APP-005793

OPERATIONAL ACTIVITIES OF THE HANGANA SEAFOOD FISH PROCESSING FACILITY, WALVIS BAY

UPDATED ENVIRONMENTAL MANAGEMENT PLAN

Prepared by:

Prepared for:

May 2025

Project:	**Operational Activities of the Hangana Seafood Fish Processing Facility, Walvis Bay: Updated Environmental Management Plan**	
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Prepared for:	Hangana Seafood (Pty) Ltd P.O. Box 26 Walvis Bay	
Application No:	APP 005793	
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Report Approval	 **André Faul** Conservation Ecologist	

I, _____, acting as the Proponent's representative (Hangana Seafood (Pty) Ltd), hereby approve this report and confirm that the project description contained in herein is a true reflection of the information which the proponent has provided to Geo Pollution Technologies. All material information in the possession of the proponent that reasonably has or may have the potential of influencing any decision or the objectivity of this assessment is fairly represented in this report.

Signed at Walvis Bay on the 23 day of June 2025

_____
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1 BACKGROUND AND INTRODUCTION

Hangana Seafood (Pty) Ltd (the Proponent) requested Geo Pollution Technologies (Pty) Ltd to update their environmental management plan (EMP) in preparation for the ECC renewal process. The updated EMP is required to renew the facility's existing environmental clearance certificate (ECC-0084) with the Ministry of Environment, Forestry and Tourism (MEFT). The ECC is a legal requirement for the continued operations of the fish processing plant as per the Environmental Management Act of 2007. The update aims at including the operations and potential upgrade activities of the facility. The facility is located on erven 4606, 3691, 13B, 3692 and 14B in Ben Amathila Street, in the industrial area of Walvis Bay (Figure 1-1).

The existing EMP is based on an environmental assessment conducted for Hangana Seafood in 2019 (Faul *et al.* 2019). The objectives of the updated EMP are, in consideration of the definite and potential impacts identified during the environmental assessment of 2019, and a subsequent site visit in April 2025, to:

- Provide an updated summarised legal framework within which Hangana Seafood operates.
- To list the necessary environmental related permits, licences and certificates required for the various components and activities.
- To establish management structures pertaining to health, safety and environment, community liaison and environmental monitoring.
- Update and identify new measures to prevent, and where not preventable, mitigate negative impacts associated with all care and maintenance, operational and potential future decommissioning activities of the facility.
- Update and identify new measures to enhance or optimise beneficial (positive) impacts.
- Guide the Proponent on implementation of a monitoring programme aimed at monitoring and auditing compliance to the EMP.
- Ensure that appropriate environmental training is provided to responsible personnel and contractors.

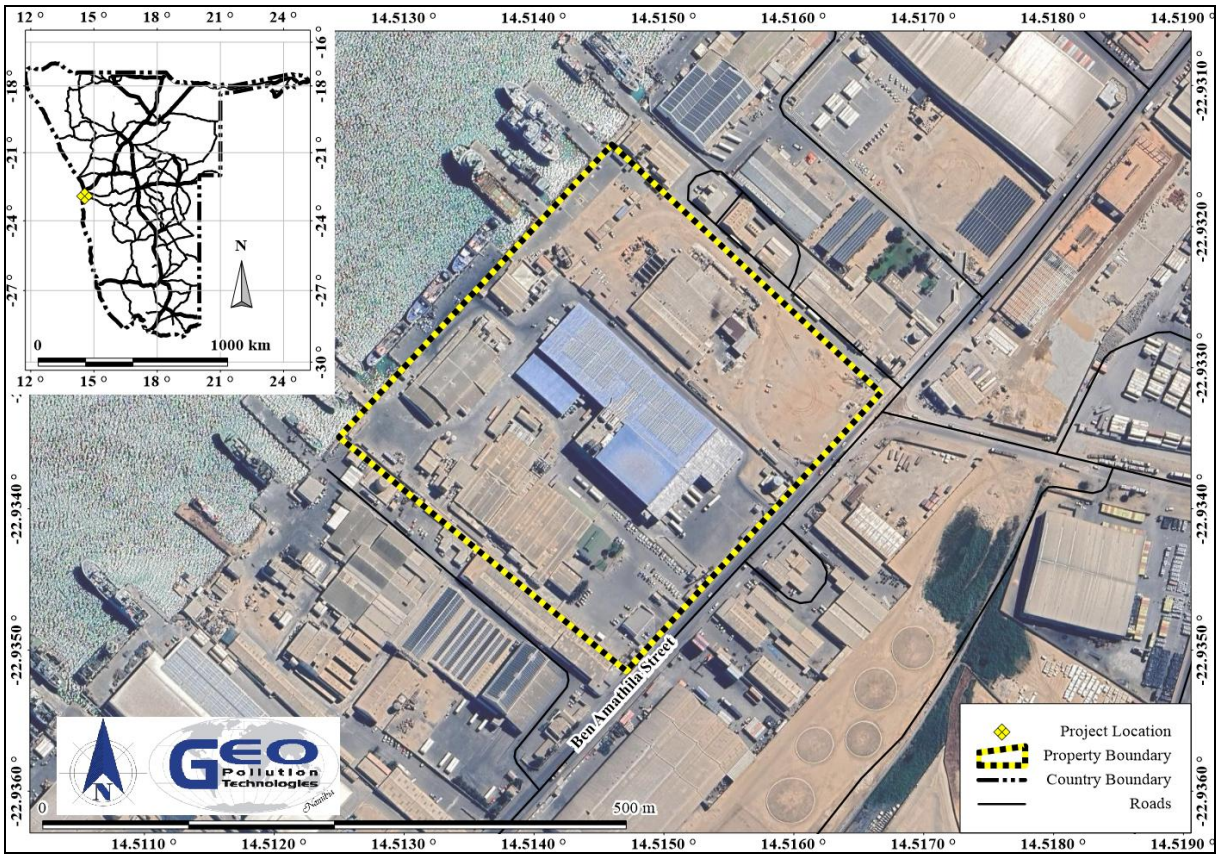

Figure 1-1 Project location

2 PROJECT DESCRIPTION

Hangana Seafood's fish processing facility is located on five adjacent erven in the fishing harbour in the industrial area of Walvis Bay. The operation employs approximately 1800 personnel across its fishing fleet, processing facilities and supporting services. The site comprises multiple production units and support infrastructure. Six wet-fish trawlers offload their catch at dedicated jetties for immediate processing at the fresh fish factory, which has a throughput capacity of around 15,000 tonnes per year. The fish are filleted, rapidly frozen, and stored in on-site cold rooms with capacity for up to 2,500 pallets.

Offcuts and by-products from processing are sent to the on-site fishmeal plant, which produces fishmeal and fish oil. A co-located oil recycling facility refines used oils for use as boiler fuel at the fishmeal plant. Additional infrastructure includes a flake ice plant (90 tonnes/day), a factory shop, as well as a canteen, clinic and microbiological laboratory.

