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Seabed mining in Namibia: Quo vadis?

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Abstract

With the moratorium on marine phosphate mining in Namibia having recently expired mining operations could now proceed at any time. 'Formal' environmental regulatory systems for such activities would appear to be inadequate and it is unclear whether corporate self-regulation can be relied upon to safeguard against pollution. Africa's negative experiences with terrestrial mining, expressed in the 'resource curse paradox', highlight the need to be wary of 'foreign' seabed miners and why national conversations are needed on the steps that are required to exploit seabed minerals' developmental potential.

Introduction

A frank assessment of the debates on seabed mining in Namibia suggests that it is not just environmental and social interests that are at risk from this activity. There are also broader questions on ownership of and control over the country's mineral resources. That environmental and social interests are at risk is evident from the events, which lead to the marine-phosphate mining moratorium of September 2013. The expiry of the moratorium in March 2015 has given rise to public debate that pits pro-mining business interests against anti-mining lobbyists who represent environmentalists as well as the economically important fishing and tourism sectors. Against this charged and complex backdrop the question arises 'quo vadis' or 'where to, Namibia?'

Drawing on empirical insights from Namibia, the study makes two contributions. Firstly, it argues that if seabed mining is to proceed then it should not be at the expense of civil actors' democratic rights to champion environmental interests. The evidence suggests that the continued government silence over whether or not it will develop phosphate mining is creating unnecessary uncertainty. Civil actors must know that they have the right to speak out. The case study shows that environmental risks are credible, the environmental impact assessment (EIA) processes are prone to abuse, and companies have not provided compelling evidence of self-regulation safeguarding the environment.

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With the lapsing of the moratorium in March 2013 commercial exploitation could proceed, even though the environmental concerns raised remain unaddressed.[1]

The second argument is that regulators and corporate actors are not necessarily untrustworthy. The time is ripe to explore the circumstances under which civil actors and corporate actors might be mobilised to more effectively safeguard environmental and social interests – including those of the fishing and eco-tourism sectors. As the ensuing analysis shows, however, 'political will' and 'corporate will' are the two most important underlying factors. Without these, the effectiveness of any regulatory safeguards for seabed mining is open to question.

These two points are best understood in light of the isiZulu saying, "indlela ibuzwa kwabaphambili" (those already on the path are best to lead). Namibia's civil actors point to the inadequacy of national and industry regulation regimes to meet the needs and expectations of key stakeholders. The lessons learnt have stimulated thinking about how to enhance the effectiveness of such regimes. The resulting findings have reached a ready audience beyond Namibia. In neighbouring South Africa for instance, the Center for Environmental Rights recently reported that the Department of Mineral Resources (DMR) granted three marine phosphate-prospecting rights in the country's Exclusive Economic Zone. These rights cover a considerable area – more than 150,000 square kilometres – and overlap with critically endangered ecosystems and benthic habitats that have been earmarked for protection. Unfortunately there are no specific regulations for seabed mining.[2] Moreover, recent reforms to the laws governing environmental management in relation to mining have led to concerns about the extent to which this new system addresses issues of compliance with environmental management plans or programmes while it seeks to facilitate and promote the mining sector.[3] An understanding of how civil actors could maximise the sector's contribution to a sustainable and responsible seabed mining industry would therefore be welcomed.

Elsewhere in the continent, the African Union's 2050 Africa Integrated Maritime (AIM) Strategy envisages a Common Exclusive Maritime Zone of Africa (CEMZA), which would encompass a host of maritime activities, including seabed mining. According to the Strategy, CEMZA is expected to

> grant Africa enormous cross-cutting geo-strategic, economic, political, social and security benefits, as it will engender collective efforts and reduce the risks

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[1] Shinovene Immanuel and Chamwe Kaira, "Battle over Phosphates" , *The Namibian*, Windhoek 27 May 2015, <http://www.namibian.com.na/indexx.php?id=27065&page_type=story_detail&category_id=1> [accessed 6 June, 2015].

[2] Sipho Kings, 'SA Gung-Ho About Mining Oceans' <http://mg.co.za/article/2015-07-02-sa-gung-ho-about-mining-oceans> [accessed 1 August, 2015].

[3] Tracy-Lynn Humby, "One Environmental System: Aligning the Laws on the Environmental Management of Mining in South Africa", *Journal of Energy and Natural Resources Law*, 33 (2), 2015: 110-130 (110). This information comes from a periodic email communication sent on 12 June 2015 by the Center for Environmental Rights (CER). The email made reference to the CER's mining programme's 'Safeguarding our Seabed' project. A check on the CER's website on 1 August, 2015, however, did not find details of the said project. The CER website is available at <http://cer.org.za> [accessed 1 August, 2015].

> of all transnational threats, environmental mismanagement, smuggling and arms trafficking.[4]

At this stage, it remains unclear what environmental safeguards are planned under CEMZA to safeguard the continent's marine habitats from activities of countries and companies, as they rush to explore and exploit seafloor minerals, such as cobalt, copper, nickel, or manganese. However, it is worth noting that Namibia is among the many African countries highlighted in Bramley Murton's 2000 study, which has commercially valuable natural resources in its continental shelf.[5] His study serves us well: by alerting us to the possibility that commercially viable resources exist on Africa's continental shelf, we can begin the debate over the range of legal and policy issues to be considered in their regulatory oversight.

A few qualifications are necessary at this point. Firstly, the term 'beyond compliance' refers to those instances when companies are complying with the laws in place, but also adhering on a voluntary basis to their own higher standards that are more stringent than the legal requirements. In terms of criticism, some may have long and disenchanting experience of the offshore sectors' environmental and safety record. In particular they would point to the extraction of hydrocarbons from offshore locations where a never-ending stream of offshore disasters[6] appears to be the result of significant human errors, poor industry practices and lax State regulatory oversight.[7] Under such circumstances they would have little reason to believe seabed miners are trustworthier. Moreover, some may take issue with the reliance on media references instead of the more reliable data sources like peer-reviewed scholarly articles. Finally, some may question the study's theoretical slant on regulatory theory, which may come across as unrealistic or unsuitable to the African context.

