- ◆ Namport Operating and System Procedures
- ◆ A register of all fire related incidents must be maintained on a daily basis. This should include measures taken to ensure that such incidents do not repeat themselves.
- ◆ A report should be compiled every 6 months of all incidents reported. The report should also contain dates when fire drills were conducted and when fire equipment was tested and training given.

8.9 AIR QUALITY AND DUST

In the Port of Walvis Bay, the major contributor to deteriorated air quality is windblown dust generated during ship repair procedures (grit blasting and spray painting) and during chemical and mining ore (e.g. manganese) handling. This is aggravated during periods of strong wind (41 to 61 km/h), which sometimes occurs in Walvis Bay. Dust may pose health risks to workers and nearby residents, but can also impact on the surrounding industries such as contaminating salt stored in bulk in the harbour, as well as impact on seawater users such as the fishing industry due to deteriorating seawater quality. Deteriorated seawater quality can in turn impact on marine ecology as well as the mariculture industry.

Desired Outcome: To limit generation of airborne dust and thus prevent health impacts, contamination of fish from fishing vessels, and deterioration of the marine environment.

Actions

Prevention:

- ◆ Implement dust suppression methods where applicable (e.g. wetting with water, covering loads, netting, etc.) Care should however be taken to limit the volume of water used for dust suppression.
- ◆ All bulk cargo on trucks and trains entering and exiting the port must be covered to contain dust.
- ◆ Any loading / offloading activities must cease if dust becomes airborne. Loading / offloading can continue after mitigation measures to reduce dust generation/transport have been implemented, or when wind speeds decrease.
- ◆ Cut-off wind speeds should be provided for grit blasting and spray painting activities. Activities can continue after mitigation measures to reduce dust generation/transport have been implemented, or when wind speeds decrease.

Mitigation:

- ◆ All staff working in dust producing environments must wear dust masks and related PPE.
- ◆ A complaints register should be kept for any air quality related issues and mitigation steps taken to address complaints where necessary.

Responsible Body:

- ◆ Proponent
- ◆ Tenants
- ◆ Contractors

Data Sources and Monitoring:

- ◆ Namport Operating and System Procedures.
- ◆ Any complaints received regarding dust or other air quality impacts should be recorded with notes on action taken.
- ◆ Real time wind direction and velocity monitoring which can be linked to air quality monitoring should be initiated.
- ◆ Dust (air quality) monitoring must be conducted to determine the extent and source of dust pollution.
- ◆ All information and reporting to be included in a bi-annual report.

8.10 NOISE

The site is situated in an industrial area where no limitations on the operating hours exist. Noise pollution will exist due to heavy vehicles accessing the site for delivery and collection of products, the use of forklifts (audible warning signs), loading and offloading of ships, handling of containers, construction activities, etc. Noise may impact workers and personnel on site as well as neighbouring and nearby residential areas and tourist establishments.

Offshore construction activities like pile driving for jetty construction may impact on marine mammals if any are nearby.

Desired Outcome: To prevent any nuisance to neighbours, hearing loss in workers and negative impacts on marine mammals.

Actions

Prevention:

- ◆ Follow Labour Act Regulations - Noise Regulations (Regulation 197), and / or WHO guidelines on maximum noise levels (Guidelines for Community Noise, 1999), to prevent hearing impairment for workers on site and a nuisance for nearby residential areas / neighbours.
- ◆ Minimize or prevent noise producing activities and plan to restrict these to daytime as far as practically possible. Limit construction work to daylight hours.
- ◆ All machinery must be regularly serviced to ensure minimal noise production.
- ◆ The use of low frequency white noise or flashing lights should be considered instead of audible high frequency warning signals for moving forklifts or trucks.

Mitigation:

- ◆ Erect temporary or permanent noise barriers / sound baffles, should the need arise.
- ◆ Placement of noise producing equipment, e.g. compressors, in such a way that noise is directed away from receptors and / or are attenuated.
- ◆ Where possible, use infrastructure to act as noise barriers to sensitive environments.
- ◆ Hearing protectors as standard PPE for workers in situations with elevated noise levels.
- ◆ Obtain specialist input on marine mammal impacts and mitigation thereof when underwater noise will be generated (e.g. pile driving). This may include choosing of methods or equipment that with the least noise generating characteristics.

Responsible Body:

- ◆ Proponent
- ◆ Tenants
- ◆ Contractors

Data Sources and Monitoring:

- ◆ Namport Operating and System Procedures.
- ◆ Labour Act Regulations - Noise Regulations (Regulation 197)
- ◆ WHO Guidelines.
- ◆ Records to be kept where noise surveys or medical examinations (of labourers) are required as per the Labour Act.
- ◆ Maintain a complaints register.
- ◆ Bi-annual report on complaints and actions taken to address complaints and prevent future occurrences.

8.11 WASTE PRODUCTION

Various waste streams are produced in the port. Waste may include hazardous waste (fuels, oils, hydraulic fluids, chemicals, batteries, contaminated soil or water such as bilge water, etc.), non-hazardous wastes (metal, plastic, paper, glass and other forms of domestic waste, etc.), construction wastes (building rubble), sewage and effluents. Hazardous waste poses a threat to workers on site and to the marine and coastal environment. Plastics and other waste entering the ocean and environment, especially due to illegal dumping from vessels, may harm marine as well as land based animals when washing ashore. This can also result in a visual impact that may affect the tourist industry.

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

Actions

Prevention:

- ◆ Waste reduction measures should be implemented and all waste that can be re-used / recycled must be kept separate.
- ◆ Ensure adequate waste storage facilities (bins, drums and / or bags) are available and that these are clearly labelled to allow for segregation of wastes into different classes.
- ◆ Education of personnel is paramount to create awareness for the proper handling and disposal of waste.
- ◆ Ensure waste cannot be blown away by wind.
- ◆ Prevent scavenging (human and non-human) at waste storage sites.
- ◆ Contaminated bilge water, wash water, etc. should be treated as potentially hazardous waste that must be disposed of at appropriately classified facilities.
- ◆ Ships at anchor in the port area must be monitored for any illegal dumping of wastes.
- ◆ Waste in the port area, in the harbour water, and on the coastline within port limits must be regularly removed and disposed of.
- ◆ No waste streams may be directed into the ocean without a disposal permit and then only under conditions imposed by the permit.

Mitigation:

- ◆ Liaise with the municipality or private contractors regarding handling of different waste streams.
- ◆ 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) that are collected by authorised and licenced waste collection and handling contractors.
- ◆ See the MSDS available from suppliers for disposal of contaminated products and empty containers.
- ◆ Waste water and sewage must be disposed of according to their relevant permit requirements.

Responsible Body:

- ◆ Proponent
- ◆ Tenants
- ◆ Contractors

Data Sources and Monitoring:

- ◆ Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter.
- ◆ Namport Operating and System Procedures.
- ◆ Municipality and / or Ministry of Agriculture Water Affairs and Forestry permit requirements for sewage and effluents.
- ◆ Conduct monthly sampling and analysis of both industrial effluents released into the ocean (e.g. fish factories) and sewage. This is to ensure compliance to the Model Sewerage and Drainage Regulations or relevant effluent disposal permits issued by the Municipality or Ministry of Agriculture Water Affairs and Forestry. Should compliance be ascertained, the monitoring regime can be adapted to bi-annually. Where non-compliance is found measures should be implemented / enforced to rectify the situation.
- ◆ Copies of valid permits of authorised hazardous waste collection and handling companies to be kept on file.

- ◆ A register of hazardous waste disposal activities should be kept (e.g. disposal certificates).
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.

8.12 GROUNDWATER, SURFACE WATER AND SOIL CONTAMINATION

Operations in the port entail the storage and handling of various potential pollutants that may present a contamination risk of the environment. These include hydrocarbon and synthetic fuels, oils and hydraulic fluids, chemicals, mineral ores, waste products not contained, effluent discharges, etc.

Spillages such as heavy fuel oil and diesel from vessels within port limits when anchored or docked, as well as during offloading, loading and maintenance of vessels further poses a risk to the environment.

Contamination of surface water within the harbour may in return lead to ecological impact, especially of the nearby Walvis Bay Lagoon, as well as significant economic impacts on various industries depending on seawater for their operations, such as the fishing industry, mariculture and the salt works.

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

Actions

Prevention:

- ◆ Spill control structures and procedures related to fuel installations including the bulk fuel storage facility must be in place according to SANS standards or better.
- ◆ All fuel installations and tanks must conform to relevant SANS standards.
- ◆ Regular inspection and maintenance of pipelines, sumps, separators, vehicles, forklifts, cranes, etc. should take place.
- ◆ Any leaks detected must be repaired without delay and any maintenance that must occur within the port area must be performed on spill containment slabs or over drip trays.
- ◆ Hazardous waste and contaminated water and soil must be disposed of at an appropriately classified facility or by approved contractors. Hazardous waste disposal certificates must be kept on file.
- ◆ Warehouses for mineral ore and chemical storage must remain closed with adequate dust suppression systems to limit or prevent the formation of windblown dust.
- ◆ Adequate dust suppression for bulk storage of mineral ores in uncovered stockpiles.
- ◆ Any mineral ore and / or chemicals trapped in tyres must be cleaned prior to vehicles leaving warehouses or bulk storage areas of these products. The use of rumble grids and physical inspection of tyres should be implemented.
- ◆ For bulk bags the stacking heights must be observed to prevent bag damage and product spillage.
- ◆ All hazardous substances, such as sulphuric acid and fuel, must be stored in a properly bunded area to prevent any spillages from entering the surrounding environment.

Mitigation:

- ◆ Any fuel spillage of more than 200 litre must be reported to the Ministry of Mines and Energy.
- ◆ Emergency response plans and spill contingency plans must be in place and include all fuels, chemicals or hazardous substances being handled. In the case of tenants, copies of these documents must be submitted to Namport.
- ◆ Spill containment equipment such as booms and absorbents must be readily accessible. Training in the use of these are paramount. This is also important for any bunkering events within port limits.
- ◆ During bulk fuel offloading, temporary booms must be installed around the offloading area to prevent the spread of fuel, should a spill or leak occur.
- ◆ Any mineral ore, chemical dust (e.g. sulphur), hydrocarbon spills or any other hazardous substance spill on the quay area must be cleaned and disposed of to prevent it from entering the ocean either by wind or water runoff.
- ◆ For any chemicals that may form part of effluent to be discharged into the ocean, environmental effects must be considered and alternative chemicals investigated if needed. Effluent must meet standards as per the effluent discharge permits.
- ◆ Use of reputable and well trained contractors are essential.

Responsible Body:

- ◆ Proponent
- ◆ Tenants
- ◆ Contractors

Data Sources and Monitoring:

- ◆ Namport Operating and System Procedures
- ◆ Petroleum Products Act regulations, SANS, MARPOL, National Marine Pollution Contingency Plan, MSDS, and related legislation.
- ◆ Water Resources Management Act (2013).
- ◆ Conduct monthly sampling and analysis of both industrial effluents released into the ocean (e.g. fish factories) and sewage. This is to ensure compliance to the Model Sewerage and Drainage Regulations or relevant effluent disposal permits issued by the Municipality or Ministry of Agriculture Water Affairs and Forestry. Should compliance be ascertained, the monitoring regime can be adapted to bi-annually. Where non-compliance is found measures should be implemented / enforced to rectify the situation.
- ◆ A surface water quality monitoring programme should be implemented to ensure water quality in and around the harbour does not deteriorate and that the habitat in the Walvis Bay Lagoon is protected.
- ◆ A report should be compiled bi-annually of all spills or leakages reported and any monitoring results. The report should contain the following information: date and duration of spill, product spilled, volume of spill, remedial action taken, comparison of pre-exposure baseline data (previous pollution conditions survey results if available) with post remediation data (e.g. soil/groundwater hydrocarbon concentrations) and a copy of documentation in which the spill was reported to Ministry of Mines and Energy (where required for hydrocarbon spills).

8.13 ECOLOGICAL IMPACTS

Being in an urban environment, ecological impacts from the port would mostly be limited to the marine environment. Impacts include deterioration of water and sediment quality as a result of pollutants, introduction of alien species through ballast water or biofouling on ships' hulls, mammal strikes by ships, underwater noise and potential habitat loss during additional construction events.

Operation of the port can however impact nearby ecologically sensitive areas such as the lagoon (Ramsar site) and protected areas along the shore. On land, birds flying at night (e.g. flamingos) can get disorientated by bright lighting and this can result in bird strikes with manmade structures.

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

Actions.