The facility sources most of its water through an on-site seawater treatment plant and a reverse osmosis desalination unit, reducing dependence on municipal water. Electrical supply is provided via several transformers, and refrigeration is maintained through ammonia-based cooling systems. Wastewater from industrial processes is screened before permitted discharge to the sea, while domestic wastewater is directed to the municipal sewer system. Odour emissions from the fishmeal plant are controlled through enclosed processing and vapour recovery.

Routine operations include fish processing, cleaning, maintenance, pest control, health screening, and waste management. Waste is removed by registered contractors. The facility is access-controlled and monitored by on-site security, with regular emergency response drills conducted to ensure safety and compliance.

Hangana Seafood implements numerous in-house and international policies and standards to ensure protection of health, safety environment and quality. These include a group environmental management system, a Corporate Social Responsibility (CSR) strategy, and food safety management standards i.e. BRC Global Standards for Food Safety and NAMS/SANS 10330.

3 ADMINISTRATIVE, LEGAL AND POLICY REQUIREMENTS

The legislation and standards provided in Table 3-1 to Table 3-4 govern the environmental assessment process in Namibia and/or are relevant to the factory.

Table 3-1 Namibian law applicable to the factory and related operations

Law	Key Aspects
The Namibian Constitution	♦ 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, Government Notice No. 232 of 2007	♦ 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	♦ Commencement of the Environmental Management Act ♦ Lists activities that require an environmental clearance certificate ♦ Provides Environmental Impact Assessment Regulations ♦ Lists the "polluter pays principle" as one of the principles of environmental management
Petroleum Products and Energy Act Act No. 13 of 1990, Government Notice No. 45 of 1990	♦ Regulates petroleum industry ♦ Makes provision for impact assessment ♦ Petroleum Products Regulations (Government Notice No. 155 of 2000) ♦ Prescribes South African National Standards (SANS) or equivalents for construction, operation and decommissioning of petroleum facilities (refer to Government Notice No. 21 of 2002)
Petroleum Products and Energy Act Regulations Government Notice No. 112 of 1991	♦ Regulations relating to the purchase, sale, supply, acquisition, possession, disposal, storage, transportation, recovery and re-refinement of used mineral oil
Electricity Act Act No. 4 of 2007, Government Notice No. 187 of 2007	♦ Provides for the requirements and conditions for obtaining licences or exemption thereof for the generation of electricity ♦ Provides for the powers and obligations of licensees ♦ Regulations
Water Resources Management Act Act No. 11 of 2013	♦ Provides for management, protection, development, use and conservation of water resources. ♦ Provides for licencing and permitting of abstraction sea water and disposal of effluent. ♦ Prevention of water pollution and assignment of liability.

Law	Key Aspects
Marine Resources Act Act No. 27 of 2000	♦ Prevents the discharge of anything that may be injurious to marine resources or may disturb ecological balance in any area of the sea or which may detrimentally affect the marketability of marine resources, or which may hinder their harvesting
The Namibian Ports Authority Act Act No. 2 of 1994	♦ Provides for the establishment of the Namibian Ports Authority and its functions ♦ Responsible to protect the environment within its areas of jurisdiction
Public and Environmental Health Act Act No. 1 of 2015, Government Notice No. 86 of 2015	♦ Provides a framework for a structured more uniform public and environmental health system, and for incidental matters ♦ Deals with Integrated Waste Management including waste collection disposal and recycling; waste generation and storage; and sanitation
Labour Act Act No 11 of 2007, Government Notice No. 236 of 2007	♦ Provides for Labour Law and the protection and safety of employees ♦ Labour Act, 1992: Regulations relating to the health and safety of employees at work (Government Notice No. 156 of 1997)
Atmospheric Pollution Prevention Ordinance Ordinance No. 11 of 1976	♦ Governs the control of noxious or offensive gases ♦ Prohibits scheduled process without a registration certificate in a controlled area ♦ Requires best practical means for preventing or reducing the escape into the atmosphere of noxious or offensive gases produced by the scheduled process
Hazardous Substances Ordinance Ordinance No. 14 of 1974	♦ Applies to the manufacture, sale, use, disposal and dumping of hazardous substances as well as their import and export ♦ Aims to prevent hazardous substances from causing injury, ill-health or the death of human beings
Pollution Control and Waste Management Bill (draft document)	♦ Not in force yet ♦ Provides for prevention and control of pollution and waste ♦ Provides for procedures to be followed for licence applications
Prevention and Combating of Pollution of the Sea by Oil Amendment Act (No. 24 of 1991)	♦ 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)	♦ Provides for water quality monitoring to protect aquaculture activities
Draft Wetland Policy of 2003	♦ Considering the Walvis Bay Lagoon, the Wetland Policy of 2003 is of importance and includes: o Protection and conservation of wetlands and ecosystems o As well as, including fulfilling Namibia's International obligations to the Ramsar Convention and the SADC Protocol on Shared Water Systems

Law	Key Aspects
Road Traffic and Transport Act Act No. 52 of 1999 Government Notice No 282 of 1999	♦ 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	♦ 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

Table 3-2. Municipal by-laws, guidelines and regulations

Municipal By-laws, Guidelines or Regulations	Key Aspects
Integrated Urban Spatial Development Framework for Walvis Bay	♦ Completed during 2014 and in the final stages of acceptance ♦ 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)	♦ 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 ♦ Strong focus on conservation and protection of environment
Drainage and Plumbing By-Law of 1958 (updated in 1982)	♦ Regulations regarding discharges into sewers specific to Walvis Bay

Table 3-3 Relevant multilateral environmental agreements for Namibia and the development

Agreement	Key Aspects
International Convention on Oil Pollution Preparedness, Response and Cooperation of 1990	♦ International maritime convention establishing measures for dealing with marine oil pollution incidents nationally and in co-operation with other countries
National Marine Pollution Contingency Plan of 2017	♦ Coordinated and integrated national system for dealing with oil spills in Namibian waters.
Benguela Current Convention of 2013	♦ 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"
Abidjan Convention of 1981	♦ 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 on Biological Diversity	♦ 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)	♦ 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	♦ 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
Stockholm Declaration on the Human Environment, Stockholm 1972.	♦ Recognizes the need for a common outlook and common principles to inspire and guide the people of the world in the preservation and enhancement of the human environment
Namport Specifications and Legislation	♦ Enforced Standards and Codes which governs construction and operations relating to the port.

Table 3-4 Standards

Standard or Code	Key Aspects
South African National Standards (SANS)	♦ The Petroleum Products and Energy Act prescribes SANS standards for the construction, operations and demolition of petroleum facilities ♦ SANS 10089-1:2008 is specifically aimed at Storage and distribution of petroleum products in above-ground bulk installations ♦ Provide requirements for spill control infrastructure

The operations on the Hangana Seafood premises are listed as activities requiring an environmental clearance certificate as per the following points from Section 9 of Government Notice No. 29 of 2012:

Section 2 of Government Notice No. 29 of 2012: Waste Management, Treatment, Handling and Disposal Activities

♦ 2.3 "The import, processing, use and recycling, temporary storage, transit or export of waste".