This study pleads guilty as charged. It is precisely because of the complexity of seabed mining and the limited availability of empirical data that traditional data-collection strategies – desk-based research and rigorous empirical study – are inapplicable. It readily recognizes that it is difficult to monitor what seabed miners are actually doing and comparing it to what they claim to be doing. The only exception is where the company allows independent monitors to observe its work. Thirdly, close examination of

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[4] The AIM Strategy is available at: <http://pages.au.int/maritime/documents/2050-aim-strategy> [accessed 31 July, 2015].

[5] Bramley Murton, "A Global Review of Non-Living Resources on the Extended Continental Shelf", *Brazilian Journal of Geophysics*, 18 (3), 2000: 281-306 (281).

[6] Torrey Canyon tanker: 18 March, 1967, Cornwall, England; The Amoco Cadiz supertanker: 16 March, 1978, Portsall, France; Nowruz Field Platform: Persian Gulf, Iran, 4 February, 1978; Castillo de Bellver tanker, 6 August, 1983, Cape Town, South Africa; Alpha Piper rig: 6 July, 1978; Exxon Valdez tanker: 24 March, 1989: Prince William Sound, Alaska, USA; Montara oil rig: Australia, 21 August, 2009, Deepwater Horizon oilfield: Gulf of Mexico, USA, 20 April, 2010. See: <http://www.infoplease.com/ipa/A0001451.html> [accessed 11 March, 2015].

[7] Viktoria Harzl and Matthias Pickl, "The Future of Offshore Oil Drilling. An Evaluation of the Economic, Environmental and Political Consequences of the Deepwater Horizon Incident", *Energy and Environment*, 23 (5), 2012: 757-770 (757, 759-61).

the media references used in this study show that these merely reflect issues that are already in the public domain. These are only used as point of reference, which is then used as a point of departure for discussing implications for Namibia in view of the 'resource curse' paradox.

Finally, the study takes the view that in some instances 'beyond compliance' literature may identify options and opportunities for companies to demonstrate environmental leadership in seabed mining operations. There is evidence that this activity poses a threat to sensitive species and little-understood marine ecosystems.[8] Should commercial activities begin, damage could result from sediment plumes caused by the mining process, or from disposal of mining wastes, or by other means – discharge of wastes from ships on the surface, as well as noise pollution from the remotely operated vehicles and robots used underwater.[9] For these reasons, conscientious miners would welcome the opportunity to explore opportunities to go beyond the minimum terms specified in their formal legal license. In view of the huge expenses involved in such mining operations coupled with the risks of closure should they be found to be in breach of formal license terms other firms may consider it to be in their own interests to go beyond compliance.[10]

The Sandpiper marine phosphate project

Background

In 2011, the Namibian Ministry of Mines and Energy issued mining licenses to a company called Namibia Marine Phosphates (NMP) thus giving the go-ahead for the exploitation of marine phosphate deposits in the proposed Sandpiper project.[11] Namibian Marine Phosphate (Pty) Ltd's mining license was issued for 20 years: from 13th July 2011 to 12th July 2031. However, it was issued subject to the completion and

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[8] L. M. Wedding et al., "Managing mining of the deep seabed", *Science*, 349 (6244), 2015: 144-145. Also see: <http://timesofindia.indiatimes.com/World/China/Chinas-sub-finds-mysterious-deep-sea-living-creatures-in-Indian-Ocean/articleshow/45896643.cms> [accessed 15 January, 2015].

[9] Jan Magne Markussen, "Deep Seabed Mining and the Environment: Consequences, Perceptions, and Regulations", in: Helge Ole Bergesen and Georg Parmann, (eds.), *Green Globe Yearbook of International Co-operation on Environment and Development*, Oxford, Oxford University Press, 1994: 31-39.

[10] Recent media reports indicate that deep seabed mining is high-cost and high-risk work, with costs for a mining site topping USD $1.6 billion. See: *The Economic Times*, "China proposes joint mining of Indian Ocean with India", New Delhi, 7 May 2015, <http://articles.economictimes.indiatimes.com/2015-05-07/news/61902686_1_international-seabed-authority-indian-ocean-jiaolong> [accessed 18 May, 2015].

[11] A comprehensive account of the events concerning the Moratorium are found in the Submission by Swakopmund Matters on on 29 October 2014 to the Decision-Making Committee appointed by the Environmental Protection Authority of New Zealand to decide on the Chatham Rock Phosphate Marine Consent Application. The text of the submission is available at: <http://issuu.com/swakopmundmatters/docs/submission_by_swakopmund_matters_to> [accessed 1 August, 2015]. The study omits discussion of a separate EIA, which addresses activities related to the shore-based plant and operations required for beneficiation of the marine phosphate-rich sediments recovered from the mining site. See: <http://www.envirod.com> [accessed 9 March, 2015].

approval of environmental impact assessments (EIAs). In January 2012, NMP submitted a draft EIA and Environmental Management Plan for the Sandpiper project. The project would be located on a marine phosphate deposit situated about 60km offshore and 150km south of Walvis Bay in water depths of 180 to 300m. The EIA submitted by NMP also included independent specialist studies dealing with specific potential impacts on fish and fisheries, seabirds and marine mammals, water column dynamics, macro-benthos, and jellyfish.

The project would involve dredging the seabed to a depth of up to 3 meters (potentially up to 6 m). Up to 5.5 million tons of marine sediments would be extracted annually from an area of up to 3 km^2, to produce 3 million tons of export-quality rock phosphates. The material would be transferred to shore where the phosphate sands would be separated from other marine sediments.[12] Reaching these levels of production would require approximately 43 weeks of continuous dredging. Once operational, the project could produce 3 million tons of marketable rock phosphate concentrate per annum. This would place the country among the top ten world producers.

