REPUBLIC OF NAMIBIA

MINISTRY OF ENVIRONMENT, FORESTRY AND TOURISM

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DEPARTMENT OF ENVIRONMENTAL AFFAIRS

PRO FORMA ENVIRONMENTAL CONTRACT FOR MARICULTURE RELATED ACTIVITIES

Town	Region	Constituency
LUDERITZ	KARAS	!NAMiNUS

Environmental Management Act, 2007 (Section 32)

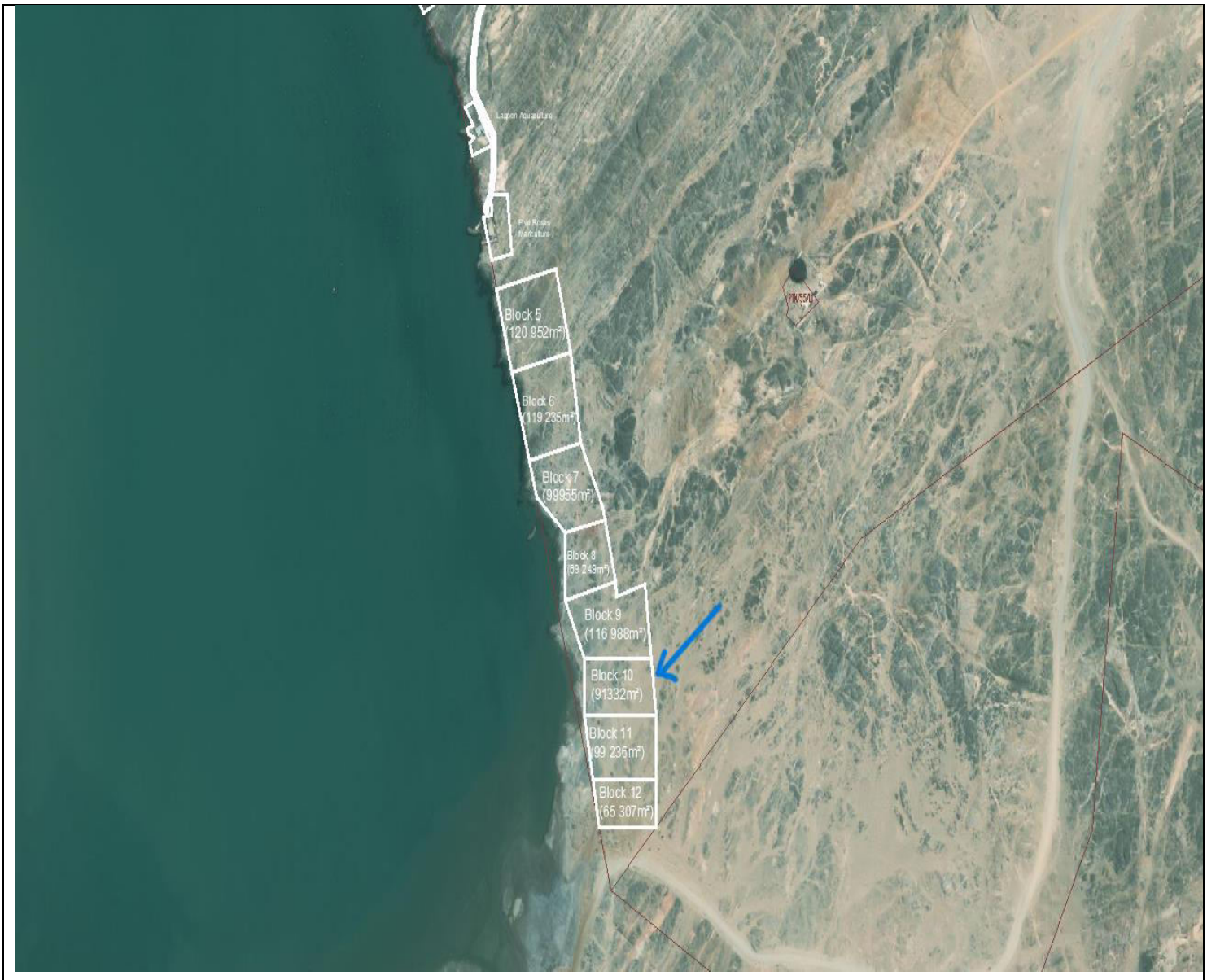
1. Register on portal www.eia.meft.gov.na
2. Login using the email address and password used during registration
3. Under BID, upload a copy of an application for ECC
4. Follow a link to upload an EMP shared under downloads
5. Fill it and re upload on the portal

