NMP's Sandpiper Marine Phosphate Project: The Catalyst for Establishing a Sustainable and Environmentally Responsible Phosphate-Based Industry

Expo – Chamber of Mines
September
2022

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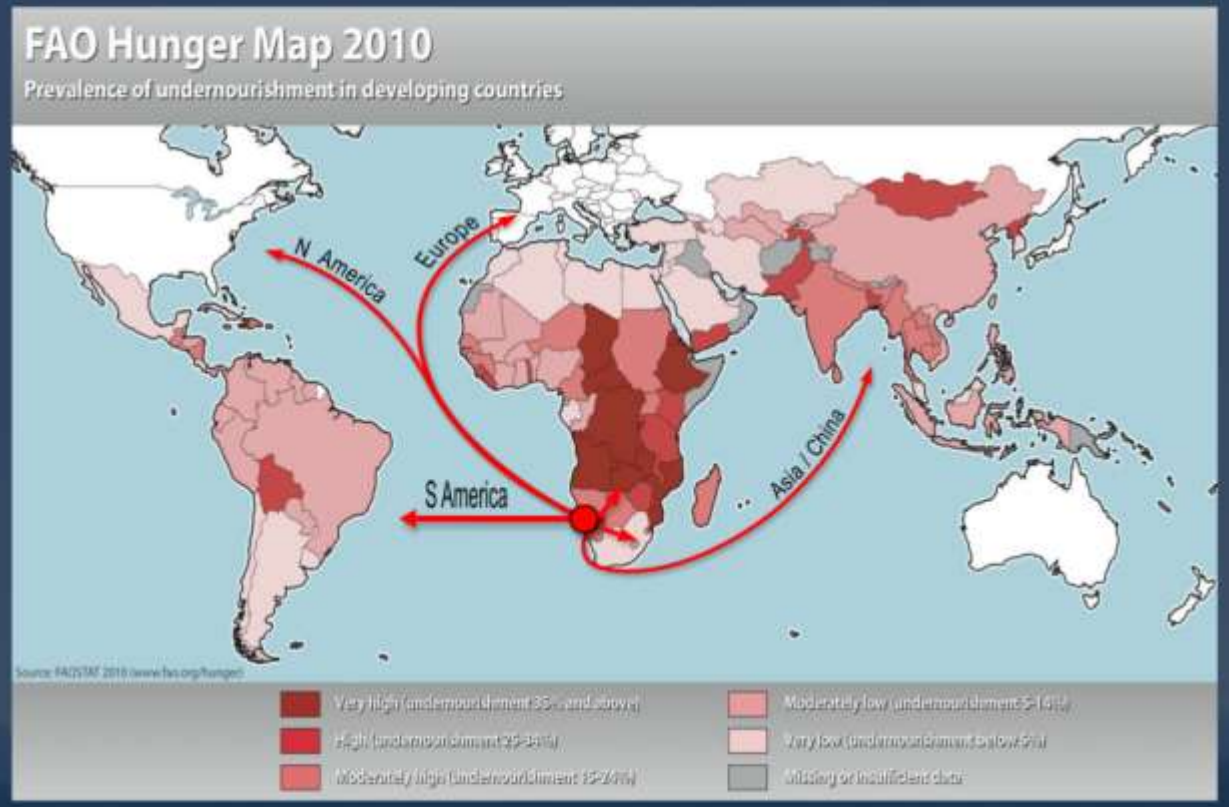
Project

Market and Products



Note: The designations employed and the presentation of material in the map(s) do not imply the expression of any opinion whatsoever on the part of FAO concerning the legal or constitutional status of any country, territory or sea area, or concerning the delimitation of frontiers.

While lithium-iron phosphate (LFP) batteries make up only a small percentage of the specialty phosphate market, they are forecast to see continued growth. It's worth noting that LFP technology isn't new – it is one of the original battery formulas – but it was phased out in the early 2000s due to lack of efficiency.

