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DEEP TROUBLE

The murky world of the deep sea mining industry

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THE LOST CITY, ATLANTIC OCEAN.
A hydrothermal vent field under threat from deep sea mining

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EXECUTIVE SUMMARY

In a planetary emergency, why would governments open up a new frontier for mining in the ocean and who is pushing them to do so?

Scientists warn that deep sea mining could lead to inevitable and irreparable harm in our oceans, including damage to the natural processes that store carbon. Yet a handful of private companies are leading the charge, heavily influencing the UN regulator and lobbying governments to carve up the international seabed for profit and destruction – and sometimes, remarkably, even speaking on behalf of governments in political negotiations.

Despite serious misgivings about the fundamental viability of the industry, deep sea mining companies claim that giving them access to mine the global oceans would benefit poorer nations and future generations. But by tracking the ownership and beneficiaries of the companies with nearly a third of the exploration contracts, this report raises important questions about who stands to benefit – and who is left at risk – if deep sea mining is allowed to begin.

This Greenpeace International investigation demonstrates how mineral exploration of the deep sea, a global commons, has become monopolised by a small number of corporations headquartered in the Global North, working through subsidiaries, partners and subcontractors in an effort to maintain the illusion that deep sea mining can be a public good. Meanwhile, the few developing nations that are sponsoring these companies' exploration contracts are exposed to significant liabilities and risk as a result of the opaque and complex corporate structures of their foreign private contractors.

Key findings in this report reveal:

COMMERCIAL EXPLORATION OF FRAGILE GLOBAL COMMONS IS INCREASING DESPITE SERIOUS ENVIRONMENTAL AND ECONOMIC MISGIVINGS

- As the deep sea mining industry develops and governments negotiate rules to potentially open up the international seabed to commercial mining, it is increasingly clear that far from fulfilling lofty ambitions to boost global development and benefit humanity, deep sea mining would magnify the inequities and environmental harm of previous extractive industries if it is allowed to begin.
- An area roughly the size of France and Germany combined has already been opened up to exploration for deep sea mining. To date, 30 contracts to explore for deep sea mining viability, covering over a million square kilometres of the international seabed, have been given out by the International Seabed Authority (ISA). Nearly a third of these contracts involve private companies, largely headquartered in North America and Europe, including some with links to the fossil fuel, terrestrial mining and other polluting sectors.
- Deep sea mining will cause serious and irreversible damage to the ocean biome, risks driving biodiversity loss and could potentially damage an important carbon sink: the deep ocean.[1] Impacts experienced from increasing risks to food security will fall disproportionately on developing countries. The emerging deep sea mining industry faces mounting opposition, including from civil society groups in small island nations who have called out foreign private companies for leaving their nations environmentally threatened and financially liable.

MURKY CORPORATE PRACTICES WHICH OBSCURE LINES OF PROFIT AND LIABILITY

- Investigating the corporate structures of the leading proponents of deep sea mining reveals that the concentration of ISA exploration contracts are in the hands of a few private companies whose management, directors and those in line to profit are based overwhelmingly in the Global North. The States sponsoring these companies, largely Small Island Developing States (SIDS), are exposed to liability and financial risk. Developing States also risk the disproportionate burden of environmental harm. Numerous contractor compliance issues have already been reported in the exploration phase but details remain confidential.
- Half of the 16 contracts to explore for minerals in the Pacific's Clarion-Clipperton Zone are now dominated by just four entities – including three private companies. By working through networks of sub-contractors, partnerships or subsidiaries, the dominance of Canadian-registered DeepGreen, Belgian corporate Dredging, Environmental and Marine Engineering NV (DEME), and US arms manufacturer Lockheed Martin, is not immediately obvious or accountable.
- The obscure workings and acquisitions of Canadian corporation DeepGreen to gain exploration contracts via ostensibly local entities sponsored by Nauru, Kiribati and Tonga, casts doubt over the extent to which sponsoring States would financially benefit from any deep sea mining.
- DeepGreen, DEME and Lockheed Martin subsidiaries have sought arrangements with SIDS to allow these North American and European parent companies to access areas of international seabed 'reserved' for developing nations. Despite calls for disclosure, details of the arrangements between the companies and the governments remain secret, making it difficult to ascertain what benefit, if any, the States will derive from the partnership in return for the risks taken.
- The murky acquisitions of ISA contracts by a small number of parent companies raises pertinent questions over transparency, accountability and equity in the international regime for deep sea mining. The development of the deep sea mining industry in practice stands at odds with governments' legal obligations to ensure that any mining in the international seabed would benefit humankind overall, especially developing nations.