Mitigation:

- ◆ Report any extraordinary fauna sightings to the Ministry of Environment and Tourism and / or Ministry of Fisheries and Marine Resources.
- ◆ Mitigation measures related to waste handling, air quality and the prevention of groundwater, surface water and soil contamination should limit ecosystem and biodiversity impacts.
- ◆ Ensure waste cannot be blown away by wind.
- ◆ The establishment of habitats and of roosting and nesting sites for birds in the port area must be prevented where possible.
- ◆ Fish wastes should be managed effectively to discourage scavenging by birds (and other marine animals).
- ◆ To prevent bird collisions with structures at night, all lights used at the site should be directed downwards to the working surfaces and only be switched on when and where necessary.
- ◆ Namport to enforce ballast water exchanges by ships at required distances from the coast to prevent alien species introduction.
- ◆ No hull cleaning of foreign vessels that may contain alien species may take place inside the water in the port, unless measures are in place to prevent waste and live species from entering the environment.
- ◆ Regular visual monitoring of coastal areas within port limits, as well as at the lagoon area, should be conducted to ensure no waste originating from port related operations ends up in these environments.

Responsible Body:

- ◆ Proponent
- ◆ Tenants
- ◆ Contractors
- ◆ Shipping lines

Data Sources and Monitoring:

- ◆ Namport Operating and System Procedures
- ◆ MARPOL, IMO and related legislation
- ◆ Ships logs on ballast water exchanges
- ◆ A surface water quality monitoring programme should be implemented to ensure water quality in and around the harbour does not deteriorate and that the habitat in the Walvis Bay Lagoon is protected.
- ◆ All information and reporting to be included in a bi-annual report.

8.14 MARICULTURE AND FISHING INDUSTRY IMPACTS

Deterioration of water and sediment quality as a result of pollutants may impact the mariculture and fishing industry. These include sewage and any other potential waste streams from vessels anchored in the harbour. Many pollutants may through bioaccumulation and / or biomagnification increase in concentration in the flesh of molluscs like mussels and oysters. These include heavy metals like lead and cadmium, which can result in health impacts in consumers of the products, and bans on the export of the mariculture products to international markets. Significant pollution by chemicals may reach mariculture areas and can have detrimental effects resulting in financial losses.

In turn, the mariculture industry may impact on the port by reducing available areas for ship anchoring and navigation.

The fishing harbour is situated downstream of the commercial port: fish processing facilities within the harbour extracts and utilises seawater. Contamination of seawater may therefor render the water unsuitable which may have great financial implications for these facilities.

Desired Outcome: To avoid pollution of the marine environment and subsequent impacts on the mariculture and fishing industry.

Actions.

Mitigation:

- ◆ Mitigation measures related to waste handling, air quality and the prevention of water contamination should limit marine impacts and thus impacts on the mariculture and fishing industry.
- ◆ Installation/Implementation of a warning system for mariculture farms and fish processing facilities to notify them of any spills or pollution events that occurs in port limits.
- ◆ Continuous liaison between Namport and the mariculture industry to allow both parties to continue with their relevant activities.

Responsible Body:

- ◆ Proponent
- ◆ Tenants
- ◆ Contractors

Data Sources and Monitoring:

- ◆ Namport Operating and System Procedures.
- ◆ MARPOL, IMO and related legislation
- ◆ A surface water quality monitoring programme should be implemented to ensure water quality in and around the harbour does not deteriorate and that the habitat in the Walvis Bay Lagoon is protected.
- ◆ All information and reporting to be included in a bi-annual report.

8.15 VISUAL IMPACT

This is an impact that not only affects the aesthetic appearance, but also the integrity of the port and all its infrastructure. This includes all port related infrastructure and properties, such as the truck waiting area along 5th Street, the Syncrolift and the Waterfront.

Desired Outcome: To minimise aesthetic impacts associated with the port and all related infrastructure.

Actions

Prevention:

- ◆ Regular waste collection and disposal, good housekeeping and routine maintenance on infrastructure will ensure a low visual impact is maintained.
- ◆ Ships at anchor in the port area must be monitored for any illegal dumping of waste that may have a visual impact.

Mitigation:

- ◆ Routine maintenance on infrastructure and buildings will ensure low visual impact as well as that the longevity of structures are maximised.
- ◆ Waste in the port area and on the coastline must be regularly removed.

Responsible Body:

- ◆ Proponent
- ◆ Tenants
- ◆ Contractors

Data Sources and Monitoring:

- ◆ Namport Operating and System Procedures
- ◆ A report should be compiled every 6 months of all complaints received and actions taken.

8.16 IMPACTS ON UTILITIES AND INFRASTRUCTURE

Any damage caused to existing infrastructure and services like water, telecoms or electricity where present.

Desired Outcome: No impact on utilities and infrastructure.

Actions

Prevention:

- ◆ Appointing qualified and reputable contractors is essential.
- ◆ Properly documenting all construction activities undertaken in the port through ‘as-built’ drawings and associated documents.
- ◆ The contractor must determine exactly where services amenities and pipelines are situated before construction / maintenance commences (utility clearance e.g. ground penetrating radar surveys).
- ◆ Liaison with the municipality and suppliers of services is essential.

Mitigation:

- ◆ Emergency procedures available on file.

Responsible Body:

- ◆ Proponent
- ◆ Tenants
- ◆ Contractors

Data Sources and Monitoring:

- ◆ Namport Operating and System Procedures.
- ◆ Municipality of Walvis Bay
- ◆ Drawings indicating where all linear infrastructure, reticulation, etc. is present throughout the port area.
- ◆ A report should be compiled every 6 months of all incidents and actions taken.

8.17 SEABED SCOURING AND MAINTENANCE OF WATER DEPTH

Through sedimentation/siltation the entrance channel and areas adjoining the quay and jetties will become shallower with time. This poses a risk to vessels as it can lead to vessel grounding. Ships with deeper drafts are more at risk.

In addition scouring of the seabed can be caused by vessel propellers. This is typically more pronounced adjacent to quay walls.

Desired Outcome: Water depth maintained at safe vessel manoeuvring depths.

Actions

Prevention:

- ◆ Scour protection should be installed where necessary to protect the seabed from scouring and to prevent siltation of adjacent berthing areas.
- ◆ Dredging activities must comply with the capital and maintenance dredging EIA and EMPs of Namport.
- ◆ Regular water depth inspections / surveys.

Mitigation:

- ◆ Emergency procedures available on file.
- ◆ Regular maintenance dredging to be performed when necessary.

Responsible Body:

- ◆ Proponent

Data Sources and Monitoring:

- ◆ Namport Operating and System Procedures
- ◆ A report should be compiled of all surveying data and actions taken.

8.18 IMPACTS ON SERVICES

Expansion of port operations such as the new container terminal and passenger terminal has the potential to place additional pressure on the supply of potable water and electricity as well as the provision of services by the port and authorities (e.g. public ablution facilities, waste removal, sewage handling and transport infrastructure).

Desired Outcome: No water and electricity shortages or interruptions. Regular and efficient supply of services. Road and rail networks suitable to handle traffic generated.

Actions

Prevention:

- ◆ Regular and pre-emptive communication and updates provided to the suppliers of services to ensure they plan for, and upgrade where necessary, for additional pressure expected from port operations.
- ◆ Investigating alternative sources, modes of transport, disposal options, etc., should it become necessary (e.g. desalination plants and renewable energy).
- ◆ Ensure sufficient supply of facilities for and management of passenger vessels docking and disembarking at the port.

Mitigation:

- ◆ Water and electricity saving strategies to be employed at all times (even if shortages are not expected).

Responsible Body:

- ◆ Proponent
- ◆ Tenants
- ◆ Contractors

Data Sources and Monitoring:

- ◆ Various national and local master plans and structure plans.
- ◆ Maintain a database of water and electricity use, waste production, transport figures, etc. (these will also guide future planning).
- ◆ Bi-annual reporting.

8.19 VESSEL NAVIGATION

Accurate navigation of ships is crucial to prevent accidents and ships running aground. This is especially important at the tanker berths and oil jetty.

Desired Outcome: No accidents and damage to vessels and infrastructure.

Actions

Prevention:

- ◆ All navigational aids such as leading lights, lighthouses, buoys, etc. to be in place, maintained and in working order.
- ◆ Maintain communication between port control and all seagoing traffic.
- ◆ Suitably qualified skippers and crew.
- ◆ Installation of a VTS (Vessel Tracking System) or in-situ weather/wave monitoring.

Mitigation:

- ◆ Emergency procedures available on file.

Responsible Body:

- ◆ Proponent
- ◆ Tenants
- ◆ Contractors

Data Sources and Monitoring:

- ◆ Namport Operating and System Procedures
- ◆ IMO Guidelines on Marine Security
- ◆ A report should be compiled every 6 months of all incidents and actions taken.

8.20 HERITAGE

Protection of cultural resources falls under the National Heritage Act (Act 27 of 2004) - Ministry of Youth, National Service, Sport and Culture. Walvis Bay and its surroundings are regarded as having global archaeological importance due to very well preserved evidence of early contact between indigenous Namibian communities and sea-faring traders. Construction activities may lead to the discovery / accidental destruction of such archaeological or culturally important sites. This includes shipwrecks that may be present within port limits.

Historic buildings and sites may be present in and around the town, any activities in the port and transport activities through town, that is expected to cause significant vibrations in close proximity to these facilities, must be assessed by a specialist prior to onset of the activity.

Desired Outcome: Prevent the disturbance of any site or object of national heritage or archaeologically importance.

Actions

Prevention:

- ◆ Appoint reputable contractors.
- ◆ If any archaeological or culturally important sites are expected within areas where construction activities will occur, a survey of the site should be performed prior to construction.

Mitigation:

- ◆ If such a site or any other archaeologically important artefact is found during the development phase any work in that area must be halted and the relevant authorities must be informed.
- ◆ If human remains or burial sites are uncovered, the matter has to be immediately reported to the nearest Namibian Police Office. No work may continue at the site until the relevant authority has issued permission to do so. Secondly, the National Monuments Council dealing with heritage should be informed.
- ◆ Construction may only continue at that location once permission has been granted.
- ◆ For vibration impacts on old buildings a specialist consultant must advise on potential impacts and mitigation measures.

Responsible Body:

- ◆ Proponent
- ◆ Tenants
- ◆ Contractors

Data Sources and Monitoring:

- ◆ National Heritage Act.
- ◆ Record of any discoveries and proof of notifications to authorities on file.
- ◆ Specialist reports.
- ◆ All information and reporting to be included in a final report.

8.21 CUMULATIVE IMPACT

Cumulative impacts are mostly related to the operations of the various port tenants and the fishing industry. As the port is developed, optimized and promoted as a venue for export and import of bulk, break bulk and containerised cargo, impacts can be expected to increase. This includes traffic, noise and possible pollution of the environment. Additional activities in the harbour, such as blasting and ship repair activities, the abstraction of seawater and disposal of effluent, and various small scale dredging activities may lead to the degradation of water quality within the harbour. Also, additional pressure on services provision will realise.

Desired Outcome: To minimise cumulative impacts associated with the port and related operations.

Actions

Mitigation:

- ◆ It is recommended that Namport and all industries in the area, utilising seawater and discharging effluent into the ocean, implement a joint monitoring program to ensure the water quality of the harbour does not deteriorate. The same holds for air quality (dust) and noise monitoring where required.
- ◆ Regular planning and communication with suppliers of services and updating of master plans are essential.
- ◆ Reviewing biannual and annual reports for any new or re-occurring impacts or problems would aid in identifying other cumulative impacts and help in planning if the existing mitigations are insufficient.

Responsible Body:

- ◆ Proponent
- ◆ Tenants
- ◆ Contractors
- ◆ Fishing industry
- ◆ Authorities (Municipality, Roads Authority, NamWater, NamPower, TransNamib, etc.)

Data Sources and Monitoring:

- ◆ Namport Operating and System Procedures.
- ◆ Master plans and annual reports.
- ◆ Monitoring reports.
- ◆ Annual summary report based on all other impacts must be created to give an overall assessment of the impact of the port and its tenants.

9 LEGAL REGISTER

Table 9-1 presents an overview of the specific legal documents, as discussed in section 5, and their link to the various impacts. It should be noted that the various acts may have regulations and various amendments that must be taken into consideration.