PART 1 A: DETAILS OF APPLICANT

1. Name (person or business):	MARISPCE AQUATICS (PTY) LTD
2. Business registration/ identity no.	2023/1333
3. Correspondence address:	ERF 748, BAY ROAD LUDERITZ
4. Name of contact person:	MR JACOB SHIGEDHA
5. Position of contact person:	DIRECTOR
6. Telephone or cell phone number:	+264813404262
7. Fax number:	N/A
8. Email address:	Shjacob7@gmail.com

NB: Compliance to this document is a requirement under Section 2 of the Environmental Management Act no. 07 of 2007. Therefore, it must be filled in as truthfully and reliably as possible. It must be noted here that the proponent is accountable for any wrong and misleading information that may be provided in this document. From this perspective, any person who completes this document must read and sign the declaration underneath

PART 1 B: DRAW PLAN OF THE PROPOSED SITE INDICATING SURROUNDING FEATURES:



The coordinates are -26.68045759091311, 15.153633910321721.

NB: The Plan must include (Alternatively attach a map of the site)
- Latitude and longitude of the area
- Thematic map for land uses in proximity of the proposed site (and the surrounding 1 km)
- Water bodies such as ponds etc.
- Any natural reserve and protected area etc.
Note: The name of each area on map must be provided

PART 2: List Proposed species		
	Specie	√
1)	Pacific Oyster (*Crassostrea gigas)*	+
2)	Black Mussels *(Choromytilus meridionalis)*	
3)	Scallops *(Argopecten purpuratus)*	
4)	Abalone *(Hariotis midae)*	+
5)	Kelp/seaweed *(Laminaria and Ecklonia)*	
6)	West Coast Rock Lobster *(Jasus Ialandii)*	
7)	Sea Cucumber *(Holothuroidea)*	
8)	Tilapia *(Oreochromis niloticus)*	
9)	Yellowtail Kingfish *(seriola lalandi)*	
10)	Dassie/Kolstert (*Diplodus sargus capensis).*	
11)	Steenbra *(Lithognathus aureti),*	
12)	Galjoen *(Dichistius capensis),*	
13)	Atlantic Salmon *(Salmo salar*	
14)	Silver Kob (Argyrosmus *japonicas*),	
15)	Dusky Kob *(Argyrosmus* coronus)	
	Other	

PART 3: IMPACT MANAGEMENT AND MITIGATION

To minimise the potential negative impacts, and enhance the positive impacts, of the Project to implement a Marine Aquaculture facility in Namibia.

This Environmental Management Plan (EMP) addresses the management of environmental impacts associated with the construction and operation of the proposed marine aquaculture in Namibia specifically in the coastal towns of Swakopmund Walvis Bay (Erongo Region) and Lüderitz in //Kharas Region. The document should be used as a guideline for managing, mitigating and monitoring the environmental impacts related to the pre-construction (design), construction and operational phases of the project. The Environmental Assessment Report compiled for this project should be valuable as a reference source for understanding this GEMP and for placing it into perspective.

Given the nature of the proposed project, specific operational EMPs needs to be identified once the specific activities to be undertaken by each operator are known and can be properly managed

4.. WATER RESOURCES AND SUPPLY - MANAGEMENT PLAN

4.1 Management Action Plan

The water resources and supply management plan include measures during planning, construction, and operation of the Facility.