Potential Uses

1. Direct Application Phosphate Rock (DAPR)
2. Single Super Phosphate (SSP)
3. Phosphoric Acid
4. Fertilizer Products
   - Di-Ammonium Phosphate (DAP)
   - Mono-Ammonium Phosphate (MAP)
   - NPK
5. Lithium Ferro-Phosphate Batteries (LFP)

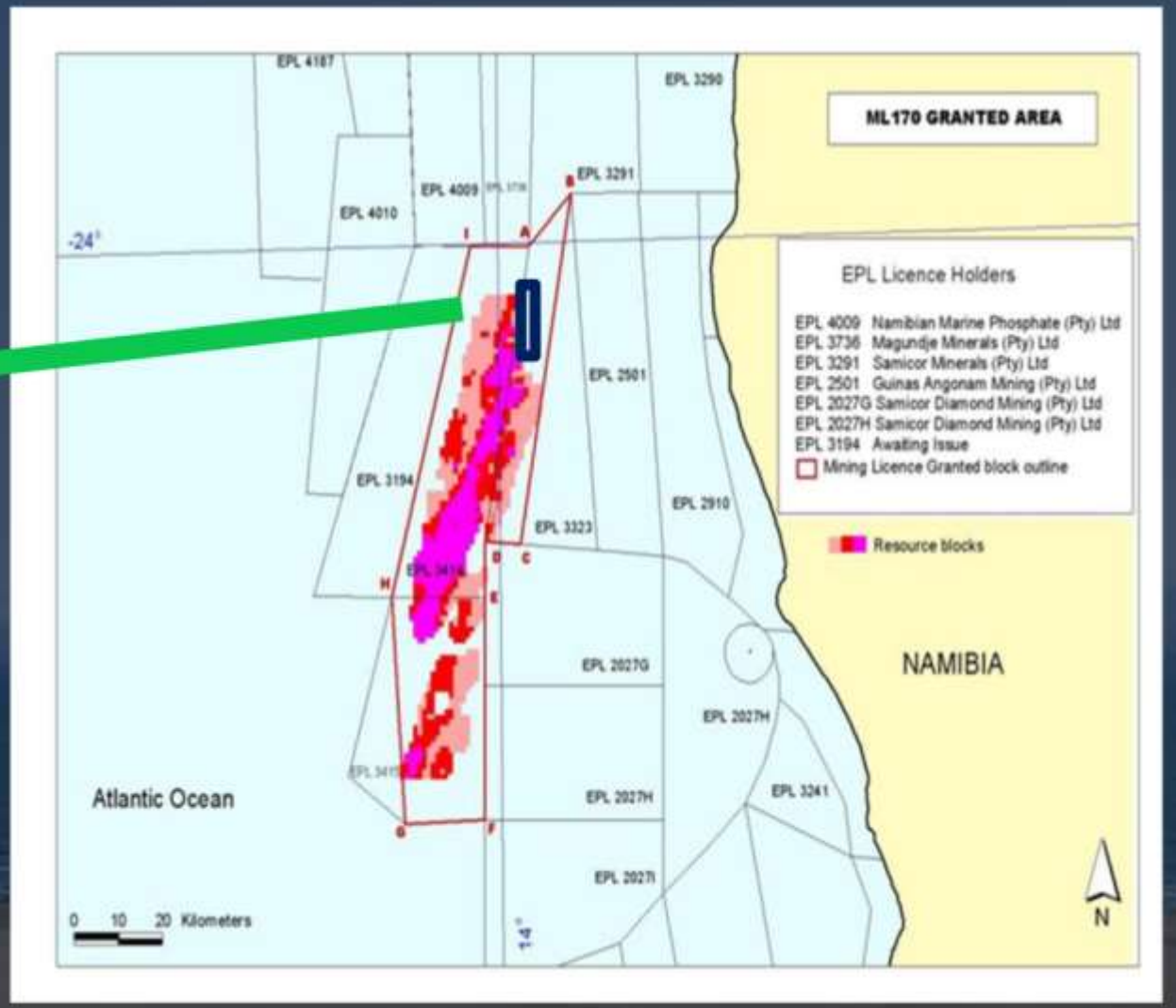
Mineral Reserves and Resources

Ore Reserves	Mt	P_2O_5
Proved	54.07	20.83%
Probable	78.69	20.12%
Total	**132.76**	**20.41%**