Table 9-1 Legal register and applicability to impacts

	General (All Impacts)	Employment	Skills, Technology and Development	Revenue Generation	Demographic Profile and Community Health	Traffic	Health, Safety and Security	Fire	Air Quality and Dust	Noise	Waste Production	Groundwater, Surface Water and Soil Contamination	Ecological Impacts	Mariculture Impacts	Visual Impact	Impacts on Utilities and Infrastructure	Seabed Scouring and Maintenance of Water Depth	Impacts on Services	Vessel Navigation	Heritage
The Namibian Constitution	x																			
Environmental Management Act	x																			
Namibia Ports Authority Act	x																			
Territorial Sea and Exclusive Economic Zone of Namibia	x																			
Marine Resources Act											x	x	x							
Dumping At Sea Control Act											x	x	x							
Petroleum Products and Energy Act							x	x	x		x	x	x							
Prevention and Combating of Pollution of the Sea by Oil Act											x	x	x							
Aquaculture Act														x						
Marine Traffic Act							x				x	x	x						x	
Water Resources Management Act												x	x	x				x		
Atomic Energy and Radiation Protection Act							x													
Explosives Act						x	x	x					x			x				
Road Traffic and Transport Act						x	x									x				
National Heritage Act of Namibia									x						x	x				x

	General (All Impacts)	Employment	Skills, Technology and Development	Revenue Generation	Demographic Profile and Community Health	Traffic	Health, Safety and Security	Fire	Air Quality and Dust	Noise	Waste Production	Groundwater, Surface Water and Soil Contamination	Ecological Impacts	Mariculture Impacts	Visual Impact	Impacts on Utilities and Infrastructure	Seabed Scouring and Maintenance of Water Depth	Impacts on Services	Vessel Navigation	Heritage
Local Authorities Act	x																			
Regional Councils Act	x																			
Public and Environmental Health Act					x		x		x	x										
Labour Act		x	x				x			x										
Atmospheric Pollution Prevention Ordinance							x		x											
Hazardous Substances Ordinance							x		x		x	x	x	x						
Pollution Control and Waste Management Bill (draft document)											x	x	x	x	x					
Integrated Coastal Zone Management Bill													x	x						
Draft Wetland Policy													x	x						
National Marine Pollution Contingency Plan											x	x	x	x						
Benguela Current Convention				x									x							
Convention on Biological Diversity													x							
The Convention on Wetlands of International Importance especially as Waterfowl Habitat (Ramsar Convention)											x	x	x							
UN Convention for the Prevention of Marine Pollution from Land-based Sources											x	x	x							
International Convention on Oil Pollution Preparedness, Response and Cooperation											x	x	x							
International Convention for the Prevention of Pollution from Ships (MARPOL)											x	x	x							
United Nations Convention on the Law of the Sea													x						x	

	General (All Impacts)	Employment	Skills, Technology and Development	Revenue Generation	Demographic Profile and Community Health	Traffic	Health, Safety and Security	Fire	Air Quality and Dust	Noise	Waste Production	Groundwater, Surface Water and Soil Contamination	Ecological Impacts	Mariculture Impacts	Visual Impact	Impacts on Utilities and Infrastructure	Seabed Scouring and Maintenance of Water Depth	Impacts on Services	Vessel Navigation	Heritage
Convention on the Prevention of Marine Pollution by Dumping Wastes and Other Matter (London Convention)											x	x	x							
IMO Guidelines on Marine Security: International Ship and Port Facility ISPS Code	x																			
IMO Biofouling Guidelines													x	x						
Abidjan Convention													x							
Convention Concerning the Protection of the World's Cultural and Natural Heritage																				x
Stockholm Declaration on the Human Environment		x	x		x															

10 NAMPORT OPERATING AND SYSTEMS PROCEDURES AND PLANS

Namport has a number of operating and systems procedures as well as emergency response plans. Some of these are relevant to Namport only, while other are relevant to tenants as well. These documents have to undergo periodic review to ensure continued relevance to existing and potential new activities within the port. All tenants should be provided with those documents relevant to them in order to allow them to incorporate the requirements into their own management plans and operating procedures.

The following list of system procedures are Namport specific:

- ◆ Aspects Identification and Prioritization
- ◆ Control of Documents
- ◆ Emergency Preparedness and Response Plan for the Port of Walvis Bay
- ◆ Environmental Objectives Targets and Programmes
- ◆ External Documents
- ◆ Internal and External Communication
- ◆ Internal Audits
- ◆ Legal and other Requirements
- ◆ Management Review
- ◆ Marine Accident and Incident Reporting
- ◆ Monitoring & Measurements
- ◆ Non Conformance, Quality Improvement, Non-conforming Service & Customer Complaint - Investigation and Reporting
- ◆ Record keeping
- ◆ Training and Development

A list of operating procedures can be found in Table 10-1.

Table 10-1 Namport operating procedures

Operating Procedure	Applicability			
	Port of Walvis Bay	Port of Lüderitz	Namport	Tenants / Port Users / Contractors
Assurance that external mobile cranes entering the port are mechanically sound - Prevention of oil leakage	x	x	x	x
Ballast water declaration	x	x	x	x
Berth clearance	x	x	x	x
Bunkering of fuel from tankers	x	x	x	x
Capital and maintenance dredging	x	x	x	x
Cargo empty rail returns	x	x	x	x
Cleaning of equipment wash slab	x	x	x	x
Demolition and renovation	x	x	x	x
Discarding of fluorescent tubes	x	x	x	x
Employee induction	x	x	x	
Equipment washing	x	x	x	x
Fuelling of vehicles with mobile fuel tank	x	x	x	x
Fuelling of vehicles	x	x	x	x
Fuelling of vessels	x	x	x	x
Grit blasting	x		x	x
Handling and storage of dangerous cargo	x	x	x	x
Handling of asbestos material	x	x	x	x
Handling of dry bulk	x	x	x	x
Handling of oil and chemicals in drums	x	x	x	x
Housekeeping during loading and off-loading at commercial cold storage	x	x	x	x
Invoicing miscellaneous revenue services	x	x	x	
Material safety data sheets and purchasing of chemicals	x	x	x	x
Measuring equipment	x	x	x	
Monitoring of oil separators	x	x	x	x
Namport waste management plan	x	x	x	x
New projects	x	x	x	x
OHSE instructions for Syncrolift users	x		x	x
Painting of wharf cranes	x	x	x	x
Pilot pilotage	x	x	x	
Pilot-pilot passage, berthing and unberthing	x	x	x	
Pollution tariff	x	x	x	x
Purchasing	x	x	x	
Reach Stacker operation to aid the minimization of hydraulic pipe bursts and mitigation of pollution.	x	x	x	x
Safety, Health & Environmental Recognition Program	x	x	x	
Small craft harbour ship repairs	x		x	x
Syncrolift monitoring electricity meters for illegal connection	x		x	
Syncrolift convenience	x		x	
Syncrolift operations	x		x	
Syncrolift undocking inspection list	x		x	
Usage of cargo mobile harbour appliances	x	x	x	x
Usage of reach stackers and mobile cranes	x	x	x	x
Usage of tarpaulins netting during loading off-loading of loose articles or bulk commodities.	x	x	x	x
Water sampling for chemical analysis	x	x	x	
Water treatment (Syncrolift)	x		x	x
Reefer monitoring procedure Lüderitz Port		x	x	x
Oil Spill Contingency Plan Lüderitz		x	x	x
Oil Spill Contingency Plan Walvis Bay	x		x	x

11 EXISTING ENVIRONMENTAL ASSESSMENTS AND PLANS

The following existing documentation are relevant to the Port of Walvis Bay and its current and future potential impacts on the environment:

- ◆ **National Marine Pollution Contingency Plan (2017):** Sets forth and defines Namibia’s oil and hazardous and noxious substances (HNS or chemicals) pollution preparedness and response system. Replaces the National Oil Spill Contingency Plan of 2007. Its purpose is to:
 - Set out national policies, principles and arrangements for the management of maritime environmental emergencies including potential and actual oil and chemical pollution in the marine environment.
 - It provides for a comprehensive response to all oil and chemical pollution emergencies in the marine environment regardless of how costs might be attributed or ultimately recovered.
- ◆ **Integrated Urban Spatial Development Framework for Walvis Bay (IUSDF, 2014):** The Integrated Urban Spatial Development Framework for Walvis Bay (IUSDF) has been completed. The overall vision presented by the IUSDF is to transform Walvis Bay from being a combined tourism and semi-industrial port town to being the primary industrial city in Namibia. The IUSDF further sets out the following objectives for the commerce and industrial sector of the town:
 - To create and nurture a healthy business environment for the town;
 - To facilitate and control the supply of business and industrial land in accordance with market needs;
 - To improve the quality and reliability of utility services to the business sector;
 - To create opportunities for industrial investment, especially for energy efficient and clean processing and manufacturing activities;
 - To integrate informal business areas into the structure, administration, and control of the town;
 - To create opportunities for small businesses.

Furthermore the IUSDF aims to ensure that appropriate levels of environmental management is enforced for all developments in Walvis Bay.

- ◆ **The Integrated Environmental Policy of Walvis Bay (2008):** indicates the directions that the Municipality of Walvis Bay moves towards in order to fulfil its responsibilities to manage the environment of Walvis Bay together with the town’s residents and institutions.

It is a statement of purpose that commits the municipality to certain principles, policy directions, and tools. It serves as an adaptive, flexible framework for a series of sectoral strategies and action plans, these inspired by visions of a better environmental future.

The Policy is directed at assuring Walvis Bay’s environment is properly managed in the long run for the benefit of all its residents and its visitors. The policy has identified various priority areas such as Managing Walvis Bay’s Ramsar Wetland, reducing pollution in the bay, protecting threatened species and improving air quality.

- ◆ **The Master Plan for Development of an International Logistics Hub for SADC Countries in the Republic of Namibia (NPC 2015):** Aims at developing a logistics hub in Namibia and highlights the Port of Walvis Bay as a key role in this venture. Recognizes the importance of adequate transport infrastructure linking the Port of Walvis Bay to potential markets.
- ◆ **Strategic Environmental Assessment (SEA) for the coastal areas of the Erongo and Kunene Regions. Namibian Coast Conservation & Management Project – NACOMA (Skov et al. 2011):** It highlight the importance of the coastal areas of the Kunene and Erongo regions, with specific focus on development zones, protected areas and biodiversity. The aim of the SEA is to guide decision making at regional and national levels on “biodiversity conservation, land use

planning, and social and economic development planning in the Kunene and Erongo coastal zones.”

- ◆ **Rapid Assessment of the Development Plans, Biodiversity Conservation Projects and Socio-Economic Situation of the Namib Coastal Regions (NACOMA 2004):** Highlights the importance of tourism and mariculture, as well as protected areas in Walvis Bay and surroundings and acknowledges the potential impacts of increased movement and industrial and infrastructure development on environmentally sensitive areas.
- ◆ **Strategic Environmental Assessment for the New Port of Walvis Bay SADC Gateway (Botha et al. 2014):** The SEA guides decision makers to make informed decisions ensuring that environmental and possibly other sustainability aspects are considered effectively for the expansion of the port through the Port of Walvis Bay SADC Gateway. The SEA looks at the current development scenario of the Port of Walvis Bay and possible constraints, benefits and impacts that might emanate from the planned Port of Walvis Bay SADC Gateway development.

12 IMPLEMENTATION OF THE EMP

This EMP is meant to be an overarching document that encompasses all potential environmental impacts that can potentially originate from any port related activities and provides a general guideline for mitigating the impacts of operations in the port. The EMP must become a contractual obligation that all Namport employees and contractors, as well as tenants and their respective contractors, must adhere to. However, since a port is a dynamic enterprise, which is continuously changing as demands for port related services change, regular updating of the EMP may be required. This will allow for the addition of management actions and strategies that are not currently included in the EMP.

It should be realised that from port management side (Namport), not all impacts with their management actions might be relevant. Similarly not all impacts may be relevant to each of the tenant operations. Therefore, each tenant is responsible for extracting from the overarching EMP, those impacts and management actions relevant to their operations. These should then be elaborated on to be specific to the nature of their own operational activity impacts. Depending on the nature and magnitude of operations of each tenant, respective EMPs will vary in size and complexity. Monitoring of impacts and management actions is essential to allow for future environmental clearance applications and to assess the environmental responsibility of Namport and its tenants.

It is recommended that an environmental committee be established that includes the environmental managers of Namport as well as a representative from each of the tenants of the port and possibly their major contractors. The committee will be responsible for providing feedback on the practicality of implementing the EMP, as well as possible improvements and changes to be considered. Furthermore the committee can investigate a joint, holistic environmental monitoring programme that will ensure long term, scientific environmental monitoring. This will be a proactive approach that will highlight environmental problems originating as a result of the cumulative impacts of port operations in time and allow the development of proactive and sensible mitigation measures.