Section 7 of Government Notice No. 29 of 2012: Agriculture and Aquaculture Activities

♦ 7.5 "Pest Control."

Section 8 of Government Notice No. 29 of 2012: Water Resource Developments

♦ 8.1 "The abstraction of ground or surface water for industrial or commercial purposes."

Section 9 of Government Notice No. 29 of 2012: Hazardous Substance Treatment, Handling and Storage

- 9.1 "The manufacturing, storage, handling or processing of a hazardous substance defined in the Hazardous Substances Ordinance, 1974."
- 9.2 "Any process or activity which requires a permit, licence or other form of authorisation, or the modification of or changes to existing facilities for any process or activity which requires an amendment of an existing permit, licence or authorisation or which requires a new permit, licence or authorisation in terms of a law governing the generation or release of emissions, pollution, effluent or waste."
- 9.4 "The storage and handling of a dangerous goods, including petrol, diesel, liquid petroleum gas or paraffin, in containers with a combined capacity of more than 30 cubic meters at any one location."
- 9.5 "Construction of filling stations or any other facility for the underground and aboveground storage of dangerous goods, including petrol, diesel, liquid, petroleum, gas or paraffin."

4 PERMITTING REQUIREMENTS

The Environmental Management Act defines the *environment* 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*". Based on this, the facility must ensure that all existing permits, licences, registrations, and certificates remain valid and compliant with the relevant legislation throughout its operations. Ongoing regulatory compliance must be maintained for all applicable aspects outlined in Table 4-1.

Table 4-1 Permitting and authorisations

Act	Regulations	Type
Environmental Management Act 7 of 2007	List of activities that may not be undertaken without environmental clearance certificate: Environmental Management Act (Government Notice 29 of 2012)	An **ECC** is required for various aspects related to Hangana Seafood. The listed activities with applicability are provided in section 3.
Labour Act	No person shall operate a factory which is not registered under these regulations [Labour Act, 1992: Regulations Relating to the Health and Safety of Employees at Work]. (Government Notice 156 of 1997)	A fish processing factory is per definition of the Labour Act a factory which must be **registered** in terms of the Act.
Water Resources Management Act 11 of 2013	Water Resources Management Regulations (Government Notice No. 269 of 2023)	Application for a **licence** to abstract and use water. Application for **licence** to discharge effluent or construct or operate a wastewater treatment facility or waste disposal site. (Note: With consent the Act allows for a combined licence to abstract water and discharge wastewater)
Petroleum Products and Energy Act 13 of 1990	Petroleum Products Regulations: Petroleum Products Act of 1990 (Government Notice No. 155 of 2000).	Issuing of consumer fuel installation **certificates.**
	Petroleum Products Regulations: Petroleum Products Act of 1990 (Section 2(1)	Issuing of **permits** for the purchase, sale, supply, acquisition, usage, possession, disposal, storage, transportation, recovery, and re-refinement of used mineral oil**.**

5 ENVIRONMENTAL MANAGEMENT PLAN

5.1 MANAGEMENT AND IMPLEMENTATION OF THE EMP

Each business or project will have its own management structure tasked with the management and implementation of an EMP.

Successful implementation of an environmental management plan is hinged on appointing key responsibilities and tasks to identified personnel. Members of staff may be assigned more than one position and carry the responsibility of more than one office. Therefore, for example, the environmental co-ordinator may also be the health and safety officer and / or community liaison officer. A list of key personnel as referred to in the documentation is as follows:

- General Manager
- Financial Manager
- Procurement Manager
- Maintenance manager
- Environmental Coordinator
- Financial Manager
- Human Resource Manager
- Community Liaison Officer (CLO)
- Health & Safety Officer

Table 5-1 provides a list of actions which have been assigned to specific personnel as per the related environmental management plan. The table should be completed with the relevant responsible parties by the Proponent.

Table 5-1 Specific identified actions and related responsible party

Responsible Party	Action Intervals	Action	Appointed Person
General Manager	Ongoing	• Accountable and responsible for compliance and approval of any action plans.	
Financial Manager	Once-off	• Ensure budgetary allowance and/or insurance for any environmental incidents/damage (e.g. pollution clean-up due to fuel spills) or rehabilitation where infrastructure is removed.	
	Ongoing	• Financial provisions for employee development (training): • Examples: o Educational and wellness programs (HIV/Aids, alcohol and drug abuse, financial advice, etc.). o Fire protection and prevention training. o Health and safety plan / first aid training. o Communication strategy.	
Procurement Manager	Ongoing	• Ensure contractors' awareness and compliance to the Proponent's requirements for contractors on site and to applicable sections of this EMP.	
Maintenance Manager	Ongoing	• Draft necessary maintenance programs and information on utilities (location, capacity, etc.)	
Compliance Manager	Ongoing	• Drafting and maintenance of permitting, registration and licensing register, etc.	
Human Resources Manger	Ongoing	• Keep labour related documentation. • Employment contracts. • Local labour requirement.	

		♦ Unskilled labour requirement. ♦ Logging of work hours. ♦ Identification card. ♦ Provide references to employees.	
Health and Safety Officer	Once-off	♦ Compile a health and safety plan.	
	Ongoing	♦ Health and safety incidents register and related actions. ♦ Health and safety committee meetings. ♦ Legal appointments. ♦ Safety training e.g. toolbox talks.	
Community Liaison Officer	As required	♦ Record communication to community members (of incidents of importance such as environmental incidents). ♦ Record consultation with the local and regional authorities. ♦ Record and respond to complaints from community members.	
Environmental Coordinator	Once-off	♦ Develop an environmental mitigation strategy / plan. ♦ Develop a disciplinary policy for non-compliance.	
	Bi-annual report	♦ Record of site inspections. ♦ Record of rehabilitation where required (dated photos of rehabilitated areas)	
	As required	♦ Environmental training of relevant staff on various aspects of environmental management (compliance to, and implementation, of the EMP) to be covered. Proof in the form of attendance registers kept on file.	
	Ongoing	♦ Recording of environmental performance and management. ♦ Recording of environmental incidents. Proof in the form of incidents register and communication to be kept on file.	

Section 5.2 outlines the management of the environmental elements that may be affected by different activities or factors at Hangana Seafood. Each impact is provided as standalone impacts for easy reference and distribution to relevant employees. Impacts are however not always completely independent of each and overlaps between two or more impacts are common. Furthermore, impacts addressed and mitigation measures proposed are seen as minimum requirements which can be elaborated on by the Proponent as the execution of the project progress and evolve. As such, the EMP is a living document that must be prepared in detail, and regularly updated, by the Proponent and/or its consultants.