- The Project will require sea water to fill up the ponds and the water will be sources directly from the ocean through pipes.
- The positive impacts on water quality could be neutralised if the problems with water availability are not addressed on a sustainable basis.

- Operators will need to have technical skills to ensure that wastewater does not run back into the sea. If operation and maintenance are not carried out properly, then there is a risk that the water supply will be interrupted and/or the water quality will be affected and at times potentially not achieve the standards.

4.1.1 Construction

Aspect	Potential impact	Generic mitigation measure (select all that apply)		Timescales	Responsibility
Water availability	Effective establishment of the Mariculture facility.	Detailed demand assessment using norms and identifying different uses.		Demand assessment completed before tender for construction, but actions to address water availability for the Mariculture facility.	Operator
		Explore other options for reusing the use from the Mariculture plant.		Ongoing commitment to sustainability.	Operator
		Awareness campaign on water conservation will be ongoing. implement awareness campaigns on the ground under the direction of Operator and the Ministry of Fisheries and Marine Resources.		Start campaign at the latest at the start of plant operation.	Operator

4.1.2 Operational

Aspect	Potential impact	Generic mitigation measure (select all that apply)		Timescales	Responsibility
Water quality	Possible water pollution at the source where the Mariculture plant will be drawing water.	Publish results of water quality monitoring to raise awareness and encourage sustainability and conservation.		Ongoing during operation.	Operator and Municipality
Water availability	Positive impact as the proposed Mariculture plant is located within short distance from the shore.	Actions to reduce the risk of unsustainable use of water availability:			Operator and Municipality
		Extensive monitoring programme of water use and updating the assessment on abstraction rates.		Ongoing during operation.	Operator and Municipality
		Ongoing awareness campaign on water saving.		Ongoing during operation.	Operator and Municipality
		Identify more water uses that do not need potable water and assess feasibility of options for diverting raw water or preferably RO effluent to these water users.		Ongoing during operation.	Operator and Municipality

		Continue programmes to reduce distribution losses, working with Municipalities to advise them in relation to pipework under their responsibility.		Ongoing during operation.	Operator and Municipality
		Implement the community grievance mechanism.		Ongoing during operation.	Operator and Municipality
Water quality and availability	Poor plant operation and maintenance would lead to reductions in operationalisation of the Mariculture plant.	Actions to ensure high standards of operation and maintenance:			
		Detailed training of at least two employees to ensure proper technical skills and continuity.		Before start of operation.	Operator and Municipality
		Supervision and monitoring of staff.		Ongoing during operation.	Operator and Municipality
		Extensive monitoring programmes of operation and water quality as part of the pilot project.		Ongoing during operation.	Operator and Lüderitz Municipality

5. WASTEWATER MANAGEMENT PLAN

5.1 Management Action Plan

Summary of Impacts

- The main potential impact of the Project related to wastewater will be the risks from the effluent. This effluent will not be hazardous, but will have high concentration, and discharge to the environment could have impacts on groundwater.
- Evaporation ponds will be included in the design. There are risks of leakage from damage to the ponds or the feeder pipes, and risks of flooding during extreme rainfall events.
- The pre-treatment stages of the new plant will include flocculation and filtration. Low quantities of sludge and wastewater from the flocculation and from washing of the filtration tanks will be generated and might decrease availability of water These will not be hazardous but will contain salts and some traces of chemicals used in water treatment. These chemicals are widely used in water treatment and would not be hazardous at the planned dilution levels. There will be potential risks in terms of impacts on groundwater and the environment from the sludge and backwash through leakage of these effluents from pipes if they become blocked or damaged.
- Impacts during the short construction period related to wastewater will not be significant, and the same for decommissioning.

5.1.1 Operational phase

Aspect	**Potential impact**	Generic mitigation measure (select all that apply)		**Timescales**	**Responsibility**
Effluent	Potential impacts on groundwater from leakages of effluent from the evaporation ponds or feeder pipes.	Include a controlled overflow channel in the design of the evaporation ponds.		During final design.	Operator.