The EIA report highlights the significance of commercial fishing as a key economic activity in Namibia's Erongo region, which is where the Sandpiper project is situated. Fisheries – mainly through exports to the European Union (EU), Japan, China, USA and Australia – contribute about 4% to the country's gross domestic product, making it the third-largest contributor, and also directly employs about 13,000 people. Other economic benefits would include vessel hire and maintenance, [use of] engineering companies, harbour fees, freight transport and revenues for municipalities through electricity and water costs.[13]

Economic context

In principle, extractive activities can bring significant benefits to a region such as local employment and business opportunities.[14] However it is also necessary to balance these benefits with potential adverse effects that would directly affect existing economic interests. As regards economic benefits, phosphate mining would lead to potential investments of more than US$1 billion.[15] Indirect economic benefits from this marine

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[12] Alex Benkenstein, "Seabed Mining: Lessons from the Namibian Experience", *South African Institute of International Affairs Johannesburg South Africa*, *Policy Briefing*, 87, 2014: 1-4, <http://www.saiia.org.za/doc_view/506-seabed-mining-lessons-from-the-namibian-experience> [accessed31 July, 2015].

[13] SINTEF, *Strategic Environmental Assessment of the Cumulative Impacts on the Marine Ecosystem from Bulk Seabed Mining of Industrial Minerals, specifically Phosphates, off the Namibian Coast. Background Information Document*, <http://www.sintef.no/contentassets/e0701ef53678426490f3920105b434bc/sea-bulk-seabed-mining---final-bid-3.pdf> [accessed 27 November, 2014].

[14] John Owen and Deanna Kemp, "Social licence and mining: A critical perspective", *Resources Policy*, 38 (1), 2013: 29-35 (29f.).

[15] "Namibia may get $1bn investment", *BusinessReport*, 28 May, 2014, <http://www.iol.co.za/business/international/namibia-may-get-1bn-investment-1.1695329#.VHc_j03lqUk> [accessed 27 November, 2014].

mining industry would include vessel hire and maintenance, engineering companies, harbour fees, fuel bunkerage, freight transport, and municipalities through electricity and water costs.[16] Having said that, the overall contribution to the Namibian economy by marine phosphate mining is uncertain, as it would ultimately be driven by market demand – from the big crop producers: India, South America, US, Europe, Canada, and China – as well as the prevailing global market prices for fertilizers. Moreover, the scale of mining and processing would determine the final levels of direct employment arising from phosphate recovery and processing.

Industry and company regulation

Sandpiper's EIA report makes reference to The Equator Principles (EP) and the International Finance Corporation (IFC) operational principles. In general, these require financed projects to reflect sound environmental management practices. These include obligations to avoid negative impacts on project-affected ecosystems and communities. Unfortunately, the EIA report fails to specifically show how, or if, the IFC principles and EP guidelines apply to the Sandpiper project. These casual references and omissions are startling, especially when contrasted with a report on another seabed mining project, Solwara 1 (highlighted elsewhere), which is based in Papua New Guinea.

It is interesting to note that in this instance, the report confidently asserts that Solwara 1 is likely to surpass many of the International Finance Corporation (IFC) social and environmental standards for mining practices although the IFC mining requirements provide no guidance for deep seabed mining. The report proceeds to provide specific reasons why Solwara 1 may set a new standard for 'best practices' in mining, which even greatly surpasses the current IFC requirements:

> [...] does not require relocation of communities, does not impact cultural resources, does not contaminate freshwater through tailings or rock waste. In addition the mine should only have positive impacts on communities in New Ireland and New Britain.[17]

A final observation on the Sandpiper project EIA document relates to the statement that it adheres to the business ethics guidelines of the International Fertilizer Industry Association (IFA). It further states that IFA members must respect a strong sense of ethics and integrity by adhering to the highest standards of business conduct. This includes honouring all business obligations and complying with the laws in countries and communities where they operate. A review of the IFA website, however, fails to identify the said guidelines, though in fairness it does state:

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[16] SINTEF, *Strategic Environmental Assessment of the Cumulative Impacts on the Marine Ecosystem from Bulk Seabed Mining of Industrial Minerals, specifically Phosphates, off the Namibian Coast. Background Information Document*, <http://www.sintef.no/contentassets/e0701ef53678426490f3920105b434bc/sea-bulk-seabed-mining---final-bid-3.pdf> [accessed 27 November, 2014].

[17] Earth Economics, Environmental and Social Benchmarking Analysis of Nautilus Minerals Inc. Solwara 1 Project, 2015, <http://www.nautilusminerals.com/irm/content/pdf/eartheconomics-reports/earth-economics-may-2015.pdf> [accessed 8 September, 2015].

> IFA provides environmental benchmarking to help its members chart a course towards cleaner production, and for companies to share their experiences through the activities of the Technical Safety Health & Environment (SHE) Committee, which helps to drive continual improvement across the industry.[18]

Perhaps details of the said guidelines and the proposed compliance, monitoring and enforcement mechanisms are available through the above-mentioned committee. That said, the fact that this information is not publicly available and viewable on the IFA website certainly renders what was said in Sandpiper's EIA document more difficult to believe.

Legal context

For present purposes, the study highlights the country's constitution, where Article 91(c) requires the State to investigate complaints about the over-utilization of non-renewable resources and degradation and destruction of ecosystems, as well as failure to protect the country's beauty and character. Also relevant is Article 95(l), which requires the State to maintain the ecosystems, essential ecological processes and biological diversity of Namibia and the utilization of living natural resources on a sustainable basis for the benefit of all citizens.

Also relevant is the Environmental Management Act (No. 7 of 2007), Namibia's Ministry of Environment and Tourism (MET) requires mining licenses to be submitted along with an environmental impact assessment (EIA) report, as well as an environmental management plan which details how applicants would manage and monitor mitigation measures. Applicants must also comply with the requirements of the Minerals (Prospecting and Mining) Act (Act No. 33 of 1992), with particular emphasis on conditions of the Mining License, as issued by the Ministry of Mines and Energy (MME).