Mineral Resources	Mt	P_2O_5
Indicated	79.75	19.82%
Inferred	1,608.00	18.90%
Total	**1,687.75**	

Sustainability:

Based on a commercially viable cut-off grade of 15% P_2O_5, the phosphate resource within ML170 could sustain mining operations and provide benefits for future Namibian generations.



Project Operational Stages

1

Lower the Dredge Arm

2

Dredge – 'vacuum' (not blast) phosphatic sand

3

At Port – Hook up Pipeline to transfer Slurry to Ponds

3

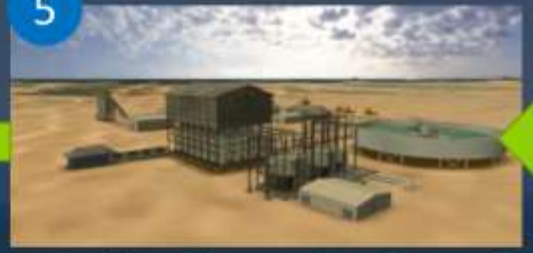
Accurate

Incorrect

4

Deposit Slurry from the Vessel into Ponds on land

5



At the Plant, the Slurry is Mechanically Processed to produce Concentrate

6

Transport Product for Local and International Sales

5

Namibia

Phosphate Rock

Tunisia

Phosphoric Acid

ECC Process

Where Are We Now?

Why Are We Here?

2011	Mining licence issued to NMP for Phosphate Mining
2012	• Detailed feasibility study (DFS) completed • Marine ML170's EIA and ECC application submitted
2012	ML170 additional stakeholder consultation completed
2013	EIA verification studies commenced
2013	18-month moratorium announced by MFMR
2014	EIA verification studies completed
2015	18-month moratorium concluded
2016	• Environmental Clearance Certificate awarded to NMP for ML170 Marine Phosphate Mining
2016	• Appeal & legal action initiated • ECC was withdrawn • Project suspended in this time
2018	Public consultation recommenced by order MEFT
2020	Supplementary environmental studies completed
2021	Legal action completed and high court judgement issued to: • Confirm ML validity • And to reapply for ECC – that's why we are here.

What Permitting is Required for Project Development?

ECC Process – Consultation History & Scoping

2011

2012

2013/4

2016

2018

2022

Engagement: Stakeholders, public and registered I&AP's

Consultation is a key part of the ECC process to:

- Capture key concerns
- Define Scope of work and specialist studies for Impact Assessment

Engagement with MME, MFMR, NatMIRC, MEFT, & Fishing Industry on key aspects affecting the marine environment

Consultation History - Ongoing at intervals over past 11 years

* Number of studies is not including supplemental studies conducted in 2022

ECC Process: Appointments, External Reviews, Independence & Who Pays

MISINFORATION

"EIA and Consultants are not independent because they are paid by the proponent."

FACTS

It's the law!

EMA 2007 requirements state:

- Proponent must pay all costs of assessment (Section 35 & 45)
- Appointed EAP and Consultants must be independent of Proponent (Regulation 4)
- Proponent can be required to pay all costs for Independent External Review required by the EC (Section 46)
- Accredited/Registered Professional Consultants operate in compliance with a Code of Practice and Professional Standards

ECC Process: Consultants

NMP's approach:

Find and use best expertise available:

- Published specialists with demonstrated expertise and experience in the BCLME and Namibian fisheries
- Accredited agencies and laboratories for data analysis – CSIR
- Independent Peer review of specialist assessments
- Independent Observers
- International Experience