		Plan and implement a robust monitoring schedule to identify potential leakages from ponds and pipes.		Implement from start of operation.	Operator.
		Training and supervision of workers that clear the dried salt from ponds, using plastic brushes and plastic shovels.		Ongoing during implementation.	Operator.
Effluent from pre-Treatment	Potential impacts on groundwater from pipe leakages of sludge and backwash from the pre-treatment.	Training of workers so that pipes do not become blocked from incorrect practices.		Ongoing during implementation.	Operator.
		Dilution of the sludge to prevent blockage to pipes.		Ongoing during implementation.	Operator.
		Plan and implement a robust monitoring schedule to identify leakages from pipes and carry out repairs at an early stage.		Implement from start of operation.	Operator.

6. SOLID WASTE MANAGEMENT PLAN

6.1 Management Action Plan

Summary of Impacts

The solid waste management plan covers waste generated during construction, operation and decommissioning of the Marine Aquaculture facility. It covers the management of the effluent generated from the evaporation ponds to be implemented as part of the project as well as domestic waste. It does not cover management of sludge from the pre-treatment of water because this is included in the section on wastewater effluent.

- The main aspect assessed in the engineering design and EIA is the disposal of brine salt from the evaporation ponds, which would not be disposed at the local disposal site and would need to be driven to the lined landfill facility in Windhoek.
- A small amount of hazardous waste will be generated as used chemical containers, and it is important that these are properly managed so that they do not get into the hands of the local community, because they will contain traces of chemicals and might be used by the community to store drinking water.
- Solar panels and lithium-ion batteries will be classified as hazardous waste at their end-of-life. No commercial scale recycling technology is currently available but there is extensive research effort happening worldwide on development of recycling, and it is expected that technology would be available by the time of the end-of-life of these items or the decommissioning of the site.

6.1.1 Construction phase

Aspect	**Potential impact**	Generic mitigation measure (select all that apply)		**Timescales**	**Responsibility**
Construction Waste	Impacts on groundwater from all types of construction waste.	Include waste management requirements in the contract for the construction company.		By start of tender process.	Operator

Aspect	Potential impact	Generic mitigation measure (select all that apply)		Timescales	Responsibility
Construction waste (domestic)	Impacts of domestic waste from the construction camp.	Provision of at least three wheelie bins; agree collection by the Settlement Office.		By start of construction activities.	Operator
Construction Waste (Recyclable Materials)	Impacts of recyclable wastes.	If applicable, identify potential opportunities for recycling metal and other wastes, and include in requirements of the construction contractor and plans for operation.		By start of construction activities.	Operator.
Construction Waste (Inert waste materials)	Impacts of inert waste.	If applicable, discuss with Municipality the use of inert waste for covering an area of the disposal site to improve environmental performance at that site.		By start of construction activities.	Operator.
Construction Waste	Impacts on groundwater from all types of construction waste.	Monitoring of the activities of the construction contractor with respect to solid waste.		During construction.	Operator

6.1.2 Operational

Aspect	Potential impact	Generic mitigation measure (select all that apply)		Timescales	Responsibility
Waste management procedures	Impacts of solid wastes in general.	Develop solid waste management procedures covering operational activities and ensure training of operation staff covers these procedures.		Before start of operation.	Operator.
Waste records	Impacts of solid wastes in general.	Include monitoring and recording of waste quantities in the procedures, including number of solar panels, batteries, truck journeys of salt, etc.		Before start of operation.	Operator.
Monitoring contractors	Impacts on groundwater or communities of all wastes.	Only work with licensed contractors for waste management and monitor delivery of wastes to the intended location through use of chain of custody documents.		Ongoing during operation.	Operator.
Recyclable materials	Impacts of recyclable wastes.	Ongoing actions to identify potential opportunities for recycling metal and other wastes.		Ongoing during operation.	Operator.
Used chemical containers	Potential impact of hazardous waste on groundwater or the community.	Develop and supervise procedures for the separation, storage, proper labelling of hazardous wastes, and transport to a licensed hazardous waste facility when the quantities stored are appropriate.		By start of operation.	Operator.