Public response

From the outset, the Sandpiper project met with significant opposition. This was despite arguments by NMP representatives that the EIA process had revealed no major environmental impacts, that the phosphate project would contribute significantly to Namibia's foreign exchange earnings and agricultural production[19], or even that the

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[18] <http://www.fertilizer.org/SHE> [accessed 31 July, 2015]. The EIA report only states that IFA members must respect a strong sense of ethics and integrity through adhering to the highest standards of business conduct. This includes honouring all business obligations and complying with the laws in countries and communities where they operate." The IFA website, however, does not identify the said guidelines.

[19] Adam Hartman, "Fishing sector takes on phosphate miners", *The Namibian*, Windhoek, 6 July, 2013, <http://www.namibian.com.na/indexx.php?archive_id=108825&page_type=archive_story_detail&page=240> [accessed 27 November, 2014].

project would include an environmental monitoring programme, while also complying with Namibian environmental regulations and best practices.[20]

Several civil actors highlighted specific problems. These included the locally based Swakopmund Matters, the Namibian chapter of 'The Earth Organization' and the Australian-based Deep Sea Mining Campaign, and representatives of the fishing industry.[21] They raised objections over the inadequate levels of public consultation during the EIA process. They also claimed that the EIAs were overly reliant on secondary data, and that dredging the sea floor would cause direct destruction to the building blocks of the marine ecosystem (benthos layer). In particular, the processing of phosphates could release toxic metals (cadmium, arsenic, lead, mercury, chromium, vanadium, selenium) and radioactive substances (thorium and uranium) into the marine portions of Dorob/Namib Naukluft Park. The fact that such metals are bio-accumulative meant that commercially important fish stocks (like monk and hake) or shellfish (wild-caught, as well as farmed oysters and mussels in Swakop/Walvis Bay) could become impossible to sell in key exports markets. Furthermore, soluble phosphate entering the water would increase algal blooms and harm shellfish and other species. Finally, noise and hazardous waste pollution also posed a threat to marine mammals.

Opposition to the Sandpiper project ultimately led to a decision by the Namibian Cabinet on 17 September 2013 to place a moratorium on marine phosphate mining in Namibian coastal waters, and that environmental clearances would only be granted after adequate scientific studies had been conducted.[22] However, with the expiry of the moratorium in March 2015, government appears to have gone silent on whether or not the activity will proceed. It is not clear why. On one hand it appears that there has been an apparent lack of progress in completing the said studies, with some even alleging that only a desktop study has been undertaken, rather than a comprehensive strategic environmental analysis. On another hand, it seems that the issues go far deeper. Technical teams comprising permanent secretaries from the the fisheries, mining and environment ministries have been unable to agree on what recommendations – on whether or not government should accept seabed phosphate mining – should be submitted before Cabinet.[23]

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[20] Clemencia Jacobs, "Protest against Sandpiper not 'emotional sensationalism'", *Namibia Economist*, 21 May, 2012, <http://www. economist.com.na/special-focus/1129-protest-against-sand piper-not-emotional-sensationalism> [accessed 27 November, 2014].

[21] Gia Costella, "Environmental group says marine phosphate mining cannot be sustained by Namibia", *Mining Weekly*, 17 May, 2013, <http://www.miningweekly.com/print-version/environmental-group-says-marine-phosphate-mining-cannot-be-sustained-by-namibia-2013-05-17> [accessed 27 November, 2014].

[22] The Norwegian-based Foundation for Scientific and Industrial Research (SINTEF) and the Institute of Marine Research (IMR) were commissioned to study possible impacts of phosphate mining off Namibia and on-shore phosphate processing, <http://www.sintef.no/home/projects/sintef-fisheries-and-aquaculture/2014/Environmental-Impact-Assessment-off-NAMIBIA--a-pilot-project/> [accessed 27 November, 2014].

[23] "Namibia: Lev Leviev Visit Adds Weight to Phosphate Mining Fight", *The Namibian*, Windhoek, 28 July, 2015, <http://allafrica.com/stories/201507281788.html> [accessed 31 July, 2015]; Shinovene Immanuel, "Phosphate mining uncertain", *The Namibian*, Windhoek, 11 August, 2015, <http://www.namibian.com.na/

Debating implications following expiry of moratorium

The expiry of the moratorium means, in principle, that firms previously awarded marine mining licenses can commence mining, while other companies are also free to apply for fresh licenses. Since then, the public debates – between those opposed to mining, and those in favour of the activity – show no sign of abating. Issues raised can be broadly divided into two categories: the environmental impacts of mining and the more fundamental issues of ownership and control.

There is one recent example of the former, which may be cited. In June 2015 environmental lobby groups were accused of "sabotaging the investment climate of Namibia".[24] The accuser in question, a prominent official at the Namibia Chamber of Mines, is also a director of a firm seeking a license to mine marine phosphates. Swakopmund Matters was then criticised:

> Other lobby groups have spokespersons and contacts. One can approach them and address issues of environmental concern with them. Only with Swakopmund Matters one does not have that liberty to discuss such matters.[25]

Needless to point out, these accusations did not go unanswered. In its response Swakopmund Matters asserted that issues take precedence over names, saying that, "despite the fact that persons come and go, standpoints remain, and they also leave an impact." [26]

The significance of this statement is underscored in the literature. As Twerefou notes, environmental impacts of mining are felt throughout the value chain. This impact can be directly felt – for instance through prospecting; exploration; site development; ore extraction; mineral dressing; smelting; refining/metallurgy; transportation; post-mining activities and indirectly through the impact of the degradation on the socio-cultural development of communities. In general, degradation arising from mining includes air pollution; discharge into surface and ground water; land and forest degradation; noise pollution; solid and liquid waste disposal; generation, storage, transportation and disposal of toxic substances as well as social-cultural problems such as health, conflicts, alcoholism and inequality. According to Swakopmund Matters, these issues take precedence because of their negative implications for Namibia's sustainable development and various livelihoods and, therefore, require serious consideration.

The broader issues, however, appear to go much further. They touch on questions of ownership and control of mineral resources, and the broader implications for Namibia. As Swakopmund Matters points out, the companies seeking to mine seabed resources

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indexx.php?archive_id=140505&page_type=archive_story_detail&page=1> [accessed 8 September, 2015].