13 CONCLUSION

The Port of Walvis Bay plays a consequential role in the livelihoods of a significant portion of the town’s population and contributes to revenue generation for the National Treasury. The efficient and effective operations of the Port of Walvis Bay makes it a preferred port of call in southern Africa. It has therefore long been an objective of Namport and related stakeholders to constantly develop and expand the port. The importance of port expansion has been highlighted in various National plans and programmes and is seen as a central part of developing Namibia as a logistics hub in southern Africa. Due to a shortage of available space surrounding the port, alternative locations may be required for future large scale development, which in return may lead to additional environmental impacts. Additional potential constraints relate to ecological sensitivity and limits to water and electricity supply.

The development of an overarching EMP for the Port of Walvis Bay is important in terms of managing the environment in light of existing and potential future operations of the port. It is imperative that all stakeholders involved in operations within the port has access to and adheres to the conditions as

stipulated in the EMP. If properly implemented, this will help to minimise adverse impacts on the environment. Where impacts occur, immediate action must be taken to reduce the escalation of effects associated with these impacts. To ensure the relevance of this document to the specific stage of projects being implemented in the port, it needs to be reviewed and updated throughout all phases.

The Environmental Management Plan should be used as an on-site reference document during all phases of the proposed project, and auditing should take place in order to determine compliance with the EMP. Parties responsible for transgression of the EMP should be held responsible for any rehabilitation that may need to be undertaken. Monitoring reports must be kept available for possible submission with future renewal applications for environmental clearance certificates.

As landowner it is important that Namport keep relevant tenants responsible for pollution clean-ups as the landowner can ultimately be held responsible where such tenants move away. It is important that clean-up goals are agreed on where clean-ups / rehabilitation is needed and that proper monitoring be conducted to ensure clean-up goals are met within reasonable timeframes.

14 REFERENCES

- BirdLife International 2018. *Phoeniconaias minor*. The IUCN Red List of Threatened Species 2018: Downloaded from <https://www.iucnredlist.org/species> on 02 May 2019.
- Botha, P., Hooks, P. & Faul, A. 2013; Update of the Environmental Impact Assessment for the Capital and Maintenance Dredging of Walvis Bay Harbour. Geo Pollution Technologies.
- Faul A, Botha P, Coetzer W. 2022. Update of the Environmental Impact Assessment for the Capital and Maintenance Dredging of Walvis Bay Harbour.
- Botha, P., Faul, A., Hooks, P., Brews, L., November 2016. Strategic Environmental Assessment for the New Port of Walvis Bay SADC Gateway. Geo Pollution Technologies.
- Consulting Services Africa, Lithon Project Consultants, Laquar Consultants. 2009. Sea-level rise in Namibia's coastal towns and Wetlands: projected impacts and recommended adaptation strategies. Final Report.
- COWI, 2003a. Walvis Bay Local Agenda 21 Project Namibia. Coastal Area Study. Hydrodynamic Modelling. Danida 2003.
- COWI, 2003b. Walvis Bay Local Agenda 21 Project Namibia. Coastal Area Study. Marine Pollution. Danida 2003.
- Digital Atlas of Namibia. Unpublished Report. Ministry of Environment and Tourism
- DMC-CSIR, (Delta Marine Consultants & Centre for Scientific and Industrial Research), 2010. EIA Study for Strategic Expansion of the Walvis Bay Container Terminal. Final Environmental Impact Report and Environmental Management Plan.
- Faul A, Botha P. 2017. Environmental Management Plan for the Design and Construction of the New Main Gate Complex and Truck Staging Area in the Port of Walvis Bay. Geo Pollution Technologies.
- Faul A, Botha P. 2017. Environmental Impact Scoping Assessment for the Handling and Transport of Chemicals from the Port of Walvis Bay.
- Geological Survey of Namibia (2018): Strategic Environmental Management Plan (SEMP) for the Central Namib Uranium Mining Province, 2017 Annual Report. Ministry of Mines and Energy, Windhoek, Republic of Namibia
- Government of the Republic of Namibia . 2014. *2011 Housing and Population Census Regional Profile, Erongo Region*. Windhoek: Namibia Statistics Agency.
- HATCH. 2014. The World Bank Group & Electricity Control Board of Namibia National Integrated Resource Plan Task 5 Draft Report. H339187-0000-90-124-0006. Conclusions and Documentation of the Outcome and Results
- <http://www.namport.com.na/content/show.php?m=2> accessed 23 June 2014
- Namibia Statistics Agency. 2011. Namibia 2011 Population and Housing Census Main Report.
- Namibia Statistics Agency. 2012. Namibia household Income and Expenditure Survey 2009/2010.
- NamWater 2020/2021. Integrated Annual Report 2020/21. https://namwater.com.na/images/docs/NamWater_2020_Report_2.pdf
- Nickel Development Institute. 2014 <https://www.nickelinstitute.org/media/1613/11024-guidelines-for-corrosion-prevention>. Accessed 05/28/2019
- NPC. 2015. The Master Plan for Development of an International Logistics Hub for SADC Countries in the Republic Of Namibia.
- Republic of Namibia. 2017. National Marine Pollution Contingency Plan. <http://www.mwt.gov.na/documents/98944/100185/NMPCP/a77e4969-8f7c-4661-b4ea-ddc39ed56694>

Scott, RM & Scott, HA. 2013. Environmental Impact Assessment for the New Port of Walvis Bay Marine Petroleum Product Import/Export Terminal and Pipeline. Bird specialist report. Unpublished report, African Conservation Services cc, Swakopmund Namibia.

Skov H., Bloch,R., Stuer-Lauridensen F., Uushona, D. 2007. Strategic Environmental Assessment (SEA) for the coastal areas of the Erongo and Kunene Regions. Compiled for Namibian Coast Conservation & Management Project – NACOMA.

Simmons, R.E. Barnes, K.N. Jarvis, A.M., Robertson, A. 1999. Important Bird Areas in Namibia. Research Discussion Paper, Number 31. Ministry of Environment and Tourism.

Tractebel, 1998. Environmental Impact Assessment study for the dredging of the port of Walvis Bay - Final Report. February 1998.

Urban Dynamics. 2014. Integrated Urban Spatial Development Framework for Walvis Bay. Walvis Bay: Municipality of Walvis Bay.

Appendix A: Namport Properties




Appendix B: Public Participation 2018

Registered Interested and Affected Parties

Name	Position/Department	Organisation
Deville Dreyer	Environmental Health Practitioners	Municipality of Walvis Bay
Berdine Botha	Environmental Health Practitioners	Municipality of Walvis Bay
Dennis Gurirab	Environmental Health Practitioners	Municipality of Walvis Bay
Johann Essmann		Roads Authority
Bertram Geiger		Roads Authority
Manfred Burth		Roads Authority
Eugene de Paauw	Specialist Road Legislation, Advice & Compliance	Roads Authority
Rodney Braby	Regional Technical Adviser	Marine Spatial Management and Governance Project - MARISMA
NP du Plessis		NamWater
Jolanda Murangi		NamWater
Simon Elwen	Director	Namibia Dolphin Project
Monique Laubscher	Field Technician	Namibia Dolphin Project
Taamba Iithete		
Luwenele Nangombe		
Lima Maartens	Environmental Practitioner	LM Environmental Consulting
Ann Scott		African Conservation Services CC
Mike Scott		African Conservation Services CC
Michael Rumsey		K&A Partnership
Victor Libuku	Biologist	Ministry of Fisheries and Marine Resources
Anja Kreiner	Senior Fisheries Biologist	Ministry of Fisheries and Marine Resources
Paul van der Merwe		Private
Tari van der Merwe	Operations Manager	Walvis Bay Diving
Tim Eiman	Coordinator EMS/QMS	Namport
Maria Katoole Amunyela	National Advisor on Marine Spatial Planning	GIZ
Shaheed Saban	Draughtsman	Namport / Resident
Pilar Veiga	Chairperson	Walvis Bay Port Users Association
Detective Kalimbo	Unit Commander	Namibian Police Force
Jackson Kezumo	Commander	Namibian Navy
Verdun van der Watt	Manager	Wesbank Transport
Nik Magadhi	Operations Manager	Sharaf Shipping Agency
Henok Shikongo	Engineer	Municipality of Walvis Bay
David Uushona		Municipality of Walvis Bay
Melody Lilungwe	Intern	Albatross Task Force - Namibia Nature Foundation
Samantha Matjila	Project Coordinator	Namibia Nature Foundation
Titus Shaanika		Namibia Nature Foundation
Tim Einman	EMS Coordinator	Namport
M. Kanime	Environmental Coordinator	EBHN
Nangula Amatsi	Environmental Coordinator	Municipality of Walvis Bay
Magreth Kachuka	Environmental Intern	Municipality of Walvis Bay
Clarence Beukes	Explosives Control	Nampol

Migal Kambatuku	Explosives control	Nampol
Ferdinand Hamukwaya		Ministry of Fisheries and Marine Resources
Izak de Wit	SHERQ	Walvis Bay Bulk Terminal
Warrick Williams		EBHN
Tashiya Tuyenikelao	Police Office	Nampol Port
Joyce Mukumbi	MHRS	Namport
SN Kalulu	MERW	Namport
Stefanus Gariseb	SHEQ Manager	Namport
Phillip Coetsee	General Manager	WFS Manica Group
J. Ferreira	GM	WBBT
Andre Burger		Municipality of Walvis Bay / Resident
Fennie Kalimbo		Nampol
Shelley Mulenamaswe	Change Management Practitioner	Namport
Ismet Kara	Technical Manager	Africa Union Cargo
R. Wolters	Secretary	Confederation of Namibian Fishing Association
A. Vilbert	Operations Manager	Transworld Cargo Namibia (Pty) Ltd
M. Orffer	Operations Manager	Transworld Cargo Namibia (Pty) Ltd
J. Joubert	Supervisor	Kraatz Marine (Pty) Ltd
Kobie Potgieter	General Manager	Kraatz Marine (Pty) Ltd
R. vd Westhuizen	Supervisor	Marine Industrial Coatings
Bernette Louw	Manager	Namib Marine Services (Pty) Ltd
Gordon Joubert	Shore Skipper	Benguella Sea Products (Pty) Ltd
R. Steinmetz	Supervisor	Hydroweld CC
B. Schweickhardt	Maintenance	Commercial Cold Storage (Pty) Ltd
C. Rabald	Financial Manager	Rossing Uranium
Moltan Traclacu	Marketing	Africa Union Cargo (Pty) Ltd
Riaan Lottering	Fleet Manager	Etosha Fishing
Izak de Wit	SHERQ	Walvis Bay Bulk Terminal (Pty) Ltd
Andries Olivier	Manager	Benguella Sea Products (Pty) Ltd
Eugene Mouton	Supply Chain	Rossing Uranium
Janine Smith		Kraatz Marine
W.J. Prosser	Chairperson	CLOF
Martha Uumati	Managing Director and MTA Chair	Erongo Marine Enterprises

Notification Letters

		 <i>Saina</i> <i>22/10/18</i>
		TEL.: (+264-61) 257411 ♦ FAX.: (+264) 88626368 CELL.: (+264-81) 1220082 PO BOX 11073 ♦ WINDHOEK ♦ NAMIBIA E-MAIL: gpt@thenamib.com
To: The Permanent Secretary Ministry of Agriculture, Water & Forestry P/Bag 13184 Windhoek	19 October 2018	
Re: <u>Environmental Management Plans for the Operations of the Port of Walvis Bay and Port of Lüderitz</u>		
<p>Dear Sir/Madam</p> <p>The Namibian Port Authority, Namport, requested Geo Pollution Technologies (Pty) Ltd to prepare environmental management plans for the Ports of Walvis Bay and Lüderitz respectively. The environmental management plans will be prepared according to the Environmental Management Act of 2007 and its regulations as published in 2012.</p> <p>Project: Drafting of Environmental Management Plans for the Operations of the Port of Walvis Bay and Port of Lüderitz</p> <p>Proponent: Namibian Port Authority (Namport)</p> <p>Environmental Assessment Practitioner: Geo Pollution Technologies (Pty) Ltd</p> <p>All Interested and Affected Parties (I&APs) are invited to register with the environmental consultant to receive further documentation and communication regarding the project. By registering, I&APs will be provided with an opportunity to provide input that will be considered in the drafting of the environmental management plans.</p> <p>Two information sharing meetings will be held, one in Lüderitz (06 November 2018) and one in Walvis Bay (13 November 2018). Please register as an I&AP and confirm your attendance to the meetings by <u>02 November 2018</u>. Venue details and related information will be made available to registered I&APs. Reports for review and comment periods will also be communicated to all registered parties.</p> <p>To register, please complete the attached form and return it to:</p> <p>Fax: 088-62-6368</p> <p>E-Mail: namport@thenamib.com</p> <p>We would also like to request your office, or relevant delegated directorates or departments, to provide us with any legislation, regulations, policies, etc., that may be applicable for the drafting of the port related environmental management plans. Your assistance in this regard will be highly appreciated.</p> <p>Should you require any additional information please contact Geo Pollution Technologies at telephone 061-257411.</p> <p>Thank you in advance.</p> <p>Sincerely, Geo Pollution Technologies</p>  <p>André Faul Conservation Ecologist</p>		
<small>Directors:</small>		<small>Page 1 of 2</small>



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

PS
 Received
 22 OCT 2018

Emmie

To: **The Permanent Secretary**
Ministry of Health and Social Services
P/Bag 13198
Windhoek
 19 October 2018

Re: **Environmental Management Plans for the Operations of the Port of Walvis Bay and Port of Lüderitz**

Dear Sir/Madam

The Namibian Port Authority, Namport, requested Geo Pollution Technologies (Pty) Ltd to prepare environmental management plans for the Ports of Walvis Bay and Lüderitz respectively. The environmental management plans will be prepared according to the Environmental Management Act of 2007 and its regulations as published in 2012.

