

REVISED ENVIRONMENTAL MANAGEMENT PLAN (EMP)



GENDEV GROUP

OPERATION AND MANAGEMENT OF THE EXISTING FISH PROCESSING FACTORY FOR GENDEV FISHING GROUP PTY LTD, WALVIS BAY, ERONGO REGION

28 January 2025

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| ECC Application | APP 005180 | |
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| (EIA Regulations, | | |
| GN: 30 of 2012) | 9.2 Any process or activity which require | es a permit, license or other |
| | form of authorization, or the modification | n of or changes to existing |
| | facilities for any process or activity which | requires an amendment of |
| | an existing permit, license or authorization | in terms of a law governing |
| | the generation or release of emissions, po | ollution, effluent or waste. |
| Location | Gendev Group Pty Ltd, Ben Amathila Avenue 98, Walvis Bay, | |
| | Erongo Region | |
| Proponent | Gendev Fishing Group (Pty) Ltd | 7 |
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ACRONYMS

| AIDS | Acquired Immune Deficiency Syndrome |
|---------|--|
| EAP | Environmental Assessment Practitioner |
| ECC | Environmental Clearance Certificate |
| EEZ | Economic Exclusive Zone |
| EIA | Environmental Impact Assessment |
| EMA | Environmental Management Act |
| ЕМР | Environmental Management Plan |
| HIV | Human Immunodeficiency Virus |
| МЕТ | Ministry of Environment and Tourism |
| МWT | Ministry of Works and Transport |
| NAMPORT | Namibia Ports Authority |
| RSW | Refrigerated Sea Water |
| SADC | Southern African Development Community |
| TEC | Tortoise Environmental Consultancy |



1. INTRODUCTION

1.1. Company History

Gendev is fishing company situated in Walvis Bay. The company was founded in the fifties with specialty in catching, canning, fishmeal processing and the marketing of pelagic products – namely tinned pilchards and fishmeal.

From the fifties to the eighties, the pilchard biomass was healthy and Gendev then employed over 1500 people. Shortly after Independence, Gendev commenced with a Namibianisation process, and Guinas Investment and Dun-AI (another Namibian shareholder) came onboard as shareholders of Gendev.

In 1992, Gendev invested in a tuna canning plant and by 1993 the canning of pilchard and tuna, combined, employed 1465 people – making Gendev one of the major employers in the country. In 1993/1994, Gendev pioneered the canning of Horse Mackerel, but the canning processing could not last, because of the tins manufacturing technology at the time. Today Gendev is a proudly 72% Namibian owned company and Gendev the first land-based Horse Mackerel Factory in Namibia.

1.2. Fishing Operations

Gendev Fishing Group (Pty) is involved in catching of Horse Mackerel and Hake. Gendev has four (4) fishing vessel which are trawlers and one long line vessel (Appendix 1). Horse Mackerel is caught by trawling method. On board the vessel, the fish is preserved in the Refrigerated Sea Water (RSW). RSW is a process when clean sea water is cooled down with a refrigeration system on the vessel to a temperature of -1,6 °C. Fish is pumped into this cold water to keep it fresh until it can be processed at the land-based processing factory.

1.3. Location of the Fish Processing Facility

Gendev fishing is situated in Walvis Bay town, on an industrial area of the port of Walvis Bay (22°56'5.91"S 14°30'46.85"E) (Figure 1). The industrial area is made up of many fishing companies with similar activities. Gender is between Sea Flower Fishing and NovaNam Fishing companies. The address for the fish processing facility is listed below.

Gendev Group Pty Ltd, Erf. 5022, Ben Amathila Avenue 98, Walvis Bay, Erongo Region

Location: GPS coordinates: Latitude: -22.934958 & Longitude: 14.512488





1.4. Map – Location of the Gendev Group Fish Processing Factory



2. COMPLIANCE AND LEGAL REQUIREMENTS

2.1 Environmental Management Act (No.7 of 2007)

The Environmental Management Act (also referred to as the EMA), stipulates that for each developmental project, which is listed under the EIA regulations, an Environmental Impact Assessment (EIA) should be conducted.

The aim of the EIA is to identify, assess and ascertain potential environmental impacts that may arise from the proposed activity. According to the EMA, an EIA is a process of identifying, predicting, interpreting and communicating potential impacts to interested and affected parties (I&APs).

The EMP should conform to the provisions of the Environmental Management Act (EMA), Act No. 7 of 2007 and EIA regulations of 2012 (Government Notice: 30).

The EIA Regulations defines a 'Management Plan' as:

"...a plan that describes how activities that may have significant environments effects on the environment are to be mitigated controlled and monitored."

2.2 EMP Requirements

Table 2:1: EMP Requirements as outlined in Section 8 of the EIA Regulations

Requirement

(j) a draft management plan, which includes –

(aa) information on any proposed management, mitigation, protection or remedial measures to be undertaken to address the effects on the environment that have been identified including objectives in respect of the rehabilitation of the environment and closure;

(bb) as far as is reasonably practicable, measures to rehabilitate the environment affected by the undertaking of the activity or specified activity to its natural or predetermined state or to a land use which conforms to the generally accepted principle of sustainable development; and

(cc) a description of the manner in which the applicant intends to modify, remedy, control or stop any action, activity or process which causes pollution or environmental degradation remedy the cause of pollution or degradation and migration of pollutants.



2.3 Listed Activities requiring EIA and EMP

The Environmental Management Act (Act No. 7 of 2007) and EIA Regulations of 2012 (Government Notice No: 30), contains a list of activities may not be undertaken without an Environmental Clearance Certificate (ECC).