[24] Adam Hartman, "Lobby groups sabotaging investment – mines", *The Namibian*, Windhoek, 23 June, 2015, <http://www.namibian.com.na/indexx.php?archive_id=138516&page_type=archive_story_detail&page=1> [accessed 29 July, 2015].

[25] Ibid.

[26] Ibid.

are foreign-owned. Namibia Marine Phosphate (NMP) is 85% controlled by Australian and Omani interests. Apart from the Sandpiper 1 site (covering 2333 km^2) the company also holds six Exploration Prospecting Licences (EPLs) (covering over 4810 km^2 with identified phosphate mineralization). There is also Lev Leviev Namibia Phosphate (LLNP), which is 76% controlled by an Israeli consortium. This has publicly announced plans to open a marine phosphate processing plant at Lüderitz (Southwest Namibia) by 2018.[27] Furthermore there is Chatham Rock Phosphates (CRP), which has a wholly owned subsidiary, whose directors (according to its 2014 Annual Report) are both New Zealand citizens.[28]

Additionally, the Sandpiper EIA document makes reference to other adjacent mining license holders (companies), who have been issued with licenses. Other companies have been issued licenses to carry out seabed mining in adjacent areas, although for different minerals. The EIA document makes reference to industrial minerals and precious stones (Samicor, Guinas Angonam Mining, Magundje Minerals), for industrial minerals (LLNP, Pelagian Progress), and for precious metals and semi-precious stones (Duiker Investments). Unfortunately, the geographic coverage of the licenses is not stated. Although their ownership structure is also not stated, it seems fair to assume that they may also be foreign owned.

At this juncture, it is helpful to view Namibia's overall mining sector in a broader context. The paradox of Africa's mineral (and indeed, natural resource) wealth, on the one hand, and the pervasive poverty of its people, on the other, is a notable feature of its economic landscape. The scramble and partition of the continent was fuelled by competition among European nations for raw materials. These included minerals – such as gold, copper, cobalt and manganese – which are also driving commercial interest in seabed mining. Africans, meanwhile, remained in low-skill, low-wage jobs. Even following independence, mining in Africa has been characterised by four main features. Firstly, most minerals are exported in raw form or after only basic processing. Secondly, firms imported most of their inputs and repatriated all their profits, except what was reinvested in mining operations. Thirdly, although export trade figures are dominated by mineral exports, these fail to show the real benefit to the national economy. This is because of the mines' dependence on imports, the free repatriation of profits, technical fees charged and the high salaries paid to expatriate workers. Finally, mineral exploitation has led to pollution of almost all environmental media – air, water, land and forests – with a more serious impact on communities directly affected by mining.

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[27] Eveline de Klerk, "Marine phosphate mining misconstrued", *New Era*, 19 June, 2014, <http://www.newera.com.na/2014/06/19/marine-phosphate-mining-misconstrued/> [accessed 21 March, 2015].

[28] Refer to the October 2014 Submissions to the New Zealand Decision Making Committee, which was convened to decide on a marine phosphate mining application by Chatham Rock Phosphates: <http://issuu.com/swakopmundmatters/docs/annexure_b_to_submission_by_swakopm> [acessed 29 July, 2015].

Similar sentiments apply for seabed mining. In the face of this 'new scramble for Africa', would the situation differ fundamentally if foreign firms were allowed to exploit Namibia's seabed minerals? Let us consider the following, as yet, hypothetical, yet highly likely, scenario. African governments, desperate for investment and a way out of poverty, offer tax incentives and low royalty rates to a foreign seabed mining interest. They do so hoping that increased trade and investment in the sector will stimulate national economic growth and social development. Meanwhile, corrupt business deals might be struck with influential government figures. Over time, regulators soon realise they lack the expertise or the experience to ensure that companies live up to expectations. Meanwhile, hopes of skills transfer and jobs dwindle as the equipment used is highly mechanised and the ore is exported with minimal value-addition. In the long term environmental interests are disenfranchised as companies engage in destructive mining practices and irresponsible disposal of mining wastes. They do so knowing that there is little likelihood of prosecution either by their host government or in their home jurisdiction.

These realities still characterise terrestrial mining in Africa. A recent report, dubbed "Fatal Extraction", by the International Coalition of Investigative Journalists (ICIJ), implicates Australian-owned companies – probably the largest foreign players in African mining – with workplace negligence, unfair dismissal, violence and environmental law. These allegations have been raised by thousands of people against Australian companies, their subsidiaries and contractors. According to legal filings and community petitions, complainants were drawn from over a dozen African countries – Botswana, Malawi, Mali, Tanzania, Zambia, Ghana, Niger, Zimbabwe, Madagascar, South Africa, Burkina Faso, Ivory Coast, Namibia and Senegal. These complainants include village chiefs and tribal headwomen, elected representatives, former employees, traditional healers, human rights defenders and government agencies.[29] In view of the above scenario, it is difficult to shake off the perception that foreign mining companies came to Africa to profit from regulatory and compliance monitoring weaknesses that would be impermissible in their own jurisdictions.[30]

Avoiding such a scenario in relation to seabed minerals is an urgent priority for Namibia. To put matters in perspective, the country is classified as an upper middle-income country, with a gross national income (GNI) per capita of approximately USD $5,610 in 2012. The mining industry produces diamonds, uranium, copper, magnesium, zinc, silver, gold, lead, semi-precious stones and industrial minerals. It is also the biggest contributor to Namibia's economy in terms of revenue, accounting for 25% of the country's income. Thus, all things being equal, the country's natural resources constitute a form of capital that, if well exploited, can generate wealth, thereby bringing about

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[29] *Fatal Extraction: Australian Mining's damaging push into Africa,* <http://www.icij.org/project/fatal-extraction> [accessed 29 July, 2015].