Project: Drafting of Environmental Management Plans for the Operations of the Port of Walvis Bay and Port of Lüderitz

Proponent: Namibian Port Authority (Namport)

Environmental Assessment Practitioner: Geo Pollution Technologies (Pty) Ltd

All Interested and Affected Parties (I&APs) are invited to register with the environmental consultant to receive further documentation and communication regarding the project. By registering, I&APs will be provided with an opportunity to provide input that will be considered in the drafting of the environmental management plans.

Two information sharing meetings will be held, one in Lüderitz (06 November 2018) and one in Walvis Bay (13 November 2018). Please register as an I&AP and confirm your attendance to the meetings by **02 November 2018**. Venue details and related information will be made available to registered I&APs. Reports for review and comment periods will also be communicated to all registered parties.

To register, please complete the attached form and return it to:

Fax: 088-62-6368

E-Mail: namport@thenamib.com

We would also like to request your office, or relevant delegated directorates or departments, to provide us with any legislation, regulations, policies, etc., that may be applicable for the drafting of the port related environmental management plans. Your assistance in this regard will be highly appreciated.

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

Thank you in advance.

Sincerely,
Geo Pollution Technologies

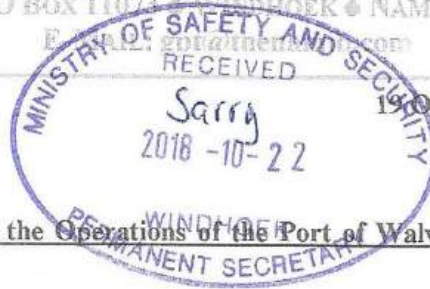
André Faul
 Conservation Ecologist

Directors:

Page 1 of 2
 P. Botha (B.Sc. Hons. Hydrogeology) (Managing)



TEL.: (+264-61) 257411 ♦ FAX.: (+264) 88626368
 CELL.: (+264-81) 1220082
 PO BOX 11073 ♦ WINDHOEK ♦ NAMIBIA



To: The Permanent Secretary
 Ministry of Safety and Security
 P/Bag 13281
 Windhoek

19 October 2018

Re: Environmental Management Plans for the Operations of the Port of Walvis Bay and Port of Lüderitz

Dear Sir/Madam

The Namibian Port Authority, Namport, requested Geo Pollution Technologies (Pty) Ltd to prepare environmental management plans for the Ports of Walvis Bay and Lüderitz respectively. The environmental management plans will be prepared according to the Environmental Management Act of 2007 and its regulations as published in 2012.

Project: Drafting of Environmental Management Plans for the Operations of the Port of Walvis Bay and Port of Lüderitz

Proponent: Namibian Port Authority (Namport)

Environmental Assessment Practitioner: Geo Pollution Technologies (Pty) Ltd

All Interested and Affected Parties (I&APs) are invited to register with the environmental consultant to receive further documentation and communication regarding the project. By registering, I&APs will be provided with an opportunity to provide input that will be considered in the drafting of the environmental management plans.

Two information sharing meetings will be held, one in Lüderitz (06 November 2018) and one in Walvis Bay (13 November 2018). Please register as an I&AP and confirm your attendance to the meetings by **02 November 2018**. Venue details and related information will be made available to registered I&APs. Reports for review and comment periods will also be communicated to all registered parties.

To register, please complete the attached form and return it to:

Fax: 088-62-6368

E-Mail: namport@thenamib.com

We would also like to request your office, or relevant delegated directorates or departments, to provide us with any legislation, regulations, policies, etc., that may be applicable for the drafting of the port related environmental management plans. Your assistance in this regard will be highly appreciated.

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

Thank you in advance.

Sincerely,
Geo Pollution Technologies

André Faul
 Conservation Ecologist

Directors:

Page 1 of 2
 P. Botha (B.Sc. Hons. Hydrogeology) (Managing)



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

To: The Permanent Secretary
 Ministry of Home Affairs & Immigration
 P/Bag 13200
 Windhoek
 19 October 2018

Re: Environmental Management Plans for the Operations of the Port of Walvis Bay and Port of Lüderitz

Dear Sir/Madam

The Namibian Port Authority, Namport, requested Geo Pollution Technologies (Pty) Ltd to prepare environmental management plans for the Ports of Walvis Bay and Lüderitz respectively. The environmental management plans will be prepared according to the Environmental Management Act of 2007 and its regulations as published in 2012.

Project: Drafting of Environmental Management Plans for the Operations of the Port of Walvis Bay and Port of Lüderitz

Proponent: Namibian Port Authority (Namport)

Environmental Assessment Practitioner: Geo Pollution Technologies (Pty) Ltd

All Interested and Affected Parties (I&APs) are invited to register with the environmental consultant to receive further documentation and communication regarding the project. By registering, I&APs will be provided with an opportunity to provide input that will be considered in the drafting of the environmental management plans.

Two information sharing meetings will be held, one in Lüderitz (06 November 2018) and one in Walvis Bay (13 November 2018). Please register as an I&AP and confirm your attendance to the meetings by **02 November 2018**. Venue details and related information will be made available to registered I&APs. Reports for review and comment periods will also be communicated to all registered parties.

To register, please complete the attached form and return it to:

Fax: 088-62-6368

E-Mail: namport@thenamib.com

We would also like to request your office, or relevant delegated directorates or departments, to provide us with any legislation, regulations, policies, etc., that may be applicable for the drafting of the port related environmental management plans. Your assistance in this regard will be highly appreciated.

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

Thank you in advance.

Sincerely,
Geo Pollution Technologies

André Faul
 Conservation Ecologist

Directors:

Page 1 of 2
 P. Botha (B.Sc. Hons. Hydrogeology) (Managing)



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

To: The Permanent Secretary
 Ministry of Fisheries and Marine Resources
 P/Bag 13355
 Windhoek

19 October 2018

Re: Environmental Management Plans for the Operations of the Port of Walvis Bay and Port of Lüderitz

Dear Sir/Madam

The Namibian Port Authority, Namport, requested Geo Pollution Technologies (Pty) Ltd to prepare environmental management plans for the Ports of Walvis Bay and Lüderitz respectively. The environmental management plans will be prepared according to the Environmental Management Act of 2007 and its regulations as published in 2012.

Project: Drafting of Environmental Management Plans for the Operations of the Port of Walvis Bay and Port of Lüderitz

Proponent: Namibian Port Authority (Namport)

Environmental Assessment Practitioner: Geo Pollution Technologies (Pty) Ltd

All Interested and Affected Parties (I&APs) are invited to register with the environmental consultant to receive further documentation and communication regarding the project. By registering, I&APs will be provided with an opportunity to provide input that will be considered in the drafting of the environmental management plans.

Two information sharing meetings will be held, one in Lüderitz (06 November 2018) and one in Walvis Bay (13 November 2018). Please register as an I&AP and confirm your attendance to the meetings by **02 November 2018**. Venue details and related information will be made available to registered I&APs. Reports for review and comment periods will also be communicated to all registered parties.

To register, please complete the attached form and return it to:

Fax: 088-62-6368

E-Mail: namport@thenamib.com

We would also like to request your office, or relevant delegated directorates or departments, to provide us with any legislation, regulations, policies, etc., that may be applicable for the drafting of the port related environmental management plans. Your assistance in this regard will be highly appreciated.

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

Thank you in advance.

Sincerely,
Geo Pollution Technologies

André Faul
 Conservation Ecologist



Directors:

Page 1 of 2
 P. Botha (B.Sc. Hons. Hydrogeology) (Managing)

Laurençia Himunume
Ate 221018 Tel: 2842287



TEL.: (+264-61) 257411 ♦ FAX.: (+264) 88626368
CELL.: (+264-81) 1228082
PO BOX 11073 ♦ WINDHOEK ♦ NAMIBIA
E-MAIL: gpt@thenamib.com

To: The Permanent Secretary
Ministry of Environment and Tourism
P/Bag 13306
Windhoek 19 October 2018
Re: Environmental Management Plans for the Operations of the Port of Walvis Bay and Port of Lüderitz

Dear Sir/Madam

The Namibian Port Authority, Namport, requested Geo Pollution Technologies (Pty) Ltd to prepare environmental management plans for the Ports of Walvis Bay and Lüderitz respectively. The environmental management plans will be prepared according to the Environmental Management Act of 2007 and its regulations as published in 2012.

Project: Drafting of Environmental Management Plans for the Operations of the Port of Walvis Bay and Port of Lüderitz

Proponent: Namibian Port Authority (Namport)

Environmental Assessment Practitioner: Geo Pollution Technologies (Pty) Ltd

All Interested and Affected Parties (I&APs) are invited to register with the environmental consultant to receive further documentation and communication regarding the project. By registering, I&APs will be provided with an opportunity to provide input that will be considered in the drafting of the environmental management plans.

Two information sharing meetings will be held, one in Lüderitz (06 November 2018) and one in Walvis Bay (13 November 2018). Please register as an I&AP and confirm your attendance to the meetings by **02 November 2018**. Venue details and related information will be made available to registered I&APs. Reports for review and comment periods will also be communicated to all registered parties.

To register, please complete the attached form and return it to:

Fax: 088-62-6368

E-Mail: namport@thenamib.com

We would also like to request your office, or relevant delegated directorates or departments, to provide us with any legislation, regulations, policies, etc., that may be applicable for the drafting of the port related environmental management plans. Your assistance in this regard will be highly appreciated.

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

Thank you in advance.

Sincerely,
Geo Pollution Technologies

André Faul
Conservation Ecologist

Directors:



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

**To: The Permanent Secretary
Ministry of Works and Transport
P/Bag 13341
Windhoek**

19 October 2018

Re: Environmental Management Plans for the Operations of the Port of Walvis Bay and Port of Lüderitz

Dear Sir/Madam

The Namibian Port Authority, Namport, requested Geo Pollution Technologies (Pty) Ltd to prepare environmental management plans for the Ports of Walvis Bay and Lüderitz respectively. The environmental management plans will be prepared according to the Environmental Management Act of 2007 and its regulations as published in 2012.

Project: Drafting of Environmental Management Plans for the Operations of the Port of Walvis Bay and Port of Lüderitz

Proponent: Namibian Port Authority (Namport)

Environmental Assessment Practitioner: Geo Pollution Technologies (Pty) Ltd

All Interested and Affected Parties (I&APs) are invited to register with the environmental consultant to receive further documentation and communication regarding the project. By registering, I&APs will be provided with an opportunity to provide input that will be considered in the drafting of the environmental management plans.

Two information sharing meetings will be held, one in Lüderitz (06 November 2018) and one in Walvis Bay (13 November 2018). Please register as an I&AP and confirm your attendance to the meetings by **02 November 2018**. Venue details and related information will be made available to registered I&APs. Reports for review and comment periods will also be communicated to all registered parties.

To register, please complete the attached form and return it to:

Fax: 088-62-6368

E-Mail: namport@thenamib.com

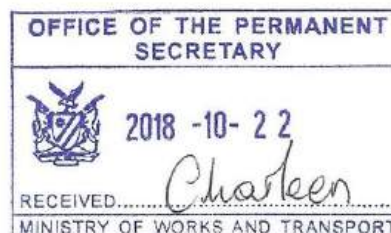
We would also like to request your office, or relevant delegated directorates or departments, to provide us with any legislation, regulations, policies, etc., that may be applicable for the drafting of the port related environmental management plans. Your assistance in this regard will be highly appreciated.