A copy of the EMP and ECC must be present on site. All monitoring results must be reported on as indicated and copies of these reports must also be present on site for inspection by officials. Reporting is also important to allow for any future renewals of the ECC and must be submitted to the MEFT. Currently, all ECCs list a bi-annual monitoring frequency as one of the conditions. Should this change, the frequency of monitoring report submission should match that as prescribed.

Since the preventative and mitigation measures for various impacts are the same, regardless of whether it is the construction, maintenance, operational or decommissioning phases, these phases will be dealt with simultaneously to prevent duplication.

5.2 MANAGEMENT OF IMPACTS: ALL PHASES

5.2.1 Planning

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

- Ensure that all necessary permits from the various ministries, local authorities and any other bodies that governs the construction activities and operations of the project are obtained and valid. This includes the Ministry of Mines and Energy (consumer fuel installation certificate) and Ministry of Agriculture, Fisheries, Water and Land Reform (water abstraction and effluent disposal).
- As part of the contractor management program, ensure that the relevant sections of the EMP, as applicable to their scope of work, are understood by contractors and subcontractors.
- Make provisions to have a Health, Safety and Environmental Coordinator to implement the EMP and oversee occupational health and safety as well as general environmental related compliance at the site, by both the Hangana Seafood employees and the contractors and their employees.
- Corporate communication processes to be followed in the event of complaints from public entities.
- Have the following emergency plans, equipment and personnel on site where reasonable to deal with all potential emergencies:
    - Risk management / mitigation / EMP/ emergency response plan and HSE manuals;
    - Adequate protection and indemnity insurance cover for incidents;
    - Comply with the provisions of all relevant safety standards;
    - Procedures, equipment and materials required for emergencies.
- Establish and maintain a fund or insurance for spill clean-up if a spill or pollution occur impacting the environment occur.
- Establish a reporting system to report on aspects of construction activities, operations and decommissioning as outlined in the EMP.
- Submit monitoring reports to the Ministry of Environment. Forestry and Tourism on a bi-annual basis.
- Update the EIA and/or EMP and apply for renewal of the environmental clearance certificate prior to expiry.

5.2.2 Employment

Continuous operations and maintenance of the facility require a permanent employee base and periodic appointment of contractors. Both can include skilled and unskilled employees to perform various tasks. Employment increases individual and societal economic resilience through, not only the payment of wages, but also contributions to social security and fringe benefits.

Desired Outcome: Remuneration of temporary and permanent employees and contractors as per the Labour Act. Continued contributions to social security.

Actions

Enhancement:

- The Proponent must employ local Namibians from the area where possible.
- Develop and maintain a contractor management program, inclusive of compliance reviews of service level agreements etc.

Responsible Body:

- Proponent

5.2.3 Skills, Technology and Development

For activities related to operational phases at the facility, personnel will require certain levels of training in order to ensure that Hangana Seafood performs at peak capacity and according to required standards of operation. This is not limited to only training in the formal sense, but also awareness practices which can assist in adherence to the health, safety and environmental plans. Skills are typically also transferred to an unskilled workforce for general tasks. The technology required and installed for operations is often new or improved technology which results in technological development in the industry. Development of both people and technology are key to economic development.

Desired outcome: To see an increase in skills of local Namibians, as well as development and technology advancements in the fishing and fish processing industry.

Actions

Enhancement:

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

Responsible Body:

- Proponent
- Contractors

5.2.4 Revenue Generation

The operations of the facility changed the way revenue is generated and paid to the national treasury. The sale of various products contributes to the national gross domestic product, towards a positive trade balance and the economic resilience of Namibia.

Desired Outcome: Contribution to the national treasury and payment of fees and taxes in accordance with the laws of Namibia.

Actions

Enhancement:

- Adhere to the relevant Namibian legislation pertaining to the payment of salaries, taxes, fees, etc.
- Prioritise and set targets for local procurement.

Responsible Body:

- Proponent

5.2.5 Demographic Profile and Community Health

The project relies on a large labour force during the operational phase. Due to this being an existing operation, a change in the demographic profile of the local community is not expected. Community health may still be exposed to factors such as communicable disease like HIV/AIDS and alcoholism/drug abuse, associated with trucking (transport of products to SADC markets). An increase in 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.
- Adhere to all municipal by-laws relating to environmental health which includes but is not limited to sand and grease traps for the various facilities and sanitation requirements.

Mitigation:

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

Responsible Body:

- Proponent

5.2.6 Traffic

Operational activities on the Hangana Seafood premises may increase the traffic flow to the site due to trucks collecting and delivering various products. An increase in traffic to and from the site may increase congestion and increase the risk of incidents and accidents, especially in Ben Amathila Street.

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

Actions

Prevention:

- Erect clear signage regarding access and exit points at the facility.

Mitigation:

- Refrigerator trucks collecting finished products and construction vehicles should not be allowed to obstruct any traffic or access to facilities in Ben Amathila Street.
- If any traffic impacts are expected, traffic management should be performed to prevent these.
- The placement of signs to warn and direct traffic will mitigate traffic impacts.

Responsible Body:

- Proponent
- Contractors

5.2.7 Employee Health

Activities associated with the operational phase relies on human labour and therefore exposes them to health risks. Some chemicals handled and stored on site are hazardous, with inherent health risks to personnel on site, when inhalation, accidental ingestion, eye or skin contact occurs. This includes ammonia if leaks from cooling systems occur. Asbestos containing material may still be present on site which may pose risks during demolition. *Legionella* bacteria in water sources, that can become airborne, may pose health risks including Legionnaires' disease.

Desired Outcome: To prevent health impacts.

Actions

Prevention:

- All Health and Safety standards specified in the Labour Act should be complied with.
- Clearly label dangerous and restricted areas as well as dangerous equipment and products.
- Provide all employees with required and adequate personal protective equipment (PPE) to be worn at all times.
- Ensure that all personnel receive adequate training on handling of hazardous substances.
- Implement a maintenance register for all equipment and fuel / hazardous substance storage areas.
- A *Legionella* risk assessment should be conducted and if the possibility of *Legionella* becoming a health risk is present, a management plan should be compiled which includes bi-annual inspection and analysis of water sources potentially containing *Legionella*.

Mitigation:

- Selected personnel should be trained in first aid and first aid kits 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 pipes, operational, safe work and medical procedures, permits to work, emergency response plans, housekeeping rules, MSDS's and signage requirements (PPE, flammable etc.).
- The compressors rooms must have emergency response plans specific to ammonia if leaks or accidental release of ammonia occur. This include emergency showers and eyewash stations, PPE and water hoses with water diffusing nozzles. Water absorbs ammonia vapour if sprayed by a fine mist or droplets of water. Refer to MSDA and SANS 10147.
- All asbestos removal (if any) must be performed by qualified and approved contractors and disposed of at an approved facility.
- Security procedures and proper security measures must be in place to protect workers and clients.