[30] D. K. Twerefou, "Mineral Exploitation, Environmental Sustainability and Sustainable Development in EAC, SADC and ECOWAS Regions", African Trade Policy Center, Work in progress, 79, 2009, <http://www.uneca.org/sites/default/files/publications/79.pdf> [accessed 4 August, 2015].

economic development. However, Namibia is one of the most unequal societies in the world, with a very high unemployment rate. Moreover, in 2013 the mining sector contributed only 9.3% to the country's gross domestic product and it is estimated that the sector directly and indirectly provides an income for a mere 100,000 people.[31] This is a small figure for a country with a population of only 2.3 million, with a high unemployment rate.[32] These statistics underscore the need for frank conversations about what needs to be done, where, and how, to realise the benefits of the country's submerged minerals.

'Beyond compliance' voluntary arrangements

Describing voluntary arrangements

The term 'voluntary arrangements' is used in reference to individual self-regulation, where an entity regulates itself, independent of others or industry self-regulation. It also refers to those instances where a trade association, a professional society, professional communities or business network regulate the entity.[33] Among the self-regulatory mechanisms used at individual firm level are those relating to corporate social responsibility, or CSR. This is a concept whereby companies voluntarily integrate 'beyond compliance' social and environmental concerns in their business operations and stakeholder interactions. Impetus for doing so could come from internal factors like organizational culture, organizational self-monitoring, and managers' personal interests.[34] Stakeholders here would include customers, suppliers, employees, shareholders, communities, future generations as well as the environment.[35] In some instances, implementation of CSR practices and standards is also expressed in industry-level social and environmental performance standards and management systems, codes of conduct, best practices, and sustainable reporting and monitoring.[36] Similarly, voluntary codes and practices,

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[31] "Namibian mining's pulling together boosting country's economy – Nedbank", *Engineering News*, 27 May, 2015, http://www.engineeringnews.co.za/article/namibian-minings-pulling-together-boosting-countrys-economy-nedbank-2015-05-27<http://www.engineeringnews.co.za/article/namibian-minings-pulling-together-boosting-countrys-economy-nedbank-2015-05-27> [accessed 31 July, 2015].

[32] References are drawn from the Namibia Chamber of Mines. See: <http://www.chamberofmines.org.na/uploads/media/ECONOMIC_CONTRIBUTION_OF_MINING_IN_NAMIBIA-September_2012.pdf> [accessed 31 July, 2015]. The CIA Handbook estimates that half of Namibia's people are unemployed. See: <https://www.cia.gov/library/publications/the-world-factbook/geos/wa.html> [accessed 1 August, 2015].

[33] Neil Gunningham and Joseph Rees, "Industry Self-Regulation: An Institutional Perspective", *Law & Policy*, 19 (4), 1997: 363-414 (363, 364-366).

[34] Jennifer Howard-Grenville, Jennifer Nash and Cary Coglianese, "Constructing the License to Operate: Internal Factors and their Influence on Corporate Environmental Decisions", *Law & Policy*, 30 (1), 2008: 73-107 (77, 97f.).

[35] Maimunah Ismail, "Corporate Social Responsibility and its Role in Community Development: An International Perspective", *Journal of International Social Research*, 2 (9), 2009: 199-209 (199).

[36] Andrew Crane, Dirk Matten and Laura Spence, (eds.), *Corporate Social Responsibility: Readings and Cases in a Global Context*, 2nd ed., London, Routledge, 2013.

such as the IFC Sustainability Framework, provide practical guidance on minimizing any negative social and environmental impacts.[37] Finally, rule setting may occur under the auspices of industry-specific multi-stakeholder initiatives. Voluntary in nature, members participate in crafting rules and monitoring for compliance with codes of ethics.[38]

It should be noted that one of the normative claims made by voluntary arrangements in the context of environmental governance literature, is that they offer more effective solutions to environmental problems than traditional modes of regulation, through a greater emphasis on greater collaboration between diverse stakeholders who apply their diverse capabilities to common environmental problems.[39] However, these claims have not gone unchallenged. One criticism is that these normative claims are premised around neo-liberalist assumptions that come from Western liberal democracies. These may not necessarily apply in an African setting. This is because environmental issues remain largely governed by command-and-control legislation, primarily on the basis of specific natural resources sectors, such as land, water, fisheries or wildlife. Much of this colonial-era legislation has also been criticised for its failure to successfully address problems of pollution, land degradation, deforestation, and the loss of biological diversity. For these reasons, the study recognises the predominance of traditional State-led governance arrangements, while being mindful of their limitations. This recognition explains its openness towards exploring alternative regulatory paradigms.[40]

Solwara 1

A recent report commissioned by Nautilus Minerals supports the notion that despite the gaps and omissions found in NMP's EIA document, seabed miners can still exercise a high level of responsible leadership when they voluntarily commit to following, if not surpassing, best practice standards, such as the International Finance Corporation (IFC)

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[37] The IFC Sustainability Framework comprises The Policy on Environmental and Social Sustainability, which defines IFC's commitments to environmental and social sustainability; The Performance Standards, which define clients' responsibilities for managing their environmental and social risks; and The Access to Information Policy, which articulates IFC's commitment to transparency. See: <http://www.ifc.org/wps/wcm/connect/topics_ext_content/ifc_external_corporate_site/ifc+sustainability/our+approach/risk+management/sustainability+framework> [accessed 10 March, 2015].

[38] Luu Trong Tuan, "Corporate social responsibility, ethics, and corporate governance", *Social Responsibility Journal*, 8 (4), 2012: 547-560 (547, 555f.); Y. R. K. Reddy, "The ethics of corporate governance", *International Journal of Law and Management*, 51 (1), 2009: 17-26 (17, 24f.)

[39] Jeroen van der Heijden, "Voluntary Environmental Governance Arrangements", *Environmental Politics*, 21 (3), 2012: 486-509.

[40] B. D. Ogolla, "Environmental Law in Africa: Status and Trends", *International Business Lawyer*, 23 (9), 1995: 397-444 (412); H. W. O. Okoth-Ogendo, "The Tragic Africa Commons: A Century of Expropriation, Suppression and Subversion", *University of Nairobi Law Journal*, 1, 2003: 107-117; Annie Patricia Kameri-Mbote and Philippe Cullet, "Law, Colonialism and Environmental Management in Africa", *Review of European Community and International Environmental Law*, 6 (1), 1997: 23-31 (23).

social and environmental standards for mining practices.[41] However, as the following section will argue, this notion must be critically assessed.