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

Thank you in advance.

Sincerely,
Geo Pollution Technologies

André Faul
Conservation Ecologist



Directors:

Page 1 of 2
P. Botha (B.Sc. Hons. Hydrogeology) (Managing)



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

To: The Permanent Secretary
Ministry of Mines and Energy
P/Bag 13297
Windhoek

19 October 2018

Re: Environmental Management Plans for the Operations of the Port of Walvis Bay and Port of Lüderitz

Dear Sir/Madam

The Namibian Port Authority, Namport, requested Geo Pollution Technologies (Pty) Ltd to prepare environmental management plans for the Ports of Walvis Bay and Lüderitz respectively. The environmental management plans will be prepared according to the Environmental Management Act of 2007 and its regulations as published in 2012.

Project: Drafting of Environmental Management Plans for the Operations of the Port of Walvis Bay and Port of Lüderitz

Proponent: Namibian Port Authority (Namport)

Environmental Assessment Practitioner: Geo Pollution Technologies (Pty) Ltd

All Interested and Affected Parties (I&APs) are invited to register with the environmental consultant to receive further documentation and communication regarding the project. By registering, I&APs will be provided with an opportunity to provide input that will be considered in the drafting of the environmental management plans.

Two information sharing meetings will be held, one in Lüderitz (06 November 2018) and one in Walvis Bay (13 November 2018). Please register as an I&AP and confirm your attendance to the meetings by **02 November 2018**. Venue details and related information will be made available to registered I&APs. Reports for review and comment periods will also be communicated to all registered parties.

To register, please complete the attached form and return it to:

Fax: 088-62-6368

E-Mail: namport@thenamib.com

We would also like to request your office, or relevant delegated directorates or departments, to provide us with any legislation, regulations, policies, etc., that may be applicable for the drafting of the port related environmental management plans. Your assistance in this regard will be highly appreciated.

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

Thank you in advance.


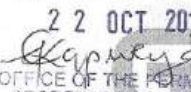
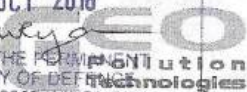

Sincerely,
Geo Pollution Technologies

André Faul
Conservation Ecologist



Directors:

Page 1 of 2
P. Botha (B.Sc. Hons. Hydrogeology) (Managing)

 Republic of Namibia MINISTRY OF DEFENCE 22 OCT 2018  OFFICE OF THE PERMANENT SECRETARY OF DEFENCE Private Bag 13307 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
To: The Permanent Secretary Ministry of Defence P/Bag 13307 Windhoek	19 October 2018	
Re: <u>Environmental Management Plans for the Operations of the Port of Walvis Bay and Port of Lüderitz</u>		
<p>Dear Sir/Madam</p> <p>The Namibian Port Authority, Namport, requested Geo Pollution Technologies (Pty) Ltd to prepare environmental management plans for the Ports of Walvis Bay and Lüderitz respectively. The environmental management plans will be prepared according to the Environmental Management Act of 2007 and its regulations as published in 2012.</p> <p>Project: Drafting of Environmental Management Plans for the Operations of the Port of Walvis Bay and Port of Lüderitz</p> <p>Proponent: Namibian Port Authority (Namport)</p> <p>Environmental Assessment Practitioner: Geo Pollution Technologies (Pty) Ltd</p> <p>All Interested and Affected Parties (I&APs) are invited to register with the environmental consultant to receive further documentation and communication regarding the project. By registering, I&APs will be provided with an opportunity to provide input that will be considered in the drafting of the environmental management plans.</p> <p>Two information sharing meetings will be held, one in Lüderitz (06 November 2018) and one in Walvis Bay (13 November 2018). Please register as an I&AP and confirm your attendance to the meetings by 02 November 2018. Venue details and related information will be made available to registered I&APs. Reports for review and comment periods will also be communicated to all registered parties.</p> <p>To register, please complete the attached form and return it to:</p> <p>Fax: 088-62-6368</p> <p>E-Mail: namport@thenamib.com</p> <p>We would also like to request your office, or relevant delegated directorates or departments, to provide us with any legislation, regulations, policies, etc., that may be applicable for the drafting of the port related environmental management plans. Your assistance in this regard will be highly appreciated.</p> <p>Should you require any additional information please contact Geo Pollution Technologies at telephone 061-257411.</p> <p>Thank you in advance.</p> <p>Sincerely, Geo Pollution Technologies</p>  André Faul Conservation Ecologist		
Directors:	Page 1 of 2 P. Botha (B.Sc. Hons. Hydrogeology) (Managing)	

Advertisements

Maandag 29 Oktober 2018
Republikein
NUUS 5

PUBLIC PARTICIPATION NOTICE
ENVIRONMENTAL MANAGEMENT PLANS FOR THE OPERATIONS OF THE PORT OF WALVIS BAY AND PORT OF LÜDERTZ

The Namibian Ports Authority, Namport, requested Geo Pollution Technologies (Pty) Ltd to prepare environmental management plans for the Ports of Walvis Bay and Lüderitz respectively. The environmental management plans will be prepared according to the Environmental Management Act of 2007 and its regulations as published in 2012.

All interested and Affected Parties (I&APs) are invited to register with the environmental consultant to receive further documentation and communication regarding the project. By registering, I&APs will be provided with an opportunity to provide input that will be considered in the drafting of the environmental management plans.

Two information sharing meetings will be held, one in Lüderitz (06 November 2018) and one in Walvis Bay (13 November 2018). Please register as an I&AP and confirm your attendance to the meetings by 02 November 2018. Venue details and related information will be made available to registered I&APs. Requests for review and comment periods will also be communicated to all registered parties.

For further information, or to register as an I&AP, please contact:
André Paul
Geo Pollution Technologies (Pty) Ltd
Telephone: +264-61-257411
Fax: +264-88626368
E-Mail: namport@theiam/kooc



When the SH... is in the fan!

24/7 No Extra Charge

CALL THE SPECIALISTS!

The ST BUSINESS Is a SERIOUS BUSINESS!!!**
Expert Plumbing Services • Professional • Dedicated • Caring

POLKA PLUMBING
"Maintenance Heroes"

Contact us: 061-250922 or 081 262 4341
www.polkaplumbing.com

informing our readers about all the important final checks before leaving your home on a well-deserved break.

The focus showcase's products and services – whether it is Christmas gift ideas, accommodation and holiday options, seasonal greetings, Christmas lunch specials or general branding advertisements.

Booking Deadline:
16 NOVEMBER 2018
Publication Date:
4 DECEMBER 2018

WANT TO ADVERTISE CONTACT ME NOW!

CARMEN STENGER
carmen@nmb.com.na
Tel: +264 61 297 2102

NM NAMIBIA MEDIA HOLDINGS



Republikein
SUN
Allgemeine Zeitung
NM

20 Monday 29 October 2018
ARTS & ENTERTAINMENT
THE NAMIBIAN

PUBLIC PARTICIPATION NOTICE
ENVIRONMENTAL MANAGEMENT PLANS FOR THE OPERATIONS OF THE PORT OF WALVIS BAY AND PORT OF LÜDERTZ

The Namibian Ports Authority, Namport, requested Geo Pollution Technologies (Pty) Ltd to prepare environmental management plans for the Ports of Walvis Bay and Lüderitz respectively. The environmental management plans will be prepared according to the Environmental Management Act of 2007 and its regulations as published in 2012.

All interested and Affected Parties (I&APs) are invited to register with the environmental consultant to receive further documentation and communication regarding the project. By registering, I&APs will be provided with an opportunity to provide input that will be considered in the drafting of the environmental management plans.

Two information sharing meetings will be held, one in Lüderitz (06 November 2018) and one in Walvis Bay (13 November 2018). Please register as an I&AP and confirm your attendance to the meetings by 02 November 2018. Venue details and related information will be made available to registered I&APs. Requests for review and comment periods will also be communicated to all registered parties.

For further information, or to register as an I&AP please contact:
André Paul
Geo Pollution Technologies (Pty) Ltd
Telephone: +264-61-257411
Fax: +264-88626368
E-Mail: namport@theiam/kooc



ComiCon a hit

• **JONATHAN SOLOMONS**

THE Warehouse Theatre was a comedic hub on Friday night thanks to some of Namibia's finest funny men.

In partnership with the theatre, Windhoek Comedy Club (WCC) put up a great show featuring four comics Ujandja 'Jandjie the Comic', Zafirua, Barry B, Uncle Mike and Alex Madjarov.

Kicking off ComiCon 2018, rapper Ali That Dude entertained a fully packed venue before the first comic stepped on the stage.

Jandjie, founder of WCC and host of the night cased the audience into what was coming for the night. Taking hits at relationships, the economy and Coloured people, Jandjie held his own and made for a promising host as he kept the crowd amused in between sets.

Second on stage, funny man Barry B continued taking a few jabs at Coloureds and talked about the workplace and having to endure certain colleagues. Clearly one of the favourites of the night, I think it's safe to say Barry B is paving his way to the comedy hall of fame – it's sad that we don't see more of him on stage.

Uncle Mike, dressed in guerrie socks, velvies and an awkward hat personified 'uncle' as he stepped on stage. Talking about being a husband and father, Uncle Mike brought a new perspective to family life. While at it, he took the crowd on a journey back a couple millennia to when Adam first met Eve, with his own unique spin on the story of creation.

Unfortunately, the show took a terrible turn south as Alex took to the stage to close off proceedings. Slow-paced, flat and uninspiring are a few words that describe his performance. While he did garner a handful of laughs from a few audience members, he got none from me. Making jokes about Coloured people, Kanye West and slavery, Alex lost the plot and was quite offensive throughout his set. As he drowned behind the crowd's detachment, there was opportunity to leave early and cut the suffering short.

Overall, ComiCon was a great initiative which brought some not often seen faces back to the stage.

10 DIE MARK **Republiekein** **Maandag 22 Oktober 2018**

PUBLIC PARTICIPATION NOTICE

ENVIRONMENTAL MANAGEMENT PLANS FOR THE OPERATIONS OF THE PORT OF WALVIS BAY AND PORT OF LÜDERITZ

The Namibian Ports Authority, Namport, requested Geo Pollution Technologies (Pty) Ltd to prepare environmental management plans for the Ports of Walvis Bay and Lüderitz respectively. The environmental management plans will be prepared according to the Environmental Management Act of 2007 and its regulations as published in 2012.

All interested and Affected Parties (I&APs) are invited to register with the environmental consultant to receive further documentation and communication regarding the project. By registering, I&APs will be provided with an opportunity to provide input that will be considered in the drafting of the environmental management plans.

Two information sharing meetings will be held, one in Lüderitz (05 November 2018) and one in Walvis Bay (13 November 2018). Please register as an I&AP and confirm your attendance to the meetings by 02 November 2018. Venue details and related information will be made available to registered I&APs. Reports for review and comment periods will also be communicated to all registered parties.

For further information, or to register as an I&AP, please contact:
Andri Tuij
Geo Pollution Technologies (Pty) Ltd
Telephone: +264-61-257411
Fax: +264-88626368
E-Mail: support@themasib.com



China se ekonomiese groei is van groot belang vir Suid-Afrika, aangesien dié land Suid-Afrika se grootste handelsvenoot is.

Suid-Afrika voer nagenoeg R73 miljard se goedere per maand – 9% van alle uitvoer – na China uit, huidens die Suid-Afrikaanse Inkomstediens se handelsyfers vir Augustus.

Die grootste kategorieë is minerale (R50,5 miljard), yster- en staalprodukte (R10,9 miljard), tekstiele (R2,4 miljard), houtpulp en papier (R2,3 miljard) en vrugte en groente (R2 miljard).

Suid-Afrika is t'n reedsie, Moody's het Dinsdag sy verwagting vir Suid-Afrika se ekonomiese groei vir die hele 2018 tot net 0,5% afgeskaal.

-Netwer24



AFROX
A Member of The Linde Group

AFROX
A Member of The Linde Group

AFROX is die enigste van vyf gasmaatskappye wat nie 'n administratiewe boete gaan kry weens oortredings van die Mededingingswet nie, wintKEMBAW 2018.

NATIONAL NEWS **MONDAY 22 OCTOBER 2018** **7**

PUBLIC PARTICIPATION NOTICE

ENVIRONMENTAL MANAGEMENT PLANS FOR THE OPERATIONS OF THE PORT OF WALVIS BAY AND PORT OF LÜDERITZ

The Namibian Ports Authority, Namport, requested Geo Pollution Technologies (Pty) Ltd to prepare environmental management plans for the Ports of Walvis Bay and Lüderitz respectively. The environmental management plans will be prepared according to the Environmental Management Act of 2007 and its regulations as published in 2012.