Specialists and Consultants	Company/ Organisations	Specialist Studies
		Fisheries seabirds and mammals
D Japp	Capfish	Fisheries
James Gaylard	Capfish	Biomass and Stock Estimates Hake and Monkfish
Dr Hilkka Ndjaula	Unam	Reproductive Dynamics, recruitment and stock dynamics
Prof Mark Gibbons	UWC	Jellyfish
Dr Dave Japp	Capfish	Seabirds and Mammals
Dr Dave Japp	Capfish, MFMR	Marine Biodiversity Study
Dr Kevern Cochran	Capfish	Ecosystem assessment
Dr Dave japp	Capfish	Noise
		Water column and Sediments
Dr Robin Carter	Lwandle	Current Velocity and water mass charactistics
		Dissolved Oxygen
		Surfical Sediments
		Particulate Organic Matter concentraitons
		Inorganic Nutrient Levels
		Oxidative State
		Heavy Metal concentrations
		Hydrogen Sulphide
		Sediment Toxicity Study (pre-dredging)
		Benthos
Dr Nina Steffani	Steffani Environmental	Macrobenthos
		Plankton
Dr Bronwyn Kirby	UWC	Thiobacteria Study
Sebastian Brown	CSIR	Analytical methods
Dr Simon Foster	Pgysilia , UK	Meiofauna
Dr Tim McClurg	KZN Coastal Impact	Epifauna
		Plume Dispertion Modelling
Roy Van Ballengooyen	CSIR	Plume Dispertion Modelling
HR Wallingord (UK)	HR Wallingford	Plume Dispersion Modelling Detailed
		Geology and Physiography
Dr John Compton	UCT	Depositional History of Phosphate Deposits
Gordon Rigg	Marine Data Consultants	Seabed Physiography and habitat

ECC Process: Consultants

Consultants are Experts in Namibian Fisheries

37 Internationally Reputable Consultants

Lead Consultants' expertise:

- Namibian hake and monk fisheries
- Biomass modelling
- Recruitment and spawning
- Biodiversity assessment
- Benthic
- MSC certification

Image Source: Food Business Africa, 27 June 2020

Independent Peer Reviewers' Expertise

4 Independent Peer Reviewers

- Over 50 years of fisheries science, management advice, strategy, and policy development in southern Africa and/or the UK
- 25 years of advising on infrastructural needs relating to all aspects of fisheries and the marine environment
- **Evaluator of Fisheries Management Systems for fisheries requiring maintenance of Marine Stewardship Council (MSC) accreditation**
- **Member/lead of MSC certification and surveillance audit panels for various fisheries worldwide (noting that MSC certification requires environmental as well as fisheries and biological expertise)**
- Several years of participating in and leading a Regional Research and Training Project and a strategic "Large Marine Ecosystem" project in southern Africa (South Africa, Namibia and Angola)

Access to Information

All documents are provided for public access at relevant stages of the Assessment Process in accordance with the requirements of the Act (EMA 2007) and are accessible at following sites:

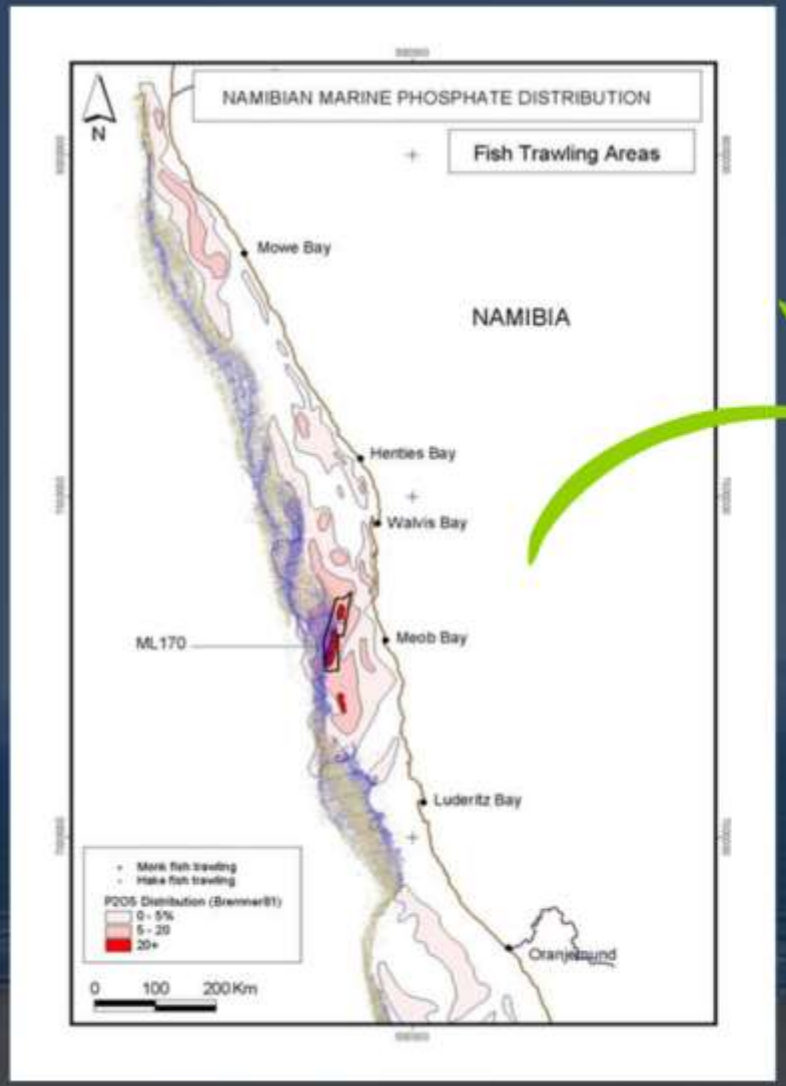
- NMP's website
- Office of the Environmental Commissioner
- MEFT DEA portal
- EAP's website
- Libraries (hard copies of some reports for those without internet access)

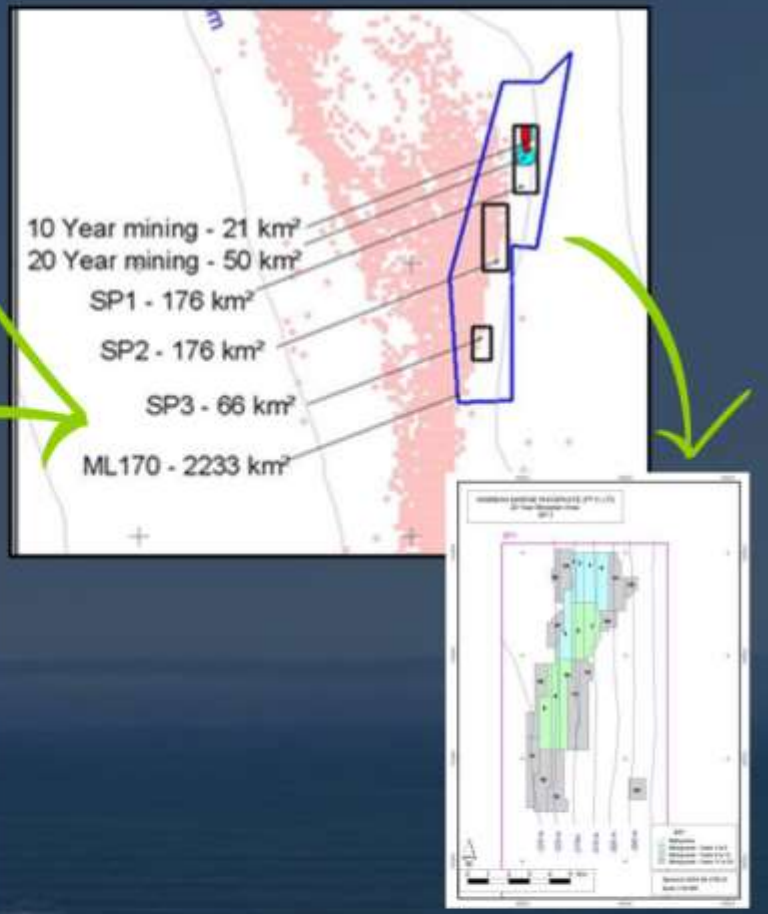
Environment

How will the Fishing Industry be Impacted?