UNDUE INFLUENCE OF DEEP SEA MINING COMPANIES ON GOVERNMENT POLICY

- Greenpeace investigations suggest that some governments are basing their estimates of the economic value of deep sea mining solely on industry calculations. The British government, for example, has presented as a fact that the UK stands to benefit to the tune of £40 billion, apparently based only on an estimate provided by weapons giant and mining prospector Lockheed Martin, without any independent analysis to substantiate the figure.
- A revolving door exists between senior staff in sponsoring States and deep sea mining companies, with a former minister who supported exploration applications later joining a company as an advisor, ministers serving on deep sea mining company boards as 'citizens' while in office, and a company lawyer advising government delegations in international tribunal hearings.

CORPORATE CAPTURE OF THE INTERNATIONAL REGULATOR

- The industry's regulator (the ISA) has consistently prioritised the development of deep sea mining over the preservation of the deep ocean. This has enabled a deep sea mining industry to develop with limited controls on corporate changes of ownership and the ensuing risks to both the environment and equity.
- Private sector mining companies appear to exert a heavy influence over the international negotiations determining the future of the seabed, lobbying governments to urgently finalise rules that would allow for full-scale mining of the deep ocean to begin, with a financial regime that would maximise corporate profits. To date there has been inadequate discussion between governments as to where and to whom the corporate share of any profits from deep sea mining will ultimately flow.
- While senior staff at the ISA make increasingly pro-mining comments and amplify private companies, the ISA's powerful advisory commission includes experts employed by deep sea mining contractors. Controversially, spokesmen from DeepGreen[2] and DEME[3] have quite literally spoken on behalf of governments, addressing ISA meetings from Nauru and Belgium government seats respectively.

Governments face key political decisions in the next 12 months – including whether to open up the largest ecosystem on Earth, the international seabed, to commercial mining. In making these decisions, governments must consider whether the deep sea mining industry may simply direct any profits to a handful of companies in the Global North while the brunt of environmental harm, legal liability and financial risk is faced by nations in the Global South.

To protect against this, governments must ensure that the deep ocean remains off-limits to deep sea mining and instead agree a Global Ocean Treaty that can put protection at the heart of ocean governance.

INTRODUCTION

The excesses of the extractive industries, from drilling and digging for fossil fuels to mining for metals and minerals, have played a major role in driving both the stark levels of global inequality and the devastating environmental crises that we now face.

The corporations involved, generally headquartered in the Global North, have exploited the natural resources of the Global South on a massive scale, draining away profits and creating significant environmental harm that disproportionately impacts poorer and more marginalised communities – from the local destruction of ecosystems to accelerating global climate breakdown.

It's clear that we are exceeding planetary boundaries and yet a handful of private companies are lobbying governments to open up a new frontier at the heart of the largest ecosystem on Earth. Deep sea mining risks causing serious and irreversible damage, including even more biodiversity loss, and potentially damaging an important carbon sink: the deep ocean. By potentially supplying a new source of minerals, this destructive industry would incentivise companies to disregard fundamental issues of overconsumption and inefficient resource use, allowing them to avoid facing the limits imposed by the finite nature of mineral resources. What's more, serious reservations remain about whether the industry is even economically viable.