The operation of the fishing factory triggers some listed activities in terms of the Environmental Management Act no. 7 of 2007 and the Environmental Impact Assessment Regulations of 6 February 2012 that may not be undertaken without an environmental clearance certificate (ECC). The triggered activities are shown in table 1 below.

| | | - |
|--|------------------|--------------------------|
| Activity | Description of | Operation of the |
| | the Activity | Activity |
| 9.2 Any process or activity which requires a | The disposal of | Waste water from fish |
| permit, license or other form of authorization, or | wastewater into | factory is released into |
| the modification of or changes to existing | the sea requires | the sea. |
| facilities for any process or activity which | | |
| requires an amendment of an existing permit, | | |
| license or authorization or which requires a new | | |
| permit, license or authorization in terms of a law | | |
| governing the generation or release of | | |
| emissions, pollution, effluent or waste. | | |

Table 2:2. Listed activity trigger by the operation of fish processing factory

2.4 Other Legal Framework relevant to the EMP

In addition to the EMA and the Environmental Assessment Policy, there exists a host of legal and policy documents and guidelines that govern environmental management as presented in table 2.2 below: The proponent has the responsibility to ensure that the mining activities conforms to all other relevant legal requirements.

The operation of Gendev Fishing Factory is directly affected by the legal framework as shown in Table 2.3. The company management must ensure that the company's operation is within the law, especially in safeguarding the environmental and ensuring health and safety to employees.



Table 2:3: Relevant legislation and applicability thereof

| Legislation | Summary | Applicability |
|-------------------|--|------------------------------|
| The Namibian | The Namibian constitution is the supreme law of the country which is committed | Development of an EMP to |
| Constitution | to sustainable development. Article 95(1) of the Constitution of Namibia states | ensure systematic |
| | that:- "The State shall actively promote and maintain the welfare of the people | management of activities for |
| | by adopting policies aimed at The maintenance of ecosystems, essential | the protection of the |
| | ecological processes and biological diversity of Namibia and utilization of living | environment |
| | natural resources on a sustainable basis for the benefit of all Namibians, both | |
| | present and future". | |
| The Environmental | The Environmental Management Act No 7 of 2007 aims to promote the | Statutory requirement of the |
| Management Act | sustainable management of the environment and the use of natural resources | EMP and guidelines |
| | and to provides for a process of assessment and control of activities which may | |
| | have significant effects on the environment; and to provide for incidental | |
| | matters. The acts provide a list of activities that may not be undertake without | |
| | an environmental clearance certificate. | |
| | Further, the Act ensures that; | |
| | (a) Potential threats are considered timeously | |
| | (b) A comprehensive stakeholder's consultations is conducted and all | |
| | Interested and affected parties are given an opportunity to comment on | |
| | (a) Decision are reduct by taking into account the above mentioned | |
| | activities | |
| Draft Pollution | This Bill serves to regulate and prevent the discharge of pollutants to air and | Management of Waste, and |
| Control and Waste | water as well as providing for general waste management. The Bill will repeal | any pollutants |
| Management Bill | the Atmospheric Pollution Prevention Ordinance (11 of 1976) when it comes | |
| | into force. The Bill also provides for noise, dust or odor control that may be | |
| | considered a nuisance. Further, the Bill advocates for duty of care with respect | |
| | to waste management affecting humans and the environment and calls for a | |
| | waste management licence for any activity relating to waste or hazardous | |
| | waste management. | |



| Legislation | Summary | Applicability |
|---------------------|--|----------------------------|
| Marine Resource | provide for the conservation of the marine ecosystem and the responsible | The company is involved in |
| Act (Act No. 27 of | utilization, conservation, protection and promotion of marine resources on a | the utilization of Marine |
| 2000) | sustainable basis; for that purpose to provide for the exercise of control over | Resources |
| | marine resources; and to provide for matters connected therewith. | |
| Namibian Ports | To provide for the establishment of the Namibian Ports Authority to undertake | Adhere to the condition of |
| Authority Act 2 of | the | operation by NAMPORT. |
| 1994 | 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. | |
| Marine Traffic Act, | To amend the Marine Traffic Act, 1981, in order to adjust its provisions in view | Vessel navigation must |
| No. 2 of 1981 as | of the independence of Namibia; and to provide for incidental matters. | adhere to this act |
| amended by the | | |
| Marine Traffic | | |
| Amendment Act 15 | | |
| of 1991. | | |
| Prevention and | To provide for the prevention and combating of pollution of the sea by oil; to | Waste generated onboard |
| Combating of | determine | vessel must be disposed on |
| Pollution of the | liability in certain respects for loss or damage caused by the discharge of oil | accordance with the law |
| Sea by Oil Act No 6 | from ships, | |
| of 1981 (as | tankers or offshore installations; and to provide for matters connected | |
| amended by Act 24 | therewith. | |
| of 1991). | | |
| Dumping at Sea | Dumping at Sea Control Act 73 of 1980. | No dumping is allowed at |
| Control Act 73 of | | sea |
| 1980. | | |
| Environmental | This policy subjects all developments and project to environmental assessment | General requirement of the |
| Policy framework | and provides guideline for the Environmental Assessment. Its provision | EIA and guidelines |
| (1995) | mandate that Environmental Assessment take due consideration of all possible | |
| | impacts and incorporate them in the development or planning stages. | |