Impact is related to scale of operations

- 20-year footprint 34 km² (less than 2% of ML170)
- Annual mining area average 1.7 km² (0.08% of ML170)
- Dredging non-continuous and 3 cycles per week,
  - approx. 16-20 hours onsite
- Specific concerns raised by fishing industry addressed by experts in specialist studies
- Mine site located outside 200m water depth and main Hake/Monk commercial fishing areas
- Operational impacts minimal.





	Continental Shelf	ML170	SP-1	20 Year Mine Plan	Average Annual Dredged Mined Area
Area (Km²)	110,000	2,233	176	34	1.7
% SP1 Area			100%	19.32%	0.966%
% ML170 Area		100%	7.88%	1.52%	0.076%
% Continental Shelf Area	100%	2.03%	0.16%	0.03%	0.002%

Will the Seabed & Marine Environment Recover?

Seabed habitat can and does recover after dredging – functional capacity

Ceremonema
Nematode worm

Scalalopios uniramus

Odontaster australis

Evidence from UK aggregate dredging industry

The Bolivinitid type Foraminiferan

The Planospiral foraminiferan of Elphidiidae family

Quadricoma

Evidence from 20 years of Marine Diamond Mining

- Reference BCLME 2008 Report (10 years)
  - Only publicly available data
- Confirmed by NCE who have observed the data noting:

"… over a very short time relatively the organisms on the seafloor will start to recolonize that area".

Image Source: The Telegraph, 16 Sept 2015

"Now we see from the marine diamond sector how quickly the seabed recovers…, over a very short period of time relatively, the organisms on the sea floor will start to recolonize that area."

- Dr. Chris Brown, CEO, Namibian Chamber of Environment

How will Impacts be Mitigated and Monitored?

1 Assessment

- Mitigation and effects evaluated in Assessment Phase

2 EMP

- EMP – Environmental Management Plan
- The EMP is legally binding
- Defines required operational and monitoring obligations