All interested and Affected Parties (I&APs) are invited to register with the environmental consultant to receive further documentation and communication regarding the project. By registering, I&APs will be provided with an opportunity to provide input that will be considered in the drafting of the environmental management plans.

Two information sharing meetings will be held, one in Lüderitz (05 November 2018) and one in Walvis Bay (13 November 2018). Please register as an I&AP and confirm your attendance to the meetings by 02 November 2018. Venue details and related information will be made available to registered I&APs. Reports for review and comment periods will also be communicated to all registered parties.

For further information, or to register as an I&AP, please contact:
Andri Tuij
Geo Pollution Technologies (Pty) Ltd
Telephone: +264-61-257411
Fax: +264-88626368
E-Mail: support@themasib.com



VACANCY

Go-getters and passionate individuals are invited to join the National Oil Company. Make your unique contribution towards our cause of fueling and exploring Namibia.

Department	Position
Commercial Business Unit	Business Analyst D-Lower

Please apply online at:
<http://www.namcor.com.na/>

Women and Persons with disabilities are highly encouraged to apply
Enquiries: Senior HR Business Partner @ 061-2045146

Closing date for applications:
26 October 2018





OH YES! IT'S FREE!

Buy Namibia's
No.1 Jackpot for
N\$ 95 000
and receive a **FREE!!**



Coin Counter
valued @
N\$10 000,00

1 per Customer ONLY.
Promo from 01 October 2018
until stocks last!



Visit Our Showroom @ Unit 9, Kallie Roodt Street, Northern Industrial Area
Office: 061 - 256 056
Mobile: 081 127 0657 | 081 296 1390

Appendix C: Attendance and Minutes of Public and Tenants Meeting

Minutes of Meeting

Re: Public Meeting: Drafting of an Environmental Management Plan for the Port of Walvis Bay

Date: Tuesday, 13 November 2018

Time: 14h30-16h00

Venue: Mission to Seafarers Boardroom, Walvis Bay

In attendance:

Melody Lilungwe	Albatross Task Force - Namibia Nature Foundation
Samantha Matjila	Namibia Nature Foundation
Titus Shaanika	Namibia Nature Foundation
Saban S.	Namibia Ports Authority
Tim Einman	Namport
M. Kanime	EBHN
Nangula Amatsi	Municipality of Walvis Bay
Magreth Kachuka	Municipality of Walvis Bay
Clarence Beukes	Nampol
Migal Kambatuku	Nampol
Bertram Geiger	Roads Authority
Ferdinand Hamukwaya	Ministry of Fisheries and Marine Resources
Anja Kreiner	Ministry of Fisheries and Marine Resources
Izak de Wit	Walvisbay Bulk Terminal
Luwewel Nangombe	Toovus Century Investment
Deville Dreyer	Municipality of Walvis Bay
W. Williams	EBHN
Tari van der Merwe	WB Diving
Paul van der Merwe	WB Diving / home owner
Tashiya Tuyenikelao	Nampol Port
Joyce Mukumbi	Namport
S.N. Kalulu	Namport
J. Kezumo	Namibian Navy
Henok Shikongo	Municipality of Walvis Bay
Stefanus Gariseb	Namport
Phillip Coetzee	WFS Manica Group
Maria Amunyela	Marsima - GIZ
Rod Braby	Marsima - GIZ
J. Ferreira	WBBT
Capt. Nik Magadhi	SSA
André Burger	Municipality of Walvis Bay / Resident
Fennie Kalimbo	Nampol
David Uushona	Municipality of Walvis Bay
Monique Laubscher	Namibia Dolphin Project
Shelley Mulenamaswe	Namport
Ismet Kara	Africa Union Cargo
Cecil Kamupingene	Namport

André Faul of Geo Pollution Technologies welcomed the audience to the meeting and proceeded with a presentation to introduce the different parties involved and to explain the purpose of the environmental management plan (EMP) and the meeting. After the presentation the audience was invited to provide input to be considered in the drafting of the EMP.

Mr. Bertram Geiger enquired about the area of influence of the port of Walvis Bay. André explained that the area of influence of the port operations will only be offshore, up to around Patryberg (around 20 km's from the town centre).

Mr. Titus Shaanika enquired how oil spills will be dealt with, particularly offshore. André explained that Namibia has a National Marine Pollution Contingency Plan (2017) which deals with oil pollution and which Namport follows. He mentioned that this subject will also be considered and mentioned in the EMP. He then explained that the purpose of the EMP is not to be specific on detailed mitigation and preventative measures (this remains the responsibility of the proponent to develop detailed plans), but only to provide guidelines and limits the proponent must adhere to and operate within. He elaborated that pollution remains an obstacle in Namibia due to the lack of guidelines and regulations within the national Acts. The constitution of Namibia therefor allows for international law to become legal in Namibia, where laws, guidelines of regulations are lacking within the Namibia law.

Ms. Anja Kreiner raised a concern about the spatial closeness of the dedicated anchorage areas to the dedicated aquaculture areas, and what impacts this may have with regards to the possibility of sewage (and *Escherichia coli*) from the ships impacting on aquaculture. André recognised the concern and mentioned that it is something that need to be considered, and that the documents related to mariculture guidelines and management will be reviewed for consideration of the matter in the EMP. He further mentioned that members from Walvis Bay mariculture and the Directorate of Aquaculture has been invited to join the meeting, however, no members are present. He explained that it is possible that some email invites may not have reached their destination due to server problems the consultants have experienced recently, and therefor requested the audience to inform potential interested and affected parties that did not receive an invite to contact him if they would like to be involved in the EMP. He further apologised about the problems they are experiencing.

Ms. Monique Laubscher mentioned that the new tanker berth is located in the northern part of an area frequented by marine mammals, specifically bottlenose dolphins. It is therefore habitat that is now lost. She further mentioned that monitoring and research done by the Namibian Dolphin Project indicated that the behaviour and preferred areas of dolphins have changed due to the impacts of the harbour. A reference was made to a section in the draft EMP of the Tanker Berth, where a biodiversity offset was proposed to compensate for habitat that will be lost due to the development. She mentioned that the area north of the bird island has become a voluntary no go zone area, which tourist vessels avoid. The Namibian Dolphin Project team has recommended this as the biodiversity offset zone, which should be increased to a 1000 m offshore zone along the Long Beach. She asked whether this is something that can be taken into account for the EMP. André said that it is something that can be discussed with Namport and noted that it will only be offshore with no onshore restrictions. Mr. Stefanus Gariseb agreed that it is something that can be considered and discussed.

Mr. Rod Braby asked who ultimately takes responsibility for the water quality and distribution of quality regulations in the Namport area (harbour), as there are various institutions involved in this subject. André acknowledged this as a concern, and explained that ultimately it should be the Directorate of Water Affairs as they are the authority issuing permits for seawater abstraction as well as effluent discharge. However, the various users such as Namport and the tenants carry the responsibility to conduct monitoring and ensure compliance. He further explained, that in his opinion, the best solution would be a holistic approach to monitoring, involving all users, where monitoring is conducted on a larger scale to give sound scientific data. He mentioned that this will also be further discussed with Namport. Mr. Braby then agreed that water quality is the responsibility of the Ministry of Agriculture, Water and Forestry, but no-one enforces and really takes responsibility, and provides specifics on water quality regulations for different areas.

Mr. André Burger mentioned a list topics that the Municipality of Walvis Bay deems important to be addressed in the EMP, the list included the following:

- Noise, he mentioned noise emanating from the container terminal during the night;

- Air quality, such as dust originating from the manganese heaps;
- Damage to roads, such as the damage cause by trucks originating from the salt works; and the port, he mentioned that some sort of arrangement needs to be made with the municipality with regards to upkeep of the roads;
- Trucks, and the amount thereof in town. He mentioned the need for truck port should be addressed, and asked who will be responsible for this. E.g. such as a joint operation from Namport, Walvis Bay Corridor Group and the Municipality;
- The increase in passenger liners, and how Namport will manage this in the port, as well as at the gate. Including dealing with informal traders and ablution facilities for the passengers disembarking;
- General pollution from vessel within port limits, which usually ends up on the beaches etc., such as litter and plastics;
- Protection of the lagoon as a Ramsar site. What is Namport's responsibility in ensuring that the lagoon is protected and monitoring is conducted?

Mr. Deville Dreyer added to Mr. Burger's comments and mentioned that air pollution from the Syncrolift area, as well as safety risks due to an increase of informal traders is a concern. He also mentioned the issue of noise pollution along 5th Street, emanating from the Botswana Dry Port, and how this is impacting residents, and was wondering why a noise barrier has not been erected there. André thanked them for the input and stated that these comments and concerns will be considered during the compilation of the draft EMP. He further mentioned that the consultants are aware of the current problems at the Botswana dry port, and that they are in the process of working on solutions for the noise problems. André proceeded by addressing the comment on the degradation of the roads, and noted that it is difficult to assign responsibility to a specific organisation, and that it is something that needs to be discussed between the different parties.

Mr. Stefanus Gariseb acknowledged the issues, and noted that they are all issues that Namport are aware of, and currently working on solutions for. He proceeded by pointing out that Namport and Unam has signed a memorandum of understanding to monitor the lagoon and the ecosystem thereof. This has been ongoing for the last three years, in order to identify and understand any changes in the lagoon. The recommendations coming from the results of the monitoring will then form part of the management plan. He pointed out that the lagoon is a National asset, where various stakeholders are responsible, and that the other parties should also become involved to cooperate in addressing these issues.

Mr. Betram Geiger noted that the road to the salt factory is a district road that is maintained by Roads Authority, along with the roads leading out of Walvis Bay. He requested that Roads Authority be involved in meetings related to road maintenance in town, and also that they be notified of the entrances and exits from the port that will be used. André acknowledged the request. Mr. Gariseb mentioned that there is an EMP that was done for the new main gate as well, which will be considered in this EMP.

Ms. Maria Amunyele mentioned that there are sensitive marine (ecological and biological) area running through the Namport area of jurisdiction .André requested that the information be sent to him.

Ms. Nangula Amatsi wanted to know if there will be another meeting where the draft EMP will be presented to them once finalised. André stated that another meeting has not been planned, however, if the need arises, based on the comments received on the draft EMP etc., it can be discussed with Namport. He noted that the draft report will be sent out to all registered parties where a week or two will be given to all parties to review the report and provide comments. If the registered parties still feels that there is a need for a meeting, further arrangements can be communicated. Two other members from the Municipality of Walvis Bay expressed the need for such a meeting, including Mr. David Uushona.

Mr. Martin Kanime noted that monitoring results on sediments and mussels within the harbour varies constantly, and expressed the need for an joint venture between responsible parties (holistic monitoring program), and that specific monitoring and quality regulations be determined as there is a lack of specific standards and limits for seawater quality, mussels and sediment. Ms. Kreiner made reference to the BCLME document, wherein certain standards were proposed.

Mr. Paul van der Merwe pointed out that noise emanating from the port area, and specifically the Botswana dry port have been causing nuisance for residents along 5th Street, and that attempts have been made to cooperate with the manager of the dry port, which have been disregarded. He wanted to know where complaints regarding this can be directed to. André said that the matter will be discussed with Namport.

Mr. David Uushona seconded the need for second a meeting discussing the findings of the draft EMP. He proceeded by pointing out the importance of looking at, and addressing the cumulative impacts such as noise and providing standards for different areas. He also pointed out that it is important to involve the Namport Staff, as interested and affected parties. André mentioned that the consultants will look at having a feedback meeting.

Mr. Rod Braby mentioned that Namport has increased their area of jurisdiction to Caution Reef (Partrys Berg) which forms part of the Dorob National Park, and is an extremely sensitive important bird area, and is classified as an IUCN category 1A nature conservation area. He mentioned that this, as well as climate change, needs to be taken into consideration during the drafting of the EMP. He also raised a concern on the amount of litter washing up on the shores, indicating that ships aren't monitored for littering. He further elaborated on potential impacts that climate change may have, and mentioned that any development on pelican point may have an impact on the safety of the harbour, and asked whether this will be considered. André said that it will be discussed with Namport, he further stated that it remains difficult to monitor pollution from ships within the harbour.

Mr. Betram Geiger made reference to abnormal vehicles being on the roads, due to large / heavy cargo being imported through the port, and wanted to know whether Namport will be able to contribute towards upgrades of the nearby road infrastructure. André stated that it is a matter which Namport only can discuss, the consultants will however consider it during the drafting of the EMP.