| Legislation | Summary | Applicability |
|---------------------|---|---------------------------------|
| Regulations | Promotes the Safety and Health of employees at the work place | To ensure employees health |
| Relating to the | | and Safety |
| Health and Safety | | |
| of Employees at | | |
| Work. Reg No. 156 | | |
| Labour Act No. 11 | This Act outlines the labour laws which encompass protection and safety of | This project will require |
| of 2007 | employees at work. | labour during its operational |
| | | stage and decommissioning |
| | | stage. |
| Public Health | To promote public health and wellbeing as well as prevent diseases, injures | Ensure, the public is |
| Environmental Act | and disabilities. Protect individuals and communities from public health risks. | protected from the operation |
| No. 1 of 2015 | | of the Fishing activity. |
| | | |
| | | |
| Water Bessuress | This Ast provides a framework for managing water resources based on the | There as water source |
| Water Resources | ninsiples of integrated water resources management. It provides for the | noither the area does not |
| | management development protection conservation and use of water | receive significant rainfall to |
| (2004) | resources Eurthermore any watercourse on/or in close provimity to the site | cause impact on the water |
| | and associated ecosystems should be protected in alignment with the listed | resource |
| | nrinciples | |
| Water Act No. 54 of | This act states that all water resources belongs to the State. It prevents | Prohibition of contaminated |
| 1956 | pollution and promotes the sustainable utilization of the resource. To protect | water in the water body |
| | this resources, this act requires that permits are obtained when activities | |
| | involve the following: | |
| | (a) Discharge of contaminated into water sources such as pipe, sewer, | |
| | canal, sea outfall and | |
| | (b) Disposal of water in a manner that may cause detrimental impact on the | |
| | water resources | |



| Legislation | Summary | Applicability |
|---------------------|---|------------------------------|
| Petroleum Product | This Act provides a framework for handling and distribution of petroleum | Safe handling of the |
| and Energy Act No, | products which may include purchase, sale, supply, acquisition, possession, | hydrocarbons |
| 13 of 1990 | disposal, storage or transportation thereof. | |
| | | |
| Labour Act No. 6 of | This Act aims to regulate labour in general and includes the protection of the | No employer shall require or |
| 1992 | health, safety and welfare of employees. The 1997 Regulations relating to the | permit an employee to work |
| | Health and Safety of employees at work sets out the duties of the employer, | in an environment that is |
| | welfare and facilities at the workplace, safety of machinery, hazardous | deemed unfit without |
| | substances, physical hazards, medical provisions, construction safety and | protective measures in |
| | electrical safety. | place. |
| Regional Council | The Regional Councils Act legislates the establishment of Regional Councils | Adhere to regional by laws |
| Act, 1992 (Act No. | that are responsible for the planning and coordination of regional policies and | |
| 22 of 1992) | development. The main objective of this Act is to initiate, supervise, manage | |
| | and evaluate development at regional level. | |



3. PROJECT DESCRIPTION

3.1 Fish Factory and Processing

Like many other fishing companies, Gendev group has a jetty for docking of its vessels. There are two processing lines, one for Horse Mackerel and the other for Hake fish.

1.4.1. Horse Mackerel Processing

The Horse Mackerel is pumped from the vessels into the factory for processing. The pumping requires water for the smooth flow of fish in the pipe. Gendev gets clean seawater from Hangana Fishing company to use for the pumping to Horse Mackerel to the processing factory. In the factory, the fish is sprayed with portable water for cleaning before being packed in bailer bags and then into freezing cartons. The fish blast frozen in the carton and packed in boxes. After packaging, the fish goes through a metal detector and then get stored in the cold room waiting to be dispatched to consumers (Figure 3.1).





Figure 3.1. Process flow for Horse Mackerel (Source: Gendev Group)

1.4.2. Hake

Hake fish is offloaded from the vessel using cranes and transported to the processing factory with folk lifts. Before being transported to the processing factory, ice is added on the cartons immediately to preserve fish temperature which is an important aspect of fish quality. Fish in the factory is washed with portable water. Hake is processed into various products, which includes, Head and Gutted, Skin on and Skinless fillets, Loins, Bellies, Centros, Portions, Tail fillet and Fish Block. Process products are placed in the carton for freezing which are plate frozen. The frozen products are packaged in boxes / cartons and stored in cold rooms waiting for dispatch to consumers (Figure 3.2)





Figure 3.2. Process flow for Hake Processing (Source: Gendev Group)

1.4.3. Fishing Plant



Figure 3.3: Fish Processing Factory



1.4.4. Process water

Fish processing requires continuous use of water to clean the fish. Only portable water is used in the factory which is supplied by the Municipality of Walvis Bay. Besides fish processing, portable water is also used for ice production. Monthly microbiological analysis is done to ensure that the water is fit for food processing and free from any contaminations. A water chemical test is done once a year. Since 2018, the highest monthly water consumption was 6015m³ and lowest at 1231m³.

Domestic wastewater (water from ablution facilities) channeled to the Municipality sewerage system. Industrial wastewater from the factory is discharged to sea. Wastewater normally contains rejects fish, before being discharged to sea, it passes through a metal mesh descreener, where solids (fish) remain, and wastewater return through the outlet pipe and then to sea. The solids are fed to the fish meal processing plant.



The process flow for industrial wastewater is depicted in Fig 4.1.

Figure 3.4: Wastewater Process Flow – Solid Separator and Inlet





Figure 3.5: Wastewater Process Flow – Drainage Outlet



Figure 3.6: Wastewater Process Flow – Factory Drainage System





Figure 3.7: Wastewater Process Flow – Outlet to the sea



Figure 3.8. Waste water process flow – outlet under the docking jetty (a)





Figure 3.9. Waste water process flow – outlet under the docking jetty (b)

3.2 Solid Waste Management



Figure 3.10. Solid Waste Management (Sorting and temporary on-site storage)





Figure 3.11. Solid Waste Management (Recycling with Rent-a-Drum)

3.3 Fishing Vessels



Figure 3.12. Fishing Vessels

3.4 Transportation

Packaged products are distributed to various markets. The biggest market for horse Mackerel products is Southern African Development Community (SADC). Distribution within SADC is done with road transportation (Figure 5).