Responsible Body:

- Proponent
- Contractors

5.2.8 Safety

Activities associated with the operational phase have inherent 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, and exposure to hazardous substances and hot or cold temperatures.

Desired Outcome: To prevent injury and damage to property

Actions

Prevention:

- All Health and Safety standards specified in the Labour Act should be complied with.
- Clearly label dangerous and restricted areas as well as dangerous equipment and products.
- Provide all employees with required and adequate personal protective equipment (PPE) to be worn at all times.
- Ensure that all personnel receive adequate training on operation of equipment.
- Always follow safe stacking and storage methods.
- Implement a maintenance register for all equipment and fuel / hazardous substance storage areas.
- Ammonia has a strong smell and leaks are typically quickly detected by smell only. However, leak detectors should be considered since personnel will not always be present in the compressor rooms.

Mitigation:

- 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 pipes, operational, safe work and medical procedures, permits to work, emergency response plans, housekeeping rules, MSDS's and signage requirements (PPE, flammable etc.).
- The compressors rooms must have emergency response plans specific to ammonia if leaks or accidental release of ammonia occur. This include emergency showers and eyewash stations, PPE and water hoses with water diffusing nozzles. Water absorbs ammonia vapour if sprayed by a fine mist or droplets of water. Refer to MSDS and SANS 10147.
- Treat all minor work-related injuries and medical events immediately and obtain professional medical treatment if required.
- Assess any safety problems and implement corrective action to prevent future occurrences.
- Physical guards should be in place at conveyor belt drive systems, lockout procedures should be followed when belts are being serviced.

Responsible Body:

- Proponent
- Contractors

5.2.9 Security

Security risks are related to unauthorized entry, theft and sabotage.

Desired Outcome: To prevent security incidents and theft.

Actions

Prevention:

- Equipment that will be locked away on site must be placed in a way that does not encourage criminal activities (e.g. theft).
- Contractors on site must wear identifiable nametags so that staff can recognise them as being permitted to be on site.

Mitigation:

- Security procedures and proper security measures must be in place to protect workers and clients.
- Strict security that prevents unauthorised entry.
- In line with the Labour Act and any other relevant legislation, take disciplinary action against staff who are guilty of theft.
- If the need arises, improve security measures to prevent entrance of potentially deviant people onto the premises.

Responsible Body:

- Proponent
- Contractors

5.2.10 Fire

Operational activities may increase the risk of the occurrence of fires. LFO, liquefied petroleum gas, oil and diesel stored in on the premises presents a fire risk. Various equipment like extractor canopies in canteen and mobile equipment used for welding all contribute to the risks of a fire. Ammonia, if released from the refrigeration systems and present in a 15% to 28% mixture with air, is explosive. Other flammable chemicals may also be on site in small quantities.

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

Actions:

Prevention:

- Ensure all fuel or chemicals are stored according to MSDS instructions.
- Maintain regular site, mechanical and electrical inspections and maintenance.
- Clean all spills / leaks.
- Follow SANS standards for operation and maintenance of the consumer fuel installation, oil recycling plant and oil / LFO tanks.
- Follow MSDS and SANS standard for operation and maintenance of the refrigeration systems containing ammonia.

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 done in conjunction with neighbouring fuel depots.
- Special note 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).
- The compressors rooms must have emergency response plans specific to ammonia related fire risks if leaks or accidental release of ammonia occur. This include explosive proof lighting, extractor fans, PPE and water hoses with water diffusing nozzles. Water absorbs ammonia vapour if sprayed by a fine mist or droplets of water. Refer to MSDA and SANS 10147.
- Ammonia has a strong smell and leaks are typically quickly detected by smell only. However, leak detectors should be considered since personnel will not always be present in the compressor rooms.
- Maintain firefighting equipment, good housekeeping and personnel training (firefighting, fire prevention and responsible housekeeping practices).

Responsible Body:

- Proponent
- Contractors

5.2.11 Air Quality

The boiler is the principal emitter of noxious gases and of key concern are the "exhaust" gases: nitrous oxides, sulphurous oxides, hydrocarbons, carbon monoxide, carbon dioxide, and particulate matter, which are all considered to be sources of air pollution. Odorous compounds from the fishmeal plant include ammonia, amines, fatty acids, hydrogen sulphide, methyl mercaptan and ethyl mercaptan. These are foul smelling and can decrease the quality of life of residents of Walvis Bay.

Desired Outcome: To prevent health impacts and minimise the dust generated.

Actions

Prevention:

- Regular maintenance and cleaning of all equipment.
- Process fish as fresh as possible.

Mitigation:

- All vapour generated in the fishmeal plant should pass through a deodoriser.
- Measures should be taken to ensure no white vapour (visual vapours) is emitted from the factory.
- Develop an air quality management plan and make the necessary adjustments to the boilers to reduce emissions if required.
- Compressor rooms must have extractors in case of leaks or accidental ammonia releases.
- Ammonia has a strong smell and leaks are typically quickly detected by smell only. However, leak detectors should be considered since personnel will not always be present in the compressor rooms.
- Quality checks should be conducted on the LFO used in boiler operations. Good quality LFO will reduce emissions.
- Scrubbers or ceramic filters should be considered to minimise emissions from boilers.

Responsible Body:

- Proponent
- Contractors

5.2.12 Noise

The site is situated in an industrial area and 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), processing machinery, and compressors of freezers and cold rooms. Construction may generate excessive noise.

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

Actions

Prevention:

- Follow Health and Safety Regulations of the Labour Act and/or World Health Organization (WHO) guidelines on maximum noise levels (Guidelines for Community Noise, 1999) to prevent hearing impairment and a nuisance to nearby receptors.
- 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:

- Hearing protectors as standard PPE for workers in situations with elevated noise levels.

Responsible Body:

- Proponent
- Contractors

5.2.13 Waste Production

Various types of waste are produced during the operational phase. Waste may include hazardous waste associated with the construction (upgrades and maintenance) activities and during operations of the factory, fishmeal plant and oil recycling plant. Domestic and other forms of waste are generated by the factory and related operations such as in offices. This includes waste paper, old lightbulbs, broken or old electronics, packing material, etc. Containers contaminated with chemicals can pose health risks if discarded at regular disposal sites where it may be collected for re-use by people. Construction waste may include building rubble and discarded equipment. Hydrocarbon contaminated soil and water are considered as hazardous wastes. Old oil filters used for refining of oil should be treated as hazardous waste or cleaned prior to disposal.

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 disposal storage facilities are available.
- Ensure waste cannot be blown away by wind.
- Prevent scavenging (human and non-human) of stored waste.