Used chemical containers	Potential impact of hazardous waste on groundwater or the community.	Hazardous waste should be disposed of at an appropriate hazardous waste site.		Ongoing during operation.	Operator.

7. AIR EMISSIONS MANAGEMENT PLAN

7.1 Management Action Plan

Summary of Impacts

Emissions to air management plan for Mariculture Development includes measures during construction, operation and decommissioning of the evaporation ponds. The main potential impact is the risk of dust emissions and their impact on workers during construction of the evaporation ponds

7.1.1 Construction phase

Aspect	Potential impact	Generic mitigation measure (select all that apply)		Timescales	Responsibility
Construction of ponds	Generation of dust emissions from vehicles and plant working on the construction of the ponds.	Ensure that workers are always wearing dust masks during the construction of the evaporation ponds.		During construction.	Operator.
		Monitor use of PPE at the construction site.		During construction.	Operator.

8. BIODIVERSITY MANAGEMENT PLAN

8.1 Management Action Plan

Summary of Impacts

The biodiversity management plan for the Mariculture Development includes measures during construction, operation and decommissioning of the evaporation ponds.

- The Project includes construction of Mariculture ponds with a total fenced area required of about 50m x 74m. This area will require bush clearance. However, the bushes in the area of the evaporation ponds are spread out, and no protected species were identified during the baseline assessment.
- There is a potential risk to biodiversity during operation of the Mariculture plant in terms of potential access of birds and mammals to drink from the evaporation ponds. The salty water might have an impact on the health of the animals and birds. However, such species quickly identify with salty water and avoid the water if it is not suitable for drinking. The water would be salty but with no hazardous chemicals.

8.1.1 Construction

Aspect	Potential impact	Generic mitigation measure (select all that apply)	Timescales	Responsibility

Site Clearance	Clearance of trees and shrubs.	Include requirements in tender specifications and contract documents for the contractor to: • Only clear the area of the evaporation ponds. • Save the topsoil for use on the bunds. • Start clearance with machinery and wait 48 hours before the area of the burrow is cleared.		By start of tender activities.	Operator.
	Impacts from site clearance.	Monitoring of the activities of the construction contractor with respect to biodiversity.		During construction.	Operator.
Access to site by mammals and birds	Potential impacts from animals / birds drinking the salty water.	Monitoring the fencing for damage, recording bird species observed at the site.		Ongoing during operation.	Operator.

9. HAZARDOUS MATERIALS MANAGEMENT PLAN

9.1 Management Action Plan

Summary of Impacts

Some chemicals will be used in the pre-treatment of the sea water for removal of suspended solids, the control of scaling, and the periodical cleaning of the reverse osmosis (RO) membranes. The chemicals will be securely stored at the Mariculture plant.

- The quantities of chemicals to be used for the treatment plant will be low. These chemicals are widely used in water treatment.
- The materials do have properties that could cause harm to the environment as a result of spills, and there are health and safety risks from unprotected exposure to humans

9.1.1 Operational

Aspect	Potential impact	Generic mitigation measure (select all that apply)		Timescales	Responsibility
Hazardous Materials Management Procedures	Potential health and safety impacts on employees, plus environmental impacts of spillages, etc.	Development of Hazardous Materials Management Procedures related to handling, loading and unloading, storage, and use of all hazardous materials; and regular review and updating of procedures as required. Include spills response procedures.		By the start of operation.	Operator.
		Development and implementation of a training programme for employees on		By the start of operation.	Operator.