Figure 3.13. Transportation trucks at Gendev Factor



3.5 Maintenance

Figure 3.14. Maintenance Workshop

3.6 Health and Safety





Figure 3.15. Fire Extinguisher

| MANDATORY JETTY | |
|--|--|
| Personal Protection & ENTER AT OWN RISK | |
| Use a secured gargery to hand an | |
| All Accidents must be reported immediate to the c | |
| All refuse shall be been and a | |
| site. Site | |
| familiariter responsibility of the visitor / contractor to observe / | |
| signs. | |
| WARNING | |
| A Low overhead cleatance | |
| Luneven and Slipperty surfaces | |
| | |
| A No raises | |
| PROMUNITES | |
| - CONIDITED | |
| No swimming. | |
| Mo Unauthorised Access. | |
| 🛞 Do not jump from the jetty onto a vessel. | |
| No littering. | |
| | |

Figure 3.16. Safety Notice





Figure 3.17. First Aid Kit





Figure 3.18. Notice for Personal Protective Clothing (a)



Figure 3.19. Notice for Personal Protective Clothing (b)





Figure 3.20. Notice for Emergency Assembly Point



Figure 3.21. Emergency Assembly Point



4. AFFECTED ENVIRONMENT

4.1 Environmental setting of Walvis Bay

Walvis Bay is a coastal town, whose weather conditions is influenced by the cold Benguela Current of the Atlantic Ocean and a hot dry Namib Desert. Like any other coastal town of Namibia, there is little rain, relatively lower temperatures, less radiation and sunshine, strong eastern winds, high humidity and frequent fog (Table 2).

| Environmental | Description |
|---------------|--|
| Aspects | |
| Temperature | Average Max 24°C in March and 19°C in September |
| | Average Min 16°C in Feb and 9°C in August |
| Rainfall | The coastal areas receive little rainfall, with Walvis Bay having an |
| | average annual rainfall of 15mm. |
| Fog | Desert life is more supported by fog other than rainfall. About 146 fog- |
| | day are recorded at Walvis Bay. These records are only made when |
| | ground visibility is reduced to 1000 m or less. |
| Wind | Strong Easterly wind of up to 1000m/hour |
| Sunshine | The Namibian coast has an average of less than 5 hours of sunshine |
| | per year. |

4.2 Population Demography

Erongo Region had a total population of 150 809. Walvis Bay is the biggest coastal town in Erongo and in Namibia. It has a population of 62 096, mostly attracted to the well-established fishing industry and transport industry to Namibian's landlocked neighbors.

4.3 The Marine Environment

Namibia has one of the most productive fishing grounds in the world oceans. The productivity is driven by the cold Benguela current that enhances high primary production which form the basis of most of the world's ocean's food web (Shannon et al 2004).

The current extends from South Africa up to Angola, however it is sub-divided into three parts; the cold Benguela which originate from Lüderitz Namibia, and the two warm water current from South Africa and Angolan' coast (Shannon et al 2004, Wolfgang Fennel 1999). The most productive ground is found in the area of Lüderitz. There are about 20 fish species in the Namibian Economic Exclusive Zone (EEZ 200nm). The most important commercial fishery includes Hake *Merluccius capensis* and *M. paradoxus*, Horse mackerel *Trachurus capensis*, Monk *Lophius vomerinus* Red Crab, Rock Lobster, Orange Roughy, Pilchard *Sardinops ocellatus*. Fishing activities are mainly industrialized.

There are several aquaculture farms, some are based in the sea (oyster farming) and others are on the coastal edge such as the abalone farms. There are oyster farms in the bay of Walvis Bay, while abalone farming is found in Lüderitz.



5. IMPACT IDENTIFICATION AND ASSESSMENT

Under this section, environment and social components relating to the project were identified, evaluated and practical mitigation measures proposed. The Department of Environmental Affairs (DEA) had set out criteria for impact assessment as indicated in Table 3.

| Risk Event | Rating | Description of the risk that may lead to an Impact |
|--------------|----------|---|
| Impact type | 0 | No Impact |
| | +VE | Positive |
| | -VE | Negative |
| Probability | The prob | bability that an impact may occur under the following analysis |
| | | |
| | 1 | Improbable (Low likelihood) |
| | 2 | Low probability |
| | 3 | Probable (Likely to occur) |
| | 4 | Highly Probable (Most likely) |
| | 5 | Definite (Impact will occur irrespective of the applied mitigation |
| | | measure) |
| Confidence | The con | fidence level of occurrence in the prediction, based on available |
| level | knowledg | ge |
| | L | Low |
| | М | Medium |
| | Н | High |
| Significance | 0 | None (Based on the available information, the potential impact is |
| (Without | | found to not have a significant impact) |
| Mitigation) | L | Low (The presence of the impact's magnitude is expected to be |
| | | temporal or localized, that may not require alteration to the |
| | N.4 | operation of the project |
| | IVI | medium (This is when the impact is expected to be of short term |
| | | require that the projects is altered to mitigate the impact or |
| | | alternative method of mitigation is implemented |
| | н | High (The impact is definite, can be regional or national and in long |
| | | term. The impact could have a no go implication unless the project |
| | | is re-designed or proper mitigation can practically be applied |
| Mitigation | The appl | ied measure / alternative to reduce / avoid an impact |
| Significance | 0 | None (Based on the available information, the potential impact is |
| (With | | found to not have a significant impact) |
| Mitigation) | L | Low (The presence of the impact's magnitude is expected to be |
| | | temporal or localized, that may not require alteration to the |
| | | operation of the project. |
| | М | Medium (This is when the impact is expected to be of short term |
| | | moderate and normally regionally. In most cases, such impacts |
| | | |