Ms. Tari van der Merwe once again raised the issue of litter washing ashore along the Long Beach area, and wanted to know who is responsible for the beaches, from the new tanker berth up to Patrysberg. Mr. Gariseb mentioned that up to the high-water mark falls under Namports area of Jurisdiction. André mentioned that areas forming part of the Dorob National park falls under the jurisdiction of the Ministry of Environment and Tourism, and the remaining areas above the high-water mark is municipal land. Ms. van der Merwe suggested the responsible parties either charge a fee to utilise the beaches which then goes towards cleaning the beaches or erect more waste bins. André mentioned that this is a general problem, and the ports responsibility towards waste management will be discussed with them. Mr. van der Merwe suggested that Namport arrange with the tourist boats to monitor illegal dumping from vessels in the port.

No further comments were received and the meeting was adjourned.

Minutes of Meeting**Re: Tennant Meeting: Drafting of an Environmental Management Plan for the Port of Walvis Bay****Date: Tuesday, 13 November 2018****Time: 09:00-13:00****Venue: Mission to Seafarers Chapel, Walvis Bay****In attendance:**

R. Wolters	Confederation of Namibian Fishing Association
A. Vilbert	Transworld Cargo Namibia (Pty) Ltd
M. Orffer	Transworld Cargo Namibia (Pty) Ltd
J. Ferreira	Walvis Bay Bulk Terminal (Pty) Ltd
J. Joubert	Kraatz Marine (Pty) Ltd
Kobie Potgieter	Kraatz Marine (Pty) Ltd
R. vd Westhuizen	Marine Industrial Coatings
Bernette Louw	Namib Marine Services (Pty) Ltd
Gordon Joubert	Benguella Sea Products (Pty) Ltd
R. Steinmetz	Hydroweld CC
B. Schweickhardt	Commercial Cold Storage (Pty) Ltd
C. Rabald	Rossing Uranium
Moltan Traclacu	Africa Union Cargo (Pty) Ltd
Riaan Lottering	Etosha Fishing
Izak de Wit	Walvis Bay Bulk Terminal (Pty) Ltd
Andries Olivier	Benguella Sea Products (Pty) Ltd
Eugene Mouton	Rossing Uranium
Pilar Veiga	SPANAM Shipping Services CC

André Faul of Geo Pollution Technologies welcomed the audience to the meeting and proceeded with a presentation to introduce the different parties involved and to explain the purpose of the environmental management plan (EMP) and the meeting. After the presentation the audience was invited to provide input to be considered in the drafting of the EMP.

Ms. Bernette Louw enquired about the problem of environmental pollution in the form of plastic. She said that the major source of plastic pollution is from the packaging of goods that is handled in port (cling wrap plastics). The plastic is stored unconventionally and gets blown into the ocean and around the Namport harbour area, especially with the windy conditions around Walvis Bay. Where she works they try their best to clean up plastic, but she said that cleaning should be done by all parties. Namport should become stricter in implementing measures to prevent plastic pollution. André explained that waste management will form a big part of the EMP. He stated that plastic pollution is considered serious as it poses a threat to sea animals. He said that the Namport EMP will propose mitigation measures that tenants must adhere to in terms of plastic handling and disposal.

Ms. Louw added to the above, stating that it is not just about policing to solve the plastic problem, but also a matter of knowledge. She said that people involved in Namport must be made aware about the environmental risks involved with improperly disposed plastics, especially when it is broken down and becomes more harmful to the environment. It can be done by doing simple presentations to them about the various stages of plastic decomposition and discussions on how dangerous it is for the environment. Ms. Louw suggests that there should be an educational component with the policing in the EMP. André noted this suggestion.

Mr. Robert Steinmetz stated that grit blasting and spray painting are problematic in the port due to overspray and windblown dust and grit. Consulted with Namport for a solution has this far not been successful. André recognised the concern and said GPT is also involved with EBH and the floating

docks. He said it is an industrial port and the need for such services are important, but it is difficult to manage or mitigate the problem. He further noted that EBH has a monitoring programme in place, but he would like to see a holistic monitoring programme for the whole port due to the many potential polluters in the port. The monitoring should include monitoring for visible substances (grit blasting) and also for those not visible (released effluents). He stressed that the polluters of visible substances get accused and the non-visible polluters get away with it.

Mr. Kobie Potgieter stressed the impact [grit dust and overspray] of ship repair activities. He suggested a separate forum to discuss the issues in the commercial harbour, with more stakeholders involved, where all can work towards suggestions and solutions. André explained that the EMP will not provide detailed mitigation measures which Namport need to adhere to, but rather provide limits within which Namport needs to operate. The limits will be determined from national or international standards. Then it will be the clients'/tenants'/Namport's responsibility to apply detailed mitigation measures to ensure they operate within the limits. The EMP will include a forum where solutions to problems can be discussed.

Ms. Louw asked how grit impacts the environment. André responded saying copper slag is usually used for grit blasting, and depending where it comes from, may contain harmful elements like arsenic. This is for example the case for copper slag originating from the smelter at Tsumeb. If the harmful elements are available in the natural environment, it can be taken up by organisms like fish and contaminate them. Ms. Louw agreed that it would be important to do a study to see whether there are any impacts on the marine life. André further explained that dust from older vessels containing harmful paints (tributyltin based-, lead based paint) may be problematic for marine life, disrupting the reproductive systems. The newer paints are not allowed to contain such harmful substances. He also mentioned that there are some mitigation measures in place, however it remains a difficult to manage due to practical reasons.

Mr. Potgieter noted that the visual impact of the blasting on the neighbours is more an issue than the natural environment. Ms. Louw said she doesn't think that the environmental side should be left out. André agreed on the comments. Mr. Steinmetz noted that previously sand was used for blasting, but then it was switched to grit. He said sand is dangerous to use. André agreed and said sand contains silicate minerals and can cause silicosis, a disease of the lungs. André mentioned that blasting companies may consider alternative methods of blasting, but this may not be financially feasible. Mr. Potgieter further said that, even with other methods, the dust will not be 100% contained, there will always be some dust escaping. André agreed on the comments.

Mr. Curt Rabald elaborated about harmful substances originating from sand and grit blasting, and from offloading and loading of manganese, which contaminate the salt storage area. He said that salt gets loaded to vessels showing visual signs of contamination on a daily basis. André noted the concern and said that the EMP will look into the bulk terminal where the manganese, coal and salt is stored. The consultants will also engage with the companies involved with the storage of the salt at the bulk terminal, as they occupy a large part of the bulk terminal.

Mr. Johnny Ferreira inquired about dust monitoring standards and limits within Namibia. André responded that Namibian guidelines for dust levels is not yet stated (no laws for dust levels), but the Namibian constitution allow for international law to be used where Namibian regulations are lacking. Namibia also fall back on World Health Organization Levels, which are considered well known and acknowledged levels. He further stated that the Department of Water Affairs have their own set of standards for quality of effluent discharge in the harbour, to which the fish factories have to adhere to, and that various standards will be considered for inclusion in the EMP. Mr. Ferreira noted that there are industrial and residential limits for dust fallout within South African regulations. The EMP must consider these to accommodate all tenants in the bulk terminal/Namport area. As the area is an industrial area, the limits must be fair for the tenants. André agrees with his comment and adds that the the Walvis Bay's Integrated Urban Spatial Development Framework earmarks Walvis Bay primarily as an industrial town. However, the Namibian health laws does say you should not be a nuisance to your neighbours, so one has to find a balanced solution.

Mr. Joshua Joubert said that certain mitigation regulations that were given to Syncrolift users by Namport are not practical and feasible and will lead to loss of vessel repair work, which will have a

financial impact on the town. He mentioned that consultation with the users is important to work towards a plan that is suitable for everyone, and with a common goal. Ms. Bernette added that all the tenants of the Syncrolift pays fees to Namport for its use. Therefore, Namport should also invest money into the facility. André noted the comments, and explained that if an environmental clearance certificate is issued to Namport, based on this EMP, the EMP becomes a legally binding document. Namport will therefore have to adhere to the regulations set forth in the EMP.

André requested that any documents such as handling of hazardous materials or management plans, which can be consulted for consideration in the EMP, be provided to GPT.

Ms. Pilar Veiga inquired how GPT is going to address all the environmental problems in the report. André replied that it will be a holistic study that will for example include a section on noise, providing guidelines which everyone in the Namport area must adhere to. Other impacts will also be covered in the same way. Ms. Veiga asked how all the impacts (syncrolift, plastic, fishing, acid, new developments) can be handled in a holistic manner. André responded that all new developments will be taken into account, and that the EMP has to be written in such a way that future additions to the port will be covered. The fishing industry is however excluded from the EMP Ms. Louw inquired why the fishing companies is left out. André replied they have their own EIA and EMP studies, but from GPT's perspective, the fishing industry will be considered, even though they would not explicitly form part of the EMP. He also said GPT is in a good position, because we have done most of the EIA's and EMP's for the fishing companies in the fishing harbour, thus having good insights what the limits is for effluent discharges and other listed activities. Impacts on fishing companies will be in the form of effluent discharged from the bulk terminal that can contaminate the intake waters used by the fish factories. Mr. Potgieter added that if effluents are mentioned, then the entire port area have to be taken in consideration, not just a particular factory. André replied Namport will not prescribe their EMP to the fishing industry, thus GPT will consider the fishing industry, and therefore mitigation measures in the EMP will be written in such way to protect the fishing industry.

Ms. Veiga inquired how the EMP will assess the water quality of the port with the ongoing effluent disposal and whether the EMP will only stick to the commercial harbor area. André replied that the water quality of the whole port area have to be addressed. He also said GPT has a monitoring proposal that is yet to be presented to Namport and stakeholders. Currently there are localised businesses that do effluent and sediment sampling (e.g. EBH and some fishing factories). These are however isolated from one-another and one cannot get the bigger picture. If everybody works together to support one monitoring programme it can become much cheaper with better results.

Mr. Ferreira inquired whether the EMP would cover the whole port limits as indicated in the slides, or only the commercial harbour, on which most of the discussions were. He asked if the fishing harbour area will also be included? André replied that the whole port area will be considered, but the fishing factories fall on municipal land and jetty construction and jetty operations fall under Namport jurisdiction, and that is why the EMP will not focus primarily on the fishing factories. In terms of the whole port area, everything that falls offshore will be included in the EMP. Only the dredging will be excluded due to its own EIA and EMP. Mr. Joubert inquired whether the fishing companies that do their own repairs at their quay sides will be included in the EMP. André said that he will speak to Namport about offshore part of fishing factories and its applicability to the EMP. Ms. Bernette said that she would expect that any operation that influence the ocean, even those occurring on land, should be included in the overall management plan. Mr. Joubert asked what will stop dumping of substances and effluents in the areas that the EMP do not cover. André again said that he will speak to Namport about this issue since Namport is ultimately responsible for the water quality within the port limits.

Mr. Ferreira added that some tenants cause elevated dust levels and asked what the limits will be for dust monitoring. He further asked if different limits will be utilised for different tenants? André said that he could not answer it now due to it being the beginning stages of the EMP. He also said at this stage different dust sources and receptors are identified and what concentrations and type of dust is created. Mr. Ferreira stated that when the EMP becomes a legal document, the stipulated limits for dust should be fair towards the tenants. André agrees and said if Namport have an overarching EMP with a clearance certificate, then technically all the tenants in the port do not need their own ECC, however government may differ from that opinion. Each tenant may be required to conduct their own minor environmental impact assessment according to their respective activities. The EMP for the

activities of tenants will then fit in with the bigger Namport EMP. It can happen that the conditions prescribed at facilities may differ from that of other facilities, and things like operational limits may need to be adjusted.

Ms. Veiga inquired whether a draft document will be available for viewing. André said yes, he will first send it to Namport, they will go through it, if they approve it, it will be made available to all stake holders (public, tenants, registered parties). They will be given a week to review and provide comments, then this information will be used to prepare the final document, which is then again shared with all the stake holders.

Mr. Ron Wolters said that to abstract water from the sea one must get permission from the Department of Water Affairs and follow their standards of effluent discharge quality. He said that Namport is not involved with the standards of effluent discharge set out by the Department of Water Affairs.

No further comments were received and the meeting was adjourned.

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 190 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	:	23
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/Biochemistry	:	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; OSH-Med 2022
Basic Fire Fighting	:	EMTSS, 2017; OSH-Med 2022

PROFESSIONAL SOCIETY AFFILIATION:

Environmental Assessment Professionals of Namibia (Learner 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	:	+190
Research Reports & Manuals:	:	5
Conference Presentations:	:	1