		the Hazardous Materials Management Procedures.			
Hazardous Materials Storage and Handling	Potential health and safety impacts on employees, plus environmental impacts of spillages, etc.	Supervise the construction of secure storage facilities specialised for hazardous material storage, including signage and labelling.		By the start of operation.	Operator.
		Obtain and renew licences if needed in relation to storage and use of chemicals.		Ongoing from the start of operation.	Operator.
		Maintain a record of materials stored at site and ensure Material Safety Data Sheets (MSDS) are available for all materials.		Ongoing from the start of operation.	Operator.
		Usage of Personal Protective Equipment (PPE) provided to employees.		Ongoing from the start of operation.	Operator.
Monitoring	Potential health and safety impacts on employees, plus environmental impacts of spillages, etc.	Monitor the performance of contractors (e.g. transport companies delivering materials) in compliance with procedures required in their contracts (e.g. licensing, labelling, handling, storage in vehicles, etc).		Ongoing from the start of operation.	Operator.
Minimisation	Potential health and safety impacts on employees, plus environmental impacts of spillages, etc.	Identify opportunities to minimise the quantity of chemicals used in processes and stored on site Phase out the use of hazardous / toxic chemicals where alternatives are available.		Ongoing from the start of operation.	Operator.

10. COMMUNITY HEALTH, SAFETY AND SECURITY MANAGEMENT PLAN

10.1 Management Action Plan

Summary of Impacts

To ensure high standards of risk management and conduct related to community health, safety and security
10.1.1 Construction phase

Aspect	Potential impact	Generic mitigation measure (select all that apply)		Timescales	Responsibility
Community Safety	Community safety from construction activities.	Include specifications on community safety in the bid documents for the construction contractor, such as fencing and signage at the construction site, and the requirement to carry out awareness measures on safety (related to construction sites) in the		Before tendering for construction.	Operator.

Aspect	Potential impact	Generic mitigation measure (select all that apply)		Timescales	Responsibility
		community and at the schools.			
		Monitor community safety activities of the contractor against the requirements in the specifications.		During construction.	Operator.
Community Health and Safety	CHSS risks related to construction team interactions with the local community, including risks to women in the community.	Include requirements for contractors in the tender documents to implement a code of conduct for construction employees.		Before tendering for construction.	Operator.
		Monitor CHSS practices of contractor as appropriate.		During construction.	Operator.

11. CULTURAL HERITAGE MANAGEMENT PLAN

11.1 Management Action Plan

Summary of Impacts

The Cultural Heritage Management Plan for Mariculture Facility covers construction, operation and decommissioning of the Mariculture plant.

- It is recommended that should the contractor come across any artefacts or materials of any historical importance, these should be reported to National Heritage Council of Namibia.
- There are no expected impacts of the proposed Mariculture development on cultural heritage. A simple chance finds procedure will be implemented by the construction contractor as a precaution

11.1.1 Construction and operational phase

Aspect	Potential impact	Generic mitigation measure (select all that apply)		Timescales	Responsibility
Cultural Heritage	Risk of damage to cultural heritage items during construction, operation and decommissioning.	Include specifications in the bid documents for the construction contractor to implement a chance finds procedure		Before tendering for construction. (Also applies for decommissioning).	Operator.
		Workforce to be trained on implementation of procedures.			
		Monitor cultural heritage activities of the contractor in terms of chance finds.		During construction.	Operator.
		The Operator will implement the chance finds procedure during		During Operation	Operator.

		operation if needed (e.g., during maintenance of infrastructure).			

PART 12: OBLIGATIONS AND COMPLIANCE

The proponent recognises that Mariculture operations may have significant impacts on the environment. Accordingly, the proponent undertakes that during the course of its operations it will take every practicable step necessary to ensure the mitigation of such impacts. In doing so it will comply with the obligations identified in the EMP and approved by the Ministry of Environment and Tourism represented by the Environmental Commissioner.

I hereby certify that the given are correct and true to the best of my knowledge and belief. I understand that the environmental clearance certificate may be suspended, amended or cancelled if any information given is false, misleading, wrong and incomplete.

	JACOB SHGWEDHA	DIRECTOR
Signature of applicant	Full name in block letters	Position
on behalf of MARISPAC E AQUATICS (PTY) LTD		13 JUNE 2024
		Date

SIGNED AT _____ on this _____day of _____20_____

For the Government of Namibia: _____

Environmental Commissioner