Table 5:1: The impact assessment criteria (DEA 2008)



| | | require that the projects is altered to mitigate the impact or alternative method of mitigation is implemented |
|----------|----------|---|
| | Н | High (The impact is definite, can be regional or national and in long term. The impact could have a no go implication unless the project is re-designed or proper mitigation can practically be applied |
| Duration | Time dur | ation of the impacts |
| | 1 | Immediate |
| | 2 | Short-term (0-5 years) |
| | 3 | Medium-term (5-15 years) |
| | 4 | Long-term (more than 15 years |
| | 5 | Permanent |
| Scale | The geo | graphical scale of the impact |
| | 1 | Site specific |
| | 2 | Local |
| | 3 | Regional |
| | 4 | National |
| | 5 | International |

5.1 List of identified impacts

5.1.1 Socio Economic Impact

- a) Employment
- b) Health and Safety
- c) HIV and AIDS

5.1.2 Environmental Impact

- a) Sea water pollution
- b) Land pollution

5.2 Impact assessment

5.2.1 Impact on human dimension

5.2.2 Employment

Namibia has one of the highest unemployment rates in the world. The fishing industry employs considerable number of people. Gendev fishing employs over 500 people, with majority of the factory workers being women. The employees' rights are protected under the Labour Act, to ensure compliance and avoid labor unrest, the company must adhere to the Labour Act such as:



5.2.2.1 HIV / AIDS, Alcohol and Drug abuse

HIV pandemic and alcohol and drug abuse are the major social evils in Namibia affecting the working class. It is important for employers to raise awareness of the dangers of these social evils. Hence employers should

- Introduce programs to raise awareness on dangers of alcohol and drug abuse
- Provide Condoms at workplace
- Ensure the company has a social worker to provide counselling services to employees

5.2.2.2 Health and Safety

The Labour Act of 2007 and the Regulations Relating to the Health and Safety of Employees at Work, makes provision for the protection of employees at work place. The potential of occupational health and safety risks are high at workplace such as injuries, hearing problems due to noise etc. The company operates under a strict health and safety plan. Employees are provided with a Personal Protective Clothing (PPE) at all working station. Hence to ensure health and safety, the following mitigation measures must be adhered to;

- Strick implementation of the health and safety plan
- Every employee must go through an induction course for the health and safety plan
- Ensure worn out PPE are replaced
- Ensure strict implementation of the PPE, no employee must be allowed to work without PPE
- No employees must be exposed to noise levels above the 85dB (A) limit over a period of 8 hours. Should the noise level be higher than 85dB (A), the employer must implement a hearing conservation program such as noise monitoring.
- The surface of factory premises is covered with a concreter slab; hence the effect of dust is negligible. However, as precaution, employees must be provided with adequate PPE;
- To ensure consumer health, factory operation must adhere to the Namibian Standard Institution and relevant ISOs.

5.2.3 Effect on Marine Environment

5.2.3.1 Discharge of factory wastewater into the sea (bay)

Wastewater from the factory is discharged into the sea. This wastewater is not harmful, and does not contain chemicals, because they are used to clean the fish for human consumption. Further, the factory floor and any place in the factory is free of pathogens. Hence the effect of this water to sea negligible. However, in instances of contamination detected in fish processing factory, the wastewater quality should be inspected, especially due to the fact that, oyster farms are located in the bay, which may be affected. The bay continuously gets deepened by dredgers and the movement of vessels in the bay to large extend ensure mixing proper mixing of water.



5.2.3.2 Repair of vessels

Minor vessel repairs such as painting inside the vessel, some welding are done when the vessel is docked at the jetty, while major vessel repair such as outer repainting of vessel body painting, are done at Namport Syncrolift (Figure 6). The Syncrolift manages and operates the docking and undocking of vessels to and from the lift and private companies perform all the repair work (Namport).



Figure 5.1. Vessels at the Syncrolift (Source, Namport)

5.2.3.3 Fueling of the vessels at the Jetty

Fueling of vessels takes place while the vessel is docked at the jetty. Extreme caution is taken to ensure that oil spillages does not occur. Currently, the fuel pump is located on the jetty but Gendev Group has approved plans to move the pump on land. To ensure that pollution is prevented due to refueling, the company must;

- Comply with the Namport requirements for fueling;
- Compliance with the requirements and procedure of Ministry of Work Transport and Communication (MWTC) for fueling;
- Adhere to Operating Procedure for; Fueling of Vessels Guidelines and Regulations for Namibia;
- Compile fueling reports, ensure to record any spill if any;

5.2.3.4 General Waste and Pollution Control

5.2.3.5 General Waste

Factory consumables are normally packaged in boxes wrapped in plastics. If not controlled can pollute the sea and becomes danger to marine life, such as seals and turtles. Maintenance offcuts, workshops waste all need to be properly maintained to ensure cleanness and avoid pollution. The company has put measure in place to such as designated waste bins, skip bin and mesh cages for plastics and the workshop is bonded with concrete floor to prevent land pollution by oils and lubricants (Figure 6).



Hence to ensure effective management of general waste,

- Ensure the current skip bin, waste bins, and mesh cages are properly maintained
- Promote the recycling of recyclable material, such as plastics



Figure 5.2. General waste management at Gendev Factory



6. ENVIRONMENTAL MANAGEMENT PLAN (EMP)

This EMP is meant to be a risk strategy that provide logical framework and guideline to be undertaken by the project proponent during the operation of the project in order to mitigate environmental threats during construction and operational phase of the health facility. This EMP is a living document subjected to change of environmental conditions or statutory requirement hence it is flexible for addendums. This is to allow for adjustments when new information is discovered that requires new mitigations measures or where unforeseen impacts arise.