By way of background, the report gives details of an independent study – an environmental and social benchmarking analysis – on the proposed seafloor copper-gold mine – the Solwara 1 project. Located in the Bismarck Sea of Papua New Guinea, the project is expected to begin operations in the first half of 2018 after securing the required financing. The study compares the social and environmental impacts of the project with three terrestrial mines: Bingham Canyon in Utah, US; Prominent Hill, South Australia; and a proposed mine in Intag Province, Ecuador. The mines were chosen for comparison with Solwara 1 because, firstly, the Bingham Canyon Mine is typical of the large-scale terrestrial copper porphyry deposits that currently account for most of the world's copper supply. Secondly, the Prominent Hill Mine holds a copper deposit that yields a similar annual amount copper as the projected copper yields for the Solwara 1 project. Finally the proposed Intag Mine is located in an area containing cloud forest that is considered to be a unique and sensitive terrestrial ecosystem with significant species endemism. Similarly, the vent ecosystems of the deep sea are also considered a unique and sensitive ecosystem with notable species endemism.

The study found that the deep seabed at the Solwara 1 mine is advantageous because there are no people living at the proposed mine site and there are no cultural or historical claims to the site. The mine site itself is quite small, covering only 14 hectares of seabed. Natural resources are less impacted by operations at this site as surface or groundwater freshwater resources will be not used or contaminated at Solwara 1. In addition, there is limited overburden covering mineralized material, resulting in very little waste rock material. Furthermore, the proposed mine operation wastes would be miniscule in comparison to the impact of the eruption of a nearby underwater volcano. Finally, the report claims that Solwara 1 presents an opportunity for Papua New Guinea to receive mining royalties that will support the national budget for education, health and other expenditures. The overall take-home message, thus, is that the adverse social and environmental effects of seabed mining are lower than a terrestrial mining operation.

Need for empirical insights

The report makes two very strong claims that are difficult to ignore. The first is that seabed mining can reduce the social and environmental impacts associated with large surface terrestrial copper mines. The second is that seabed-mining companies can exercise a high level of responsible environmental leadership. They would accomplish this by making a public commitment to follow, if not surpass, industry best practice

[41] The report cited is: Earth Economics, *Environmental and Social Benchmarking Analysis of Nautilus Minerals Inc. Solwara 1 Project*, 2015, <http://www.eartheconomics.org/FileLibrary/file/International/Earth%20Economics%20Environmental%20Social%20Benchmarking%20Solwara%201%202015.pdf> [accessed 4 June, 2015].

standards relating to social and environmental management. The company could also demonstrate their commitment by cooperating with scientists in studying the seabed, establishing marine conservation areas and collaborating with unaffected (but nearby) communities over social development matters.

Such claims would be well received by those who believe that, in substance and spirit, 'beyond compliance' instruments can achieve enhanced levels of openness, trust and corporate environmental performance. The adoption of industry guidelines – such as the revised IFC Performance Standards, or specific mining industry standards – would help eliminate, or at least manage various risks. A damaged corporate reputation could, for instance, affect its share price or hinder the company's ability to access or finance new projects elsewhere in the world. Moreover, any delays or stoppages affecting the project could hinder its cash flows, and by extension, affect loan repayments. Lenders may also be exposed to higher default rates on loans provided to other firms established with the expectation of providing goods and services to that mining venture.[42]

Critics, on the other hand, would have much to say about the Solwara 1 report. Suspicions of a conflict of interest arise where a consultancy firm is paid to write an 'independent' report on the entity commissioning the report. This will not change as long as there is no independent scientific assessment of claims of reduced environmental impacts. Finally, mining companies – even those that have been in existence for longer than Nautilus – may claim to have 'green' credentials. This does not mean that they actually do; there may well be a discrepancy between the values claimed and the values lived. This calls for further research into the ways the values have been formulated, and thereafter translated into the company's operations. In the case of the Solwara 1 project, there is merit in studying the contribution of Nautilus Mineral's organisational culture and its internal leadership to the overall company ethos towards environmental stewardship. In particular, there would be a need to explore how Nautilus' organizational values – simplicity, innovation, integrity, performance, relationship building, environment and safety – are integrated into the business model, corporate strategic planning, and the activities which are expected to start soon.

Additionally, comparative insights must be sought from the 'beyond compliance' environmental arrangements used in Namibia's marine diamond mining industry. Considering that the expiry of Namibia's moratorium means that seabed mining could proceed at any time, one cannot wait to learn from the Nautilus' Solwara 1 project. The environmental risks associated with dredging Namibia's seabed, processing and disposing of mining wastes is such that we must know, as soon as possible, whether such environmental governance arrangements indeed live up to expectations. After all, there have been offshore activities since the 1960s in Namibia.[43] Through extensive desk-based research,

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[42] Abbi Buxton, "MMSD+10: Reflecting on a decade of mining and sustainable development", IIED Discussion Paper, International Institute for Environment and Development, London, 2012, <http://pubs.iied.org/16041IIED.html> [accessed 1 August, 2015].

[43] Lara Atkinson and Kerry Sink, *User profiles for the South African Offshore Environment*, Pretoria, South African National Biodiversity Institute, 2008, <www.sanbi.org/sites/default/files/documents/documents/

literature review, and stakeholder-interviews (and possibly even expert workshops), such study would show if, or how, best-practice industry guidelines have been utilised. Such study would also reveal the extent (and impact) of collaboration between the company and stakeholders like scientists, as well as players in the fishing or tourism industries.[44]

The emergent feedback would also address important normative questions: what pressures would drive seabed miners to enter into voluntary 'beyond compliance' arrangements? How could one avoid such arrangements becoming cheap publicity for the seabed miners? How well are certification schemes enforced and who 'guards the guardians', ensuring that third party certification is based on sound evidence and objective analysis? The sooner feedback is received on these issues, the sooner policy-makers, practitioners and scholars can understand what adjustments are necessary to address the social and environmental risks associated with seabed mining in Namibia.

