The Environmental Commissioner
Ministry of Environment and Tourism
Windhoek, Namibia

CC: Environmental Compliance Consultancy

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RE: Namibian Marine Phosphate – Comments on the draft EIA Report "ESIA REPORT FOR THE PROPOSED SANDPIPER MARINE PHOSPHATE PROJECT WITHIN ML 170, OFFSHORE, NAMIBIA."

Introduction and Overview

These comments are made by the Deep Sea Conservation Coalition.

Overall, the purported EIA lacks a comprehensive baseline, details on expected effects and relies on dated information. Its numerous assessments of 'low' or 'minor' impacts are based on no objective standard and in numerous instances are belied by obvious significant effects. There are obvious indications of bias throughout. It should be undertaken by an independent assessor according to best international practice.

The mining operation will entail dredging and recovery of marine phosphate sediments using a trailing suction hopper dredger (TSHD) from water depths between 190 m to 250 m. The scale of the Sandpiper Project within the SP1 target area will involve mining a total area of 34 km2 over a period of 20-years at an average of 1.7 km2 annually.

The stated intention is that the final ESIA report and appendices will be formally submitted to the Environmental Commissioner as well as the competent authority, being the MME and, then to the MEFT as well as MFMR as part of the application for an environmental clearance certificate for the Sandpiper Marine Phosphate Project.

A claim is made that the project will establish a phosphate industry. Yet in a similar application in New Zealand, the proponents admitted that some 80% of phosphate would be exported, according to the world price for phosphate.

The project proposes use of dredging arm with 3 m wide dredge head

To leave a residual thickness of marine sediments over the footwall representing between 10 and 15% of the original volume of target sediment layer(s). This will remain in situ on completion of recovery. This residual sediment remaining above the footwall clay will be present as an uneven 'hummocked' surface. To leave lanes of undisturbed sediment to support infill and recolonisation of benthos. There is no indication that this will provide any significant recovery potential. Indeed, it is acknowledged that "The loss of the benthic community is restricted to the dredged-out areas (maximum of 2.5 km2 and average of 1.7 km2 per annum), but the recovery to the original community is likely to take longer than the life of mine (permanent (~20-years life of mine) or may even not be achieved in a meaningful timescale." (page 155) Comparisons to diamond mining (page 156) are meaningless as they are completely different types of mining.

Plumes:

The description of the mining operation is very vague as far as the sediment plumes are concerned, but it seems clear that there will be both mid-depth and bottom plumes. The plume modelling and projection is woefully lacking. Crucial oceanographic, plume composition and modelling is missing. It is admitted that findings from an independent review and updated assessment in 2014 conducted by CSIR on the dredge plume characterisation indicate that there is a possibility that the plume dimensions (1500 m long by 800 m wide with suspended sediment concentrations ranging between 20 mg/l to 100 mg/l) may exceed the dimensions reported on in the 2012 ESIA being(2 to 5 times larger.

Zone of influence (ZOI): For the dredging activity in the mine plan area (34 km2) within ML 170, the overall ZOI for the total 20-year dredging operations extends over an area of 513 km2. However this can only be guesswork, as the composition and disposition of the sediment plumes are as yet unknown.

An average sediment deposition of 7 c is predicted over the whole ZOI over 20-years. It is acknowledged that the seabed area experiencing >0.1 m deposition above background rates is likely to change to a predominantly silty substrate. This will extensively change the benthic diversity and species that rely in it. The EIA admits that "high suspended sediment concentrations near the seabed generated by the drag head and subsequent re-deposition of the material causes smothering effects on the benthos" but that the effects are assessed as 'adverse low'. That is nothing short of absurd. There is no quantification of the species that will be smothered or otherwise adversely affected. The same is true of "Mining - sedimentation from the dredger fine Sediment plumes during seabed dredging" (page 170): no comprehensive assessment of effects on species, including fish such as hake and monkfish is made. The same is true of release of hydrogen sulphide from the sediments due to dredging, which it is acknowledged is very toxic and can kill many animals in its path (page 167).

The information on fish that is given is focused on impacts on the fishing industry, not the fish, which are spawning in the impacted area. Where an assessment is attempted, it is risible: "Mining at the specific site (Zone 1) in SP1 cis expected to impact on hake, however due to their mobility, hake will avoid this area and most likely result in displacement of hake into adjacent areas. Mortality is considered unlikely. Therefore, from an ecosystem perspective these will only have localised impacts." (page 191). Is this predicated on interviews with juvenile hake as to their understanding of mining impacts and intended behaviour?

Significant impact is admitted for monk and sole: "Monk are not highly mobile fish and have patchy localised distribution patterns. Due to these characteristics, monk is more vulnerable to mortality due to direct physical impacts from dredging. This could potentially have a localised impact on the trophic ecology, but this is relatively small due to the dredge site mining area and impacts are considered moderate." (page 191) Obviously the impact within the mining area would be significant, but there is no discussion on the effects of the plume on hake – direct and indirect – beyond the mining area.