6.1 Purpose of EMP

The EMP provides environmental guidelines to be followed during the operational phases of the factory. The aim is to prevent / minimize (where possible), unacceptable and adverse environmental, social or economic impacts that may arise from the factory operation.

6.2 Scope

The EMP is a living document, it can be amended where critical information was omitted unintentionally / or new information become available.

6.3 Roles and Responsibility

For accountability, it is necessary to assign responsibilities in-order to ensure accountability. The key role-players for project implementation are;

- **The Proponent, Gendev Fishing Company** shall be resume the overall responsibility for the operation of the factory
- Environmental Compliance Officer (ECO) representing the Ministry of Environment and Tourism or Walvis Bay Municipality. The ECO can be a representative of any of the aforementioned institutions, or an appointed independent environmental officer, who is responsible for environmental monitoring and auditing.
- **The Contractor,** a company contracted by the proponent to carry construction.
- **The Site Manager (SM)**, the person representing the proponent and responsible for the day-to-day management activities.

6.3.1 Proponent

The proponent (Gendev Group), shall take overall responsibility for proper implementation of the EMP. It remains the responsibility of the proponent to appoint key personnel for the implementation of the EMP.

The proponent must therefore;

- Appoint a site Manager;
- Ensure employees understand the guidelines of the EMP;
- Ensure the EMP is well explain to Contractors;
- Ensure safer working environment;



- Provide workers with Personal Protective Clothing;
- Ensure the environment is protected and;
- In events where the proponent hires or subcontract contractors for the job, the proponent must ensure that the contractor is in position to execute the mandate of the EMP;

6.3.2 The Environmental Compliance Officer (ECO):

The ECO refers to the party responsible for the environmental monitoring and auditing to ensure that the provisions of the EMP are complied with. The ECO shall have adequate environmental knowledge to understand and interpret the EMP and pertaining environmental aspects associated with the project. The specific tasks of the ECO are as follows:

- To undertake all monitoring and auditing activities in-order to ensure compliance with the EMP.
- Conduct site inspection, depending on the risks, some projects may be inspected frequently.
- Compile Progress Reports immediately after site inspections, Compliance Reports, pertaining to any non-compliance incident/s,
- Liaise closely with all key stakeholders i.e. the Site Manager, MET DEA, and the Walvis Bay Municipality.
- Shall provide guidance on any environmental management issues, incidents or emergencies that that may arise throughout the project lifespan.
- Shall assist in providing recommendations for remedial action in the event of non-compliance.
- Auditing or monitoring activities may involve investigation, as well as structured observation, measurement, and evaluation of environmental data over a period of time.
- Contact regular inspections (unannounced spot checks) and shall compile compliance on non-compliance report to the respective authorities (MET, Walvis Bay Municipality or any other relevant authority).

6.3.3 The Contractor:

The following are the specific responsibilities of Contractor:

- Appoint a Site Manager (SM) to oversee the daily onsite activities.
- Liaise closely with the SM and ECO on any environmental management issues, incidents or emergencies.
- Ensure that all activities on and around the site are conducted in accordance with the requirements of the EMP at all times.
- Ensure that all sub-contractors and visitors to the site are conversant with the requirement of the EMP, relevant to their roles on site.
- Shall develop a communication strategy between the contractor, Site Manager, workers, the ECO and any other relevant stakeholder.
- Shall develop an organizational structure to ensure that:
- There are clear channels of communication;



- There is an organizational hierarchy for effective implementation of the EMP; and
- Conflicting or contradictory instructions are eliminated;
- Ensure that all instructions and official communications regarding environmental matters shall follow the organizational structure as determined
- Ensure that that EMP requirements are assigned to specific people / positions with the capacity and experience required to implement the EMP.

6.3.4 The Site Manager:

The Site Manager (SM) shall:

- Ensure that each team recruited to work at the construction site (including staff members, contractors / sub-contractors of Gendev Group), adheres to the EMP;
- Ensure that a copy of the EMP is kept on site at all times and should be furnished to authorities at any given time.
- Ensure that all staff attend an induction session before commencement of any work on site and that they are adequately informed of the requirements of the EMP;
- Shall take special care to prevent irreversible damage to the environment;

6.4 Disciplinary Action

The EMP is a legally binding document and non-compliance with the EMP shall result in disciplinary action being taken against the perpetrator/s. Such action may take the form of (but is not limited to):

- Fines / penalties,
- Legal action,
- Withdrawal of license/s
- Suspension of work.

The disciplinary action shall be determined according to the nature and extend of the transgression / non-compliance, and penalties are to be weighed against the severity of the incident.

6.5 Non-Compliance

The Contractor and Site Manager shall be deemed to have not complied with the EMP if:

- There is evidence of contravention of the EMP and its associated indicators.
- The Contractor and SM have failed to comply with corrective or other instructions issued by the ECO or qualified authority.
- The contractor and SM fail to respond to complaints from the public.



6.6 Mitigation Measures

6.6.1 Approach

For easy reading and reference of potential impacts, the EMP is broken down into different socio-economic and environmental section and for each section herein referred to Environmental Social Management Plan (ESMP), specific aspects have been identified and for each aspect, specific mitigation measures have been recommended (Table 6).