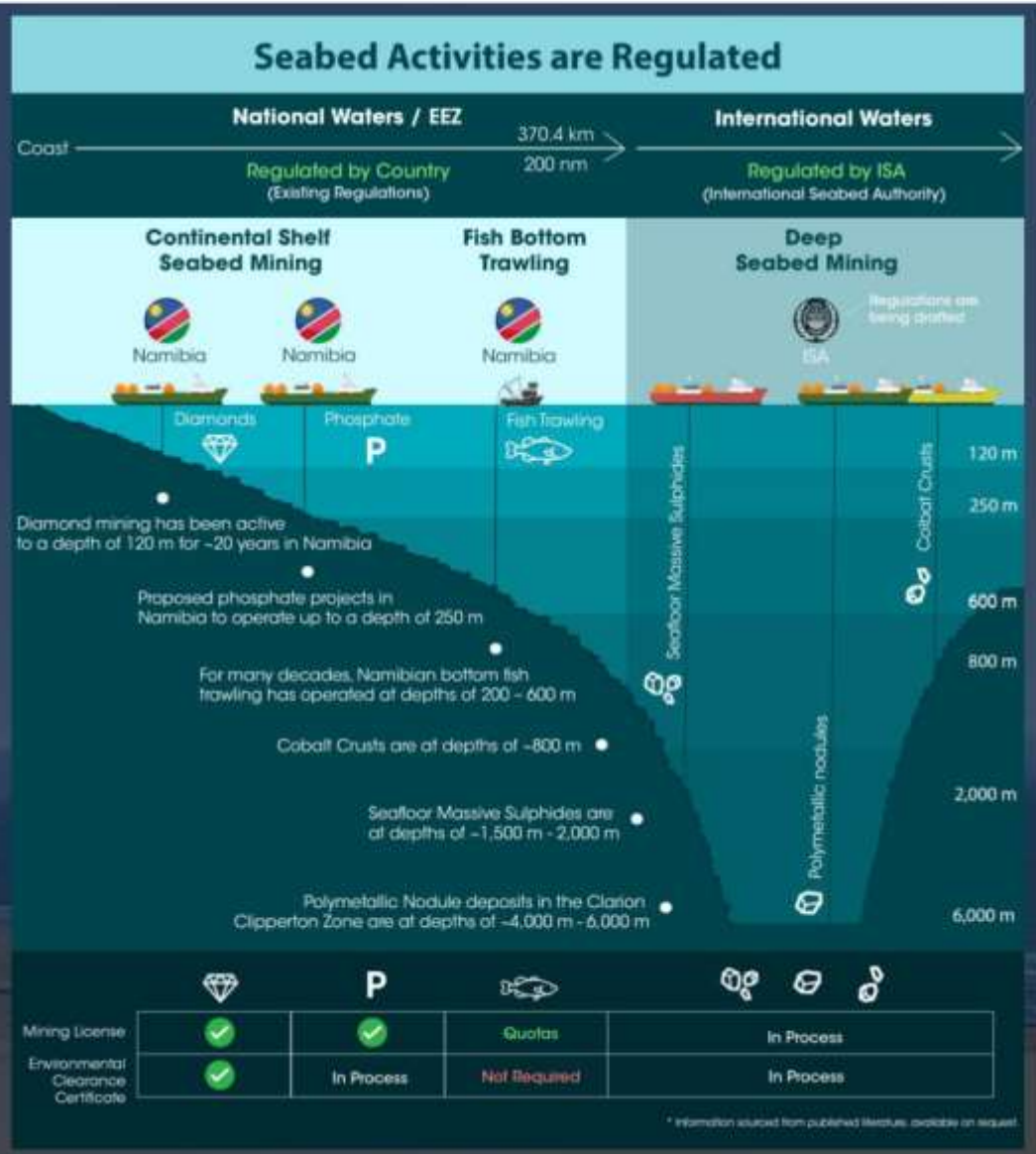
3 ECC

- ECC – Environmental Clearance Certificate
- ECC is valid for 3 years
- Renewable on application and assessment against EMP

Can Fishing and Marine Phosphate Mining Co-Exist?

- Historical evidence
- Current Legislation
- Marine Spatial Planning
- Blue Economy Policy

Is this a Deep-Sea Mining Project?



NMP 200-year Mine Area:

- In 200m - 225m water depth
- Located on the continental shelf

"Deep Sea Mining"

- Colloquial Term, not a definition
- Seabed Mining targeting a specific group of deposits (Cobalt Crusts, Polymetallic Nodules and Seabed massive Sulphides)
- Form on the Continental Rise and Abyssal Plain
- Water depths 800m - 6000m

Social & Economic Benefits for Namibia

What are the Socio-Economic Benefits?

Economic Benefits

Increased local value addition
in the production of manufactured phosphate products

Improved agricultural output
from access to locally produced & cheaper fertiliser & animal feed - **(Import Substitution)**

Increased export revenue
(from production of manufactured phosphate products & improved agricultural output)