Mitigation:

- Waste should be disposed of regularly and at appropriately classified disposal facilities, this includes hazardous material (empty chemical containers, medical waste, contaminated rugs, paper water and soil).
- See the suppliers' MSDS for disposal of contaminated products and containers.
- Medical or biological waste presenting a biohazard, if any, must be incinerated.
- Broken photovoltaic panels that must be discarded should be handled as hazardous waste.
- Liaise with the municipality regarding waste and handling of hazardous waste.
- Wastewater, waste generated from the oil recycling plant and sewage must be disposed of according to their relevant permit requirements.

Responsible Body:

- Proponent
- Contractors

5.2.14 Ecosystem and Biodiversity Impact

The project location is within an already disturbed industrial area and no additional loss in terrestrial habitat is expected from the continued operational procedures. Also, the nature of the operational activities is such that the probability of creating habitat for flora and fauna to establish is low. Impacts on fauna is mostly related to birds and marine animals. Excessive lighting used at night and especially those that are directed upwards can blind birds like flamingos that fly at night. This may result in disorientation of birds and collisions with structures. Dredging and jetty maintenance may lead to temporary disturbances in the marine biodiversity typically associated with jetties, quays and sediment. Further impacts will mostly be related to potential pollution of the environment. During dredging, contaminants trapped in sediments can be suspended in the water column. Marine mammal entanglement with, or ingestion of, human generated debris can occur where such items enter the marine environment.

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

Actions.

Mitigation:

- Report any extraordinary sightings of animals not normally encountered in the area or injured animals (land or sea) to the Ministry of Environment, Forestry and Tourism.
- Mitigation measures related to waste handling and the prevention of groundwater, surface water and soil contamination should limit ecosystem and biodiversity impacts (refer to section 5.2.13 and 5.2.15).
- All hazardous substances, including hydrocarbons, should be stored in bunded areas with proper spill control infrastructure and emergency response plans in place.
- Ensure waste cannot be blown away by wind.
- The establishment of habitats and nesting sites at the factory should be discouraged.
- Seawater intake points should have screens or screening boxes to prevent the intake and entrainment of larger marine organisms.
- Lights used at site should as far as is practically possible be directed downwards to the working surfaces to prevent blinding and disorientation of birds flying at night.
- The compressor rooms must have structures (bunds) to contain any ammonia rich water which may be created if an ammonia leak is present and water is sprayed to absorb ammonia vapours. These should prevent contaminated water from entering the environment and importantly the ocean.

Responsible Body:

- Proponent

Data Sources and Monitoring:

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

5.2.15 Groundwater, Surface Water and Soil Contamination

Operations entail the storage and handling of hydrocarbons which present a contamination risk. Surface water contamination can also occur when pollutants including high organic loads enter the ocean. Insufficient removal of fish waste products and oils / fats from the effluent water will increase the organic load of effluent disposed of into the ocean. This increases the chemical oxygen demand (COD) and biological oxygen demand (BOD) of the wastewater. Contaminated water or oxygen poor water may negatively impact on aquatic ecosystems.

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

Actions

Prevention:

- Spill control structures and procedures related to consumer fuel installation must be in place according to SANS standards or better.
- Regular inspection and maintenance of the effluent sump and screens / solid traps.
- Contaminated water must be prevented from entering the effluent streams, and treated as hazardous waste that must be disposed of at an appropriately classified facility.
- The oil water separator at the fuel installation must be regularly inspected and cleaned when necessary.
- No surfactants (soaps) may be allowed to enter the oil water separator as this reduces efficiency and may lead to hydrocarbons entering sewers.

Mitigation:

- Any fuel spillage of more than 200 litre must be reported to the Ministry of Mines and Energy, Directorate of Petroleum Affairs.
- Emergency response plans and spill contingency plans must be in place and include all chemicals being handled.
- Any spill must be cleaned up immediately.
- All chemicals must be handled according to their respective material safety data sheet instructions.
- All hazardous substances, including hydrocarbons, should be stored in bunded areas with proper spill control infrastructure in place.
- For chemicals that will form part of effluent to be discharged into the ocean, environmental effects must be considered and alternative chemicals investigated if needed. This includes for example flocculants which are known to be harmful to aquatic organisms.
- Effluent must meet standards as per the effluent discharge permits.
- Use of reputable and well-trained contractors are essential.

Responsible Body:

- Proponent
- Contractors

5.2.16 Visual Impact

This is an impact that not only affects the aesthetic appearance, but also the integrity of the facility and the visual landscape character. The facility is situated within the fishing harbour of Walvis Bay, a built-up area with multiple fish factories. The new factory is the same as the existing urban character. If kept tidy and neat it may contribute positively to the visual character of the harbour.

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

Actions

Mitigation:

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

Responsible Body:

- Proponent
- Contractors

5.2.17 Impacts on Utilities, Infrastructure and Seabed Scouring

Any damage caused to existing infrastructure and services supply like sewers, water or electricity where present. Additional demand for electricity and potable water and increased effluent discharges into sewers may add strain on the available services supply of the area.

Scouring of the seabed caused by vessel propellers. This may lead to the upwelling of sediments, which in return may impact the depth of certain areas as well as impact on the structural integrity of jetties and quays.

Desired Outcome: No impact on utilities and infrastructure. No unwanted products entering sewers. Water depth maintained at safe vessel manoeuvring depths.

Actions

Prevention:

- Appointing qualified and reputable contractors are essential.
- The contractor must determine exactly where amenities and pipelines are situated before construction commences (utility clearance e.g. ground penetrating radar surveys). Liaison with the Municipality and suppliers of services is essential.
- Liaise with suppliers of water, electricity and sewers in terms of supply and demand statistics. Timely communication of significant increases in future usage of resources to allow for planning and additional provision.
- 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 (Faul et al. 2022).
- Regular water depth determination.
- All drains leading directly into sewers must be closed off, and locked where possible, to prevent any unwanted products from entering sewers should an accidental spill, pipe burst, valve malfunction, etc. occur. Where drains are present to drain wash water, these should only be opened during times of washing and closed immediately thereafter.

Mitigation:

- Implement programmes to monitor consumption of water and electricity and programmes to ensure water and energy efficient strategies.
- Emergency procedures available on file.
- Timely planning for temporary measures to supply electricity and water during shortages in their supply.
- Regular maintenance dredging to be performed when necessary.

Responsible Body:

- Proponent
- Contractors

5.2.18 Cumulative Impact

Although the surface water contamination impact from the operations on the premises can be sufficiently mitigated, the cumulative impact due to multiple industries in area extracting seawater and discharging effluent into the Atlantic Ocean, may increase the environmental risk related to this impact.