Table 6:1. Grouping of impacts

| EMP Implementation / | Specific Aspects |
|------------------------|---|
| Potential Impact | |
| Category | |
| | Induction |
| A – Staff induction | Communication |
| | General safety at work place |
| B – Health and Safety | Dust and Noise |
| C- Pollution and Waste | General waste categorised into: Material waste (off |
| Management | cuts), concrete rubbles and domestic waste |
| D – Socio economic | HIV / AIDS |
| | Employment opportunities for Locals |
| | Alcohol and Drug use at construction site |
| | Working hours |
| E – Cultural Heritage | Heritage resources / artefacts |



Section A: Staff Induction

Potential Sources of Impacts:

- Employees working without employment contracts (recipe for labour disputes)
- No induction / orientation process and workers are often disoriented (Do's and Don'ts)
- Poor Communication
- No presentation of the EMP and workers are not aware of the content and risks associated with the activities / actions

| Environmental / Social Aspects | Objective | Mitigation Measures | Monitoring Indicator | Party Responsible |
|-----------------------------------|--|--|--|---------------------------|
| Recruitment | To ensure that all workers have employment contracts (Labour Act No. 11 of 2007) | Formalize recruitment of all staff with Contracts, stating nature of employment, duration and remuneration to protect both parties and avoid labour disputes later on | Copy of staff contracts | Gendev Group (PTY) Ltd |
| Staff induction | To ensure that all employees are conversant with the requirements of the EMP | Induction for all employees on the provisions of the EMP, such as outlining their roles and responsibilities for employees accountable for the implementation of the EMP. Inform all employees about the company's environmental policy Ensure that a copy of EMP is accessible to all employees | Induction Minutes and Attendance Register, Signed by all employees Availability of EMP on site | Gendev Group (PTY) Ltd |
| Communication | To ensure effective communication | Develop a communication strategy The contact numbers for the Site Manager and Team Leaders must be available at all time in case of emergencies. There must be an alarm bell for emergency communication | Communication Strategy Letters, e-mail, Notices, Minutes | Gendev Group (PTY) Ltd |

Table 6:2. Mitigation measures during staff induction



Section B: Health and Safety

Potential Sources of Impacts:

- Inadequate training of employees or contractors on risks associated with operation activities
- Safety hazards may occur if equipment is not handled in the correct manner
- Employees not receiving the correct Personal Protective Equipment (PPE) for their specific responsibilities.
- Employees not adhering to safety rules
- Noise generated by equipment

Table 6:3. Mitigation measures for Health and Safety

| Environmental / Social Impact | Objectives | Mitigation Measures | Monitoring Indicator | Party Responsible |
|----------------------------------|-------------------|--|-------------------------------|----------------------|
| | | | | |
| General Health | Ensure that the | Develop a Health and safety Plan | Health and Safety | Gendev Group |
| Safety at Work | safety of | 2. Every employee must go through an induction | included and reflected in | (PTY) Ltd |
| Place | employees is not | course for the health and safety plan | the Induction Minutes | |
| | compromised and | 3. Train employees on personnel safety and how to | | |
| | adhere to the | handle equipment and machinery | adequate protective | |
| | Health and Safety | 4. Provide Personal Protective Equipment to all | gear for all staff | |
| | Regulations, | employees, (helmets, safety straps / reflective | | |
| | Government | vests, hand gloves, ear muffs, etc.) | Availability fire | |
| | Notice 156/1997 | 5. No employee must be allowed to be onsite without | extinguishers and | |
| | (GG 1617) | PPE; | evidence training (e.g. | |
| | | 6. During operation, minor accidents are eminent, | minutes, training | |
| | | hence there must be a first aid kit; | pictures etc. | |
| | | 7. Only gualified personnel must be allowed to operate | | |
| | | special machine/instruments | Availability of the first aid | |
| | | 8. Adequate safety signs must be displayed art | kit onsite | |
| | | relevant sites. | | |
| | | | | |
| | | | | |



| Environmental / | Objectives | Mitigation Measures | Monitoring Indicator | Party |
|-----------------|--|---|--|---------------------------|
| Social Impact | | | | Responsible |
| | | 9. To ensure consumer health, factory operation must adhere to the Namibian Standard Institution and relevant ISO | | |
| Road Safety | Prevent traffic hazards on the factory premises | Display speed limits on the premises Vehicles must be operated by people with relevant and valid license | Incident report/s | Gendev Group (PTY) Ltd |
| Ablution | Reduce health risks and environmental pollution and ensure healthy working environment with appropriate toilets | Ensure adequate, hygienic (clean) and user friendly ablution facilities for all staff. Provision of separate Male and female toilets at a ratio of 1:15 for females and 1:30 for males; Appoint a cleaner or rotate cleaning responsibilities among workers. Inspect ablution facilities regularly | availability, cleanliness and hygienic ablution facilities | Gendev Group (PTY) Ltd |
| Dust and Noise | Mitigate dust and noise impacts to both employees and the public | The surface of factory premises is covered with a concreter slab; hence the effect of dust is negligible. However, as precaution, employees must be provided with adequate PPE; Some areas may emit a lot of noise, ensure that no employees are exposed to noise levels above the 85dB (A) limit over a period of 8 hours and ensure that employees are provided with appropriated PPE such as earmuff and must not subjects to noise for a long time. All vehicles must be switched off when not operational. | Employees complaints | Gendev Group (PTY) Ltd |



| Environmental / Social Impact | Objectives | Mitigation Measures | Monitoring Indicator | Party Responsible |
|----------------------------------|-----------------|---|---|---------------------------|
| Fire Risk | To prevent fire | Staff must be properly trained on how to react and handle fire; There must be automatic fire alarm system installed on the premises; Firefighting equipment must be on site and regularly inspected to ensure that they are working; Emergency response numbers must be on clear and visible space; There must be clear hazard signs "NO OPEN FIRE" "NO SMOKING" "SWITCH ENGINE OFF" There must be drills to test employees about their readiness to fight the fire Emergency evacuation must not be more than 20 minute There must be an emergency assembly point | Training Minutes Automatic fire system on site Availability of firefighting equipment Displayed and visible emergency response Clear elected signs Drill evacuation reports Visible assembly point | Gendev Group (PTY) Ltd |