It appears that a copy-and-paste approach is taken when for sole it is stated that "The removal of the preferred substrate for monk is expected to be long term for the duration of mining activities due to removal of the preferred substrate".

For pelagic fish “the impact is expected to be short term.” The mining is intended to be for 20 years.

There can be no confidence in any of the assessments of the impact on fish. Where it is acknowledged that “proposed dredging operations in SP1 will result in redistribution and/or displacement of these species as a result of i) actual mining activities 2) habitat disturbances and 3) sediment plumes (turbidity)” (page 193), it is stated that “the impact as a result of mortality is expected to be proportionately minimal relative to total biomass of the main commercial species.” This comparison amounts to an acknowledgement of significant impacts on fish. The same flawed approach is taken for recruitment: “data suggests the extent of the mining area is small compared to the total biomass of monkfish in Namibian waters, therefore recruitment effects are deemed to be low.” In other words, the effects will be significant. The assessment must be of the area impacted, not the area not impacted.

Noise:

It is acknowledged that no further meaningful studies for sound profiling of SP1 can be carried out until the intended dredger is on site. But models show very significant noise emissions from 150 db going to 120 db at 5 km and 100 db at 25 km. Frequencies are not given, and no comprehensive marine mammal surveys have been undertaken, although Dusky dolphin and cape fur seal have been seen. Therefore no conclusions can be drawn of impacts on marine mammals, as in the absence of a comprehensive survey, there can be no knowledge of what marine mammals are present, in what numbers and what their susceptibility is to the frequencies and sound levels.

Fish:

It is stated that monk and hake most likely to be impacted and that juvenile and pre-recruiting Cape hake are found in abundance. The effects on these hake populations are unknown.

Also with regards to monkfish, the verification survey provided evidence of a mix of juveniles, adults and pre-recruiting fish. Due to the survey team using monk-directed gear with a cod-end liner (20 mm mesh) to retain as much as possible, the proportion of juvenile fish caught was higher than would be expected for equivalent Biomass assessments completed by MFMR (J Midgley and Associates, 2014).

No mitigation of the discharge of sediment:

Mitigation of discharging sediment at seabed level has been discarded.[1]

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[1] Additionally, the potential operational mitigation measure of discharging the fine sediment plume at or near the seabed was considered. Dredging contractor JDN has advised that such measured are not routinely done for any of their international coastal dredging projects (JDN personal comms, 2022). For the current operational depths (200 m to 225 m) in ML 170, while it would be technically feasible, there is no clear evidence that it would have any substantial environmental benefits, considering that the current assessed impacts significance is low for plume dispersion and sedimentation and operational mitigation measures for fine sediment discharge are already being applied (environmental valve and discharge at -15 m depth).
During dredging, there will be repeat traverses over the defined dredging lanes in order to mine to the required depth of sediment below seabed (leaving ~30 cm above the footwall) in the mine plan area. If fine sediment discharge is released at the seabed during the traverses, an amount of the fine sediment discharged would then fall back into the active dredge lanes and will need to be double handled and removed during the next traverse. Ore recovery efficiency would possibly be affected and reduced which would result in increased onsite dredging time and related fine sediment discharge. Comparisons when using an environmental valve of surface (40 m to

Uranium:

Uranium is present and has not been not assessed.[2]

Oxygen depletion:

Exposure of anoxic sediments by dredging reduces the already low concentrations of oxygen that occur in the lower water column: Seabed dredging could have an adverse impact, the extent of the impact will be in the annual dredging area and the duration is medium term.

50 m depth), mid depth and bottom turbidity distributions against no valve, indicates an improvement in total suspended solids (TSS) concentrations in the surface layers to <7.6 mg/l but no or little change in the subsurface layers (HR Wallingford, 2020). This is beneficial as the 1 % light depth would be around -50 m at this sediment concentration, therefore negative effects of reduced light levels on phytoplankton production should be mostly avoided. Also, as there is little or no change in the near seabed TSS load, it can be assumed that the sediment deposition would be similar between the valve and no-valve scenarios which, according to modelling, is predicted to be 0.3 mm or less per dredge cycle.

[2] Further the potential for the radioactive mineral uranium and its associated radionuclides to be dispersed in the water column from the sediment was assessed. The total uranium concentration in the ore sediment was quantified during the test work for the Sandpiper Project as part of the pre-feasibility study (Bateman, 2011) and defined. The natural uranium content is determined to be low (~100 ppm), which is in line with other mined phosphate sedimentary deposits globally. Currently there is very little international and local information and studies available on marine radioactivity levels and their potential impacts on marine organisms. Additionally, currently there is no known expertise in this field in Southern Africa. Furthermore, there is no evidence in available published literature of any known detrimental effects on demersal fish as yet recorded from radioactive components being released into the water column as a result of trawling activities, which dominate the Namibian EEZ. However, it is acknowledged that radioactive elements exist in the seabed and uranium, thorium and their associated radionuclides will be included as variables in the baseline monitoring required in the EMP for the sediments and water column.