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

Actions

Mitigation:

- It is recommended that 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 decrease.
- 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
- Fish processing industry

5.3 DECOMMISSIONING AND REHABILITATION

Decommissioning of the entire plant is not foreseen during the three-year validity period of the environmental clearance certificate. However, certain aspects of the facility may be decommissioned. Should decommissioning occur at any stage, rehabilitation of the area may be required. Decommissioning will entail the complete removal of all infrastructure including buildings and underground infrastructure. Any pollution present on the site must be remediated. The impacts associated with this phase include noise and waste production as structures are dismantled. Noise must be kept within the Health and Safety Regulations of the Labour Act and/or WHO standards and waste should be contained and disposed of at an appropriately classified and approved waste facility and not dumped in the surrounding areas. Future land use after decommissioning should be assessed prior to decommissioning and rehabilitation initiated if the land and infrastructure would not be used for future purposes. The EMP for the facility will have to be reviewed at the time of decommissioning to cater for changes made to the site and implement guidelines and mitigation measures.

5.4 ENVIRONMENTAL MANAGEMENT SYSTEM

The Proponent Hangana Seafood implements numerous in-house and international policies and standards to ensure protection of health, safety environment and quality. These include various management standards, a Corporate Social Responsibility (CSR) strategy, and BRC Global Standards for Food Safety, and Hazard Analysis and Critical Control Points (HACCP) 10330. Hangana Seafood subscribes to a group environmental management system that ensure ongoing incorporation of environmental constraints. At the heart of an EMS is the concept of continual improvement of environmental performance with resulting increases in operational efficiency, financial savings and reduction in environmental, health and safety risks. An effective EMS need to include the following elements:

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

6 MONITORING REQUIREMENTS

Table 6-1 provides a summary of proposed monitoring requirements and frequencies. All incidents and actions must be recorded as soon as it happens in order to ensure it is not forgotten at a later stage (continuous monitoring). Summaries of these records should be provided in the bi-annual EMP compliance monitoring report to be submitted to MEFT. Where permit or licence conditions' monitoring requirements differ from the EMP, the permit or licence condition must be adhered to.

Table 6-1 Monitoring requirements

Impact	Monitoring	Purpose	Frequency	Included in Bi-Annual Report
Planning	Proof of permits/licences/certificates	For the EMP monitoring report to indicate the Proponent's adherence to relevant legislation	Once of or when it is renewed	♦ Copy of permits / licences / certificates
	EIA/EMP/Bi-annual monitoring reports	For the EMP monitoring report to indicate the Proponent's adherence to relevant legislation and the ECC	Once off or when updated	♦ Written verification that copies are available for inspection at the facility
	Managerial structure with assigned responsibilities	For the EMP monitoring report to indicate the Proponent's adherence to the EMP and ECC	Once off or when changed	♦ Written verification of the structure and assigned responsibilities
Employment	Employment figures	For the EMP monitoring report to provide an quantitative measure of the positive contribution the Proponent makes towards the employment sector	Bi-annual checks and reporting	♦ Number of male vs female employees ♦ Number of Namibian vs foreign employees
Skills and Development of Employees	Records of training and copies of certificates and/or references on file	For the EMP monitoring report to provide an overview of the positive contribution the Proponent makes towards the development of employees	Bi-annual checks and reporting	♦ Type of training and number of people who received said training with attendance registers as proof ♦ One or two copies of certificates or references as examples
Revenue	Proof of payment of taxes	For the EMP monitoring report to indicate the Proponent's adherence to relevant legislation	Bi-annual checks and reporting	♦ Tax good standing
Demographic Profile and Community Health	Records of all educational and social upliftment programmes	For the EMP monitoring report to provide an overview of the positive contribution the Proponent makes towards the social development and wellness of employees	Bi-annual checks and reporting	♦ Type of training and number of people who received said training with attendance registers as proof ♦ Factory inspection sheet for all areas which may present

Impact	Monitoring	Purpose	Frequency	Included in Bi-Annual Report
				environmental health risks, kept on file.
Employee Health	Presence of MSDS instructions on file and at applicable locations	For the EMP monitoring report to indicate adherence to typical health requirements	Bi-annual checks and reporting	♦ Copy of MSDS file index/table of contents as proof
	Keep records of all mild to serious health related incidents with actions taken.	For the EMP monitoring report to indicate Proponent's commitment to ensuring the health of employees, contractors and visitors	Continuous record keeping with bi-annual summary report	♦ Summary of incidents and actions
	Legionella risk assessment and management plan on file	To indicate water sources identified as potentially posing a risk of proliferation of *Legionella* bacteria and to indicate proposed measures to prevent, test and/or treat such water.	Once of risk assessment and preparation of management plan with updates as required. Testing and treatment of water as per the management plan, if applicable.	♦ Summary of risk assessment findings ♦ Index/table of contents of management plan as proof ♦ Register of water treatment and/or testing with test results when applicable
Safety	Presence of MSDS instructions on file and at applicable locations	For the EMP monitoring report to indicate adherence to typical safety requirements	Bi-annual checks and reporting	♦ Copy of MSDS file index/table of contents as proof
	Signage	For the EMP monitoring report to indicate adherence to typical safety requirements	Bi-annual reports but once-off proof of presence of signage thereafter only of any new signage erected	♦ Photographs of safety and restricted area signs as proof
	Keep records of all safety related incidents with actions taken.	For the EMP monitoring report to indicate Proponent's commitment to ensuring the safety of employees, contractors and visitors	Continuous record keeping with bi-annual summary report	♦ Summary of incidents and actions
	First aid training events	For the EMP monitoring report to indicate Proponent's commitment to ensuring the safety of employees,	Bi-annual checks and reporting	♦ Level of training and number of people who received said training

Impact	Monitoring	Purpose	Frequency	Included in Bi-Annual Report
		contractors and visitors		with attendance registers as proof ♦ One or two copies of certificates or references as examples
Security	Security related incidents with action taken to prevent future occurrences.	For the EMP monitoring report to indicate the Proponent's commitment to ensuring the security of employees, contractors and visitors	Continuous record keeping with bi-annual summary report	♦ Summary of incidents and actions
Traffic	Traffic related incidents with action taken to prevent future occurrences.	For the EMP monitoring report to indicate the Proponent's adherence to the EMP	Bi-annual reports	♦ A report should be compiled of all incidents reported, complaints received, and action taken. ♦ Any complaints received regarding traffic issues should be recorded together with action taken to prevent impacts from repeating itself.
Fire	Holistic fire protection and prevention plan	For the EMP monitoring report to indicate the Proponent's adherence to the EMP	Once-off proof of presence of such plan	♦ Copy of plan
			A bi-annual report should be compiled of all incidents reported	♦ The report should contain dates when fire drills were conducted and when fire equipment was tested and training given.
	Firefighting equipment presence	For the EMP monitoring report to indicate the Proponent's adherence to the fire safety requirements	Once-off proof of presence of such equipment	♦ Photographs of equipment with copy of register of the types and quantity of firefighting equipment
	Servicing of firefighting equipment	For the EMP monitoring report to indicate the Proponent's adherence to the annual service requirements of firefighting equipment	In the bi-annual report corresponding to the date the equipment was serviced	♦ Servicing register with photos of proof or a compliance certificate issued by the service agent.
	Ammonia emergency response plan	For the EMP monitoring report to indicate the Proponent's adherence to the fire safety requirements	Once-off proof of presence of such plan	♦ Copy of plan
	Ammonia leak detection	For the EMP monitoring report to indicate the Proponent's adherence to	Once-off proof of presence of such	♦ Photograph of detector