Conclusion

The facts examined in this study leave no doubt as to why the moratorium on marine phosphate mining must be re-imposed. Firstly, a scientific perspective is urgently required to show how, or if, seabed mining should proceed. The results of scientific studies must be shared with stakeholders for public scrutiny. Secondly, Namibia's formal regulatory framework would appear to be ill equipped to regulate seabed-mining activities. This is evident from the case study that shows that regulations covering formal processes have been flouted, as well as from the controversies surrounding the EIA study. For these reasons should marine phosphate mining proceed, then adequate legislative safeguards are necessary to ensure effective environmental monitoring and control.

The 'breathing space' afforded by the moratorium would give regulators, government policy-makers and civil actors time to deliberate on options to strengthen national regulatory mechanisms, as well as the design and implementation of suitable monitoring arrangements. The issue here would not be on how to leverage their diverse skills and capacities, but rather how best to leverage them. It is suggested that such engagement be guided by three overarching questions: to what extent are Namibia's regulatory frameworks governing seabed mining actually effective? What contextual and structural factors inhibit multi-stakeholder engagement in the governance of seabed natural resources? Finally, what are the options for developing alternative regulatory responses, which are more effective than previous approaches in addressing social and environ-

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biodiversity10marineprofiles.pdf> [accessed 26 January, 2015]; Government of South Africa, *Fifth National Report to the Convention on Biological Diversity*, Pretoria, Department of Environmental Affairs, 2013: 37, <https://www.cbd.int/doc/world/za/za-nr-05-en.pdf> [accessed 26 January, 2015].

[44] Namdeb, a joint venture between the government, and the De Beers conglomerate, dominates the industry. This company is also the largest taxpayer and second-largest employer in the country, see<http://www.namdeb.com> [accessed 1 August, 2015].

mental issues and concerns? Answers to these questions will contribute to an improved knowledge base for understanding if, or how, voluntary environmental governance arrangements could supplement Namibia's existing environmental legislation.

Similarly, the gaps noted in respect of self-regulation challenge corporate interests to critically evaluate how their 'beyond compliance' arrangements could more effectively accommodate civil actors in overseeing environmental issues. It is not just that seabed-miners might merely pay lip service to the notion of incorporating voluntary mechanisms in their operations. Rather, the bold claims made in relation to Solwara 1 present a compelling case for further empirical study of Namibia's diamond mining industry. This could result in a more indepth understanding of the conditions under which corporate activities could result in improved environmental and social outcomes. The study could also yield important insights into the relationship between organisational culture and the company's commitment to environmental leadership. It may even demonstrate the contribution of corporate leadership in defining a company's 'green' aspirations, designing transformation architectures and driving the change process.

Having made those observations, it is now time to step back and reflect on what the 'resource curse' phenomenon holds for Namibia in relation to the 'new scramble' for its seabed minerals. This term refers to the paradox that countries with abundant non-renewable resources generally perform more poorly in terms of economic development and governance than countries with fewer natural resources. This occurs when they begin to rely upon primary exports as the central engine for economic growth while neglecting other major sectors. After years of depending on the investment phase of the mining boom, coupled with high commodity prices, slowing growth in export markets, coupled with a fall in export prices may threaten a reversal of economic fortunes, a slump in the development of mines, and a corresponding decline in citizens' living standards. Avoiding the curse in relation to seabed mining means that even at this early stage, Namibians should be inquiring how their seabed minerals endowment can translate into long-term national development rather than short-term business profit. Two broad questions may help frame the debate: are Namibians presently satisfied with the economic and social benefits arising from their mineral wealth? What should be done differently to ensure the country's minerals bring diversified and sustainable economic development and growth? Debating these issues would highlight the specific adjustments necessary to ensure exploiting seabed minerals results in better economic outcomes (jobs and economic opportunities), improved social outcomes (such as better education systems), and enhanced environmental outcomes (such as maintaining healthy ecosystems that benefit both present and future generations).

Following from these observations, the role of government becomes clear. It goes without saying that Namibians have elected their leaders for a purpose: to lead. Rather than keeping a low profile following the lapsed moratorium, Namibia's top leadership should be busy forging a national vision for the future of seabed mining in the country. They should be striving for broad social and political consensus from all sectors: political, business, academia and the general public. This national conversation should highlight

what is in Namibia's best interests: a prosperous industrially based economy that is underpinned by strong environmental regulatory safeguards. A consensus like this would require stakeholders to recognise that the industries of today may not be those of tomorrow. Equally, missteps and mistakes from the past – terrestrial mining – , should not be carried forward into any future seabed mining industry. If it can be shown that it is to everyone's advantage to invest in that future, then Namibia's leaders must take active steps to position the country to a leader in offshore mining, even where the ensuing changes is not to everyone's liking. Change, after all, is often uncomfortable to some, even where in the long run it results in a brighter future and more opportunity for all.

Lastly, it would, however, be a disservice to Namibia's civil actors if this study failed to publicly acknowledge their lasting contribution in relation to seabed mining on the continent. By drawing our attention to the inadequacy of national and industry regulation regimes to meet the needs and expectations of key stakeholders, civil actors in countries where the activity is proposed are challenged to fundamentally reshape their national regulatory regimes for the good of democracy and the environment. While suggestions that civic actors can refashion environmental regulation might, on the face of it, seem highly improbable, the fact is that such 'out of the box' thinking is exactly what Africa needs. Properly harnessed, the substantial amounts of undersea minerals with which African countries are endowed could be used to make an enormous contribution to sustainable growth, economic development and poverty reduction. However, rules safeguarding the environment must be mandatory and effectively enforced. We can only hope that the efforts of Namibia's civil actors in relation to seabed mining inspire more democratic, accountable and effective regulatory practices than those seen in respect of terrestrial mining. Should this happen, our eternal gratitude would be owed to Namibia's intrepid civil actors, not only for showing us this path, but also for leading us along it.

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