Section C: Pollution Control and Waste Management

Potential sources of impacts

- Workmanship, repackaging of materials generate waste
- Potential oil spills
- Oil spills (includes fuel, grease, etc)

| | Table 6:4. N | Vitigation | measures | Waste and | Pollution | Management |
|--|--------------|------------|----------|-----------|-----------|------------|
|--|--------------|------------|----------|-----------|-----------|------------|



| Environmental / | Objectives | Mitigation Measures | Monitoring Indicator | Party |
|-----------------|--|--|---|---------------------------|
| Social Impact | | | | Responsible |
| | | Ensure all vehicle are well service and leak inspection are done Provide drip trays to stationary vehicle Storage of fuel, oil and lubricants must be kept on concrete bonded structure Contract oil recycling companies for the disposal of waste oils | | |
| Solid Waste | To manage solid waste and prevent littering | Ensure appropriate waste collection and removal from the site and dispose at appropriate waste disposal site; Ensure the current skip bin, waste bins, and mesh cages are properly maintained; Promote the recycling of recyclable material; There must be sufficient waste bins. Colour segregated for different waste; General waste must be separated from hazardous waste; Hazardous waste must be disposed of at an approved site; | Scattered waste, Littering and any other unsightly waste at the site (eyesore) | Gendev Group (PTY) Ltd |



Section D: Socio-Economic

| Environmental | 1 | Objectives | Mi | tigation Measures | Monitoring Indicator | Party |
|---------------|------|---------------------|----|--|-------------------------|--------------|
| Social Impact | | | | | | Responsible |
| | | | | | | |
| Employment | | Promote benefits to | 1. | Recruit locals for unskilled labour | Employee structure | Gendev Group |
| opportunities | for | the local community | 2. | Where possible, procure materials from local | and proportion of local | (PTY) Ltd |
| Locals | | | | suppliers | employment | |
| | | | | | | |
| Alcohol and | Drug | Prevent alcohol and | 1. | Ban and warn the employees against the use of | Drunk / Misbehaving | Gendev Group |
| use | | drug use at the | | alcohol and drug at construction site | employees | (PTY) Ltd |
| | | construction site | 2. | Provide awareness on the dangers and health | | |
| | | | | impacts of alcohol and drug use | Breathalyzer report | |
| | | | 3. | All employees must be screen with the | | |
| | | | | breathalyzer to avoid intoxicated personnel on | Monitor presence of | |
| | | | | site | alcohol at the | |
| | | | | | construction site | |
| Working hours | | Adhere to the | 1. | Operate within the prescribed working days and | Verification of working | Gendev Group |
| | | Labour Act No. 11 | | hours as per the Namibian Labour laws and | hours against the | (PTY) Ltd |
| | | of 2007 | | regulations | labour Act | |
| HIV / AIDS | | Provide HIV / AIDS | 1. | Provide HIV / AIDS awareness at induction | Availability of condoms | Gendev Group |
| | | awareness to | 2. | Avail Condoms at friendly site | at construction site | (PTY) Ltd |
| | | employees | | | | |
| Employee | | To provide | 1. | Employ a social workers | Social worker available | Gendev Group |
| depression | | counselling | | | | (PTY) Ltd |
| | | | | | | |

 Table 6:5. Mitigation Measure for Socio Economic aspects



Section E: Cultural Heritage

Workers must be trained on the possible find of archaeological material in the area. Establish a "Chance Find Procedure" where if any archaeological finding (artefacts) is encountered; The activity must be stopped immediately, and the operation manager of that activity be informed;

- i. The manager must ensure the cordoning off the area with a danger tape and take appropriate records and pictures
- ii. The manager must immediately report the findings to the National Museum (+264 61 276800) or the National Forensic Laboratory (+264 61 240461).

No artefacts must be removed or be interfered with prior to authorisation from the Namibian National Heritage Council (NHC)



7. CONCLUSION AND RECOMMENDATIONS

7.1 Conclusion

The possible impact associated with operating a fish processing factory is the wastewater used in the processing line. Fortunately, this water is used for food processing aimed for human consumption, hence no harmful chemicals are used in the process. The fish being cleaned comes from sea, and immediately after being caught they are stored in refrigerated sea water. During pumping of fish from the vessel to the factory, clean sea water is used.

The process does not produce effluent. Although this assessment was limited to the fish processing factory, it was investable to include the vessel operation, especially when it is docket at the jetty. The operation of vessel in the port is governed by NAMPORT. Possible mitigation measures especially for refueling are suggested. The factory operates under strict ISO standards due to the production of high-quality fish and this complement toward proper management of waste and pollution.

7.2 Recommendations

The following is recommended:

- The operation of Gendev Group fish factory is approved to continue and be issued with Environmental Clearance Certificate
- The company must put up a formal wastewater monitoring program
- The company must ensure that bi-annual environmental auditing is undertaken by independent Environmental Assessment Practitioner and bi-annual report submitted to MEFT
- If in future the company wish to abstract sea water for itself, this EMP must be amended and necessary permits obtained
- Strick implementation of the EMP, to ensure environmental sustainability.



8. CONCLUSION AND RECOMMENDATIONS

8.1 References

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9. ANNEXURES

9.1 Gendev Background and Operations