Impact	Monitoring	Purpose	Frequency	Included in Bi-Annual Report
		the fire safety requirements	detector	
	Electrical maintenance / service and inspection plan	For the EMP monitoring report to indicate the Proponent's adherence to the fire safety requirements	Once-off proof of presence of such plan	♦ Copy of plan
	Fire related incidents with action taken to prevent future occurrences.	For the EMP monitoring report to indicate the Proponent's adherence to the EMP	Continuous record keeping with bi-annual summary report	♦ Summary of incidents and actions
Noise	Complaints with action taken to address the complaint	For the EMP monitoring report to indicate the Proponent's adherence to the EMP	Continuous record keeping with bi-annual summary report	♦ Summary of complaints and actions
Waste	Waste reduction and/or recycling plan/initiatives	For the EMP monitoring report to indicate the Proponent's commitment to reduce waste and prevent pollution	Once-off proof of presence of such plan/initiatives and then when changes to such plan/initiatives are made	♦ Copy of plan or brief description of initiatives
	Waste volumes	For the EMP monitoring report to indicate the Proponent's successful implementation of waste reduction measures	Continuous record keeping with bi-annual summary report	♦ Summary of waste volumes for every six month period
	Hazardous waste	For the EMP monitoring report to indicate the Proponent's proper handling of hazardous waste	Continuous record keeping with bi-annual summary report	♦ Type and volume of waste with hazardous waste safe disposal certificates
	Waste containment	For the EMP monitoring report to indicate the Proponent's adherence to the EMP	Bi-annual checks and reporting	♦ Photos of waste storage areas showing successful (or not) containment of waste
	Waste water	For the EMP monitoring report to indicate the Proponent's adherence to the EMP	Continuous record keeping with bi-annual summary report	♦ Waste water quality testing results on file. ♦ Waste water disposal permits
Ecosystem and	Training of staff on value	For the EMP monitoring report to	Continuous record	♦ Type of training and number of

Impact	Monitoring	Purpose	Frequency	Included in Bi-Annual Report
Biodiversity Impact	of biodiversity and protection of the environment	indicate the Proponent's commitment to conservation of biodiversity and the environment	keeping with bi-annual summary report	people who received said training with attendance registers as proof
	Presence of MSDS instructions for chemicals on file and at applicable locations	For the EMP monitoring report to indicate adherence to typical pollution prevention requirements	Bi-annual checks and reporting	♦ Copy of MSDS file index/table of contents as proof
	Effluent Disposal Permit	For the EMP monitoring report to indicate the Proponent's adherence to relevant legislation	Once-off	♦ Copy of permit
Soil, Groundwater and Surface Water Contamination	Effluent quality analysis	For the EMP monitoring report to indicate the Proponent's adherence to effluent disposal permit conditions	As per effluent disposal permit	♦ Summary of monitoring results
	Spills or leakages	For the EMP monitoring report to indicate adherence to the EMP	Continuous record keeping with bi-annual summary report	♦ Product and estimated volume spilled with date of spill, duration of spill and remedial action taken
	Effluent sampling	For the EMP monitoring report to indicate adherence to the effluent disposal permit conditions	Parameters and frequency as set out by the effluent disposal permit	♦ Summary of effluent analysis results
Air Quality	Complaints by neighbours or staff, or incidents detected by staff, of foul smelling odours originating from the fish meal plant and the fish packing factory	For the EMP monitoring report to indicate the Proponent's adherence to the EMP	Record any complaints or incidents with bi-annual summary report	♦ Summary of complaints and/or incidents and action taken
Impacts on Utilities, Infrastructure and Seabed Scouring	Incidents such as water and electricity supply interruptions, loss of telecommunications, downtime of wastewater treatment plant, etc. and actions taken	For the EMP monitoring report to indicate the Proponent's adherence to the EMP	Record any incidents with bi-annual summary report	♦ Summary of incidents and action taken

Impact	Monitoring	Purpose	Frequency	Included in Bi-Annual Report
Visual	Complaints	For the EMP monitoring report to indicate adherence to the EMP	Continuous record keeping with bi-annual summary report	◆ Complaints register
Traffic	Signage	For the EMP monitoring report to indicate the Proponent's adherence to the EMP	Once-off or as signage is added / replaced	◆ Photographs
	Complaints	For the EMP monitoring report to indicate adherence to the EMP	Continuous record keeping with bi-annual summary report	◆ Complaints register

7 DECOMMISSIONING AND REHABILITATION

Closure and decommissioning of Hangana Seafood as a whole is not foreseen during the validity of the ECC or in the foreseeable future. However, it is more likely that certain components may be decommissioned or changed. Decommissioning is therefore included for this purpose as well as the fact that construction activities may also include modification and decommissioning. Future land use after decommissioning should be assessed prior to decommissioning and rehabilitation initiated if the land would not be used for future purposes. Should decommissioning occur at any stage, rehabilitation of the area may be required. Decommissioning will entail the complete or partial removal of all infrastructure including buildings and underground infrastructure not required for future land use. Any pollution present on the site must be remediated. The impacts associated with this phase include noise and waste production as structures are dismantled. Noise must be kept within Health and Safety Regulations of the Labour Act and WHO standards and waste should be contained and disposed of at an appropriately classified and approved waste facility and not dumped in the surrounding areas. The EMP will have to be reviewed at the time of decommissioning to cater for changes made to the site and to implement guidelines and mitigation measures.

8 ENVIRONMENTAL MANAGEMENT SYSTEM

The Proponent Hangana Seafood implements numerous in-house and international policies and standards to ensure protection of health, safety environment and quality. These include various management standards, a Corporate Social Responsibility (CSR) strategy, and BRC Global Standards for Food Safety, and Hazard Analysis and Critical Control Points (HACCP) 10330. Hangana Seafood subscribes to a group environmental management system that ensure ongoing incorporation of environmental constraints. At the heart of an EMS is the concept of continual improvement of environmental performance with resulting increases in operational efficiency, financial savings and reduction in environmental, health and safety risks. An effective EMS need to include the following elements:

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

9 CONCLUSION

The above EMP, if properly implemented will help 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 project, it needs to be reviewed throughout all phases.

The EMP 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 for the proposed site, and 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.

10 REFERENCES

Botha P, Coetzer W, Faul A; 2020 July; Construction and Operational Activities of the Hangana Seafood Fish Processing Facility, Walvis Bay: Updated Environmental Assessment Scoping Report

Faul A, Botha P, Coetzer w. 2022. Update of the Environmental Impact Assessment for the Capital and Maintenance Dredging of the Lüderitz Harbour.