Social Benefits

Namibian-Made Products

Employment

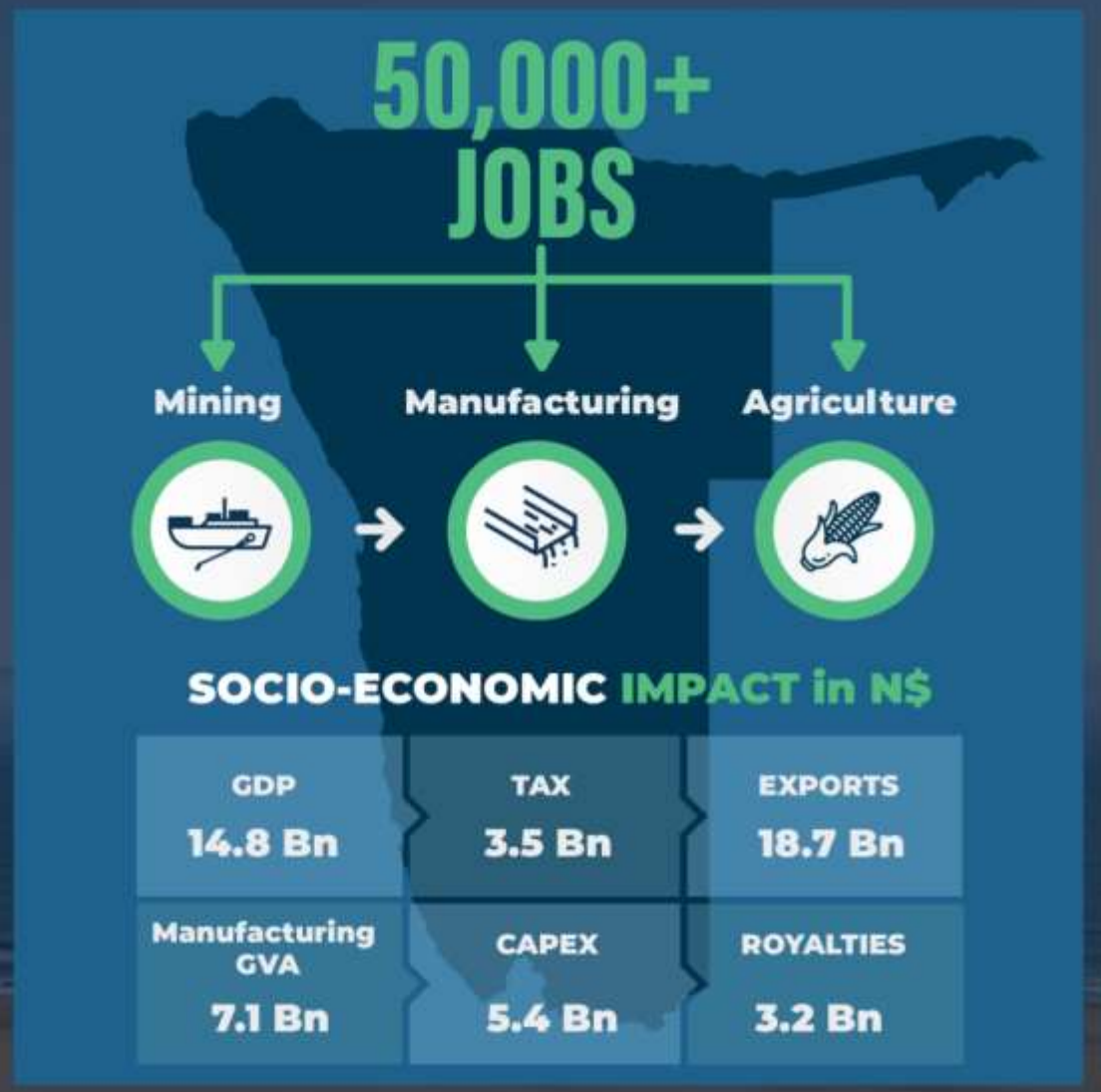
Food Security
- Namibia
- Southern Africa
- Global

The Socio-Economic Study

- The study was conducted on an industry level.
- The study was conducted by Stratecon Applied Economic Research, who the Namibian government has utilised in the past.

Sustainability:

- Based on a commercially viable cut-off grade of 15% P_2O_5, the phosphate resource within ML170 could sustain mining operations and provide benefits for future Namibian generations.



1st Building Block

Summary

1	Project	The Project is Technically & Commercially Feasible.
2	ECC Process	Currently in the Assessment Phase, now that the Scoping Stage has concluded.
3	Environment	Best Independent Experts have been Selected, and the Best Science Applied.
4	Social & Economic Benefits	The Project & a Phosphate-based Industry could have Significant Benefits for Future Generations of Namibians.

Contact Us

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