The leading proponents of deep sea mining are presenting themselves as an alternative to terrestrial mining, claiming mining the seabed would cause less environmental and social harm and even positioning it as a solution to the climate emergency that can bring prosperity to developing nations.[4] This has been echoed by staff at the ISA, who frequently refer to the legal principles within the regulator's mandate to claim that deep sea mining will benefit humanity and boost development opportunities.[5]

In practice, the development of deep sea mining is a far cry from these aims. In a review of the ISA to mark its 25th anniversary, academics summarised: "The utopian aspects of the underlying principles infused within CHM [the common heritage of humankind], conceived on the floor of the UN General Assembly many decades ago, now seem a distant past".[6] Moreover, there is no evidence that mining the deep sea is needed to transition to sustainable economies, particularly if governments worldwide take seriously the urgency of moving towards resource efficiency, circular economies and transforming transport systems.[7]

Investigating the ownership and beneficiaries of the leading proponents of deep sea mining reveals mineral exploration of the international seabed is concentrated in the hands of a few private companies, whose management, directors and those in line to profit are based overwhelmingly in the Global North. These companies' sponsoring States, largely Small Island Developing States (SIDS), are exposed to liability and financial risk, as well as the disproportionate burden of environmental harm.

These investigations also highlight the deep sea mining industry's close links with the fossil fuel industry, casting doubt on claims that it is heralding a new era of responsible resource extraction that departs from the extractive industry's legacy as drivers of the climate and nature emergency. Finally, as governments negotiate the future of this industry and the future of our oceans, this report outlines analysis showing how the ISA is prioritising corporate profit and facing criticism from developing nations, raising key concerns for politicians to address. In essence, would deep sea mining simply help the rich get richer, while worsening the global inequities of environmental harm?

"There is no evidence that mining the deep sea is needed to transition to sustainable economies, particularly if governments worldwide take seriously the urgency of moving towards resource efficiency, circular economies and transforming transport systems."

VANUATU.
Locals lead the People's Pilgrimage as part of a workshop bringing together communities impacted by climate change in the Pacific. The government of Vanuatu supports calls for a moratorium on deep sea mining.

KIRIBATI is considered one of the least developed and poorest countries in the world. Sea level rise caused by climate change threatens the habitability of these islands, while a 'partnership' with Canadian deep sea miners DeepGreen leaves the government exposed to liability and financial risk.
© Greenpeace / Christian Åslund.

LEGAL PRINCIPLES GOVERNING THE INTERNATIONAL SEABED

The United Nations Convention on the Law of the Sea (UNCLOS) is the landmark international law governing the ocean. Agreed in 1982, it sets out the rights and responsibilities of governments regarding the ocean. UNCLOS sets an obligation on governments to "protect and preserve the marine environment".[8]

The details agreed by governments in UNCLOS are especially important for guiding international cooperation on how to govern Areas Beyond National Jurisdiction (ABNJ): the international waters that make up nearly two-thirds of the oceans and almost half the surface of the planet.

When it comes to the prospect of any deep sea mining, UNCLOS stipulates that the international seabed, legally known as the 'Area', and any minerals found on or beneath it constitute "the common heritage of [hu]mankind".[9] UNCLOS mandates the ISA to manage any human activities relating to seabed minerals in the international Area of the deep ocean "for the benefit of [hu]mankind as a whole... taking into consideration in particular the interests and needs of developing States".[10]

UNCLOS also specifies that the aim of any deep sea mining in the Area should be "the overall development of all countries, especially developing States".[11] Article 145 requires the ISA and governments "to ensure effective protection for the marine environment from harmful effects which may arise from such activities".

However, as the industry develops and governments negotiate rules intended to open up the international seabed to mining at the ISA, it is increasingly clear that far from fulfilling these lofty ambitions, deep sea mining looks set to repeat and deepen the inequities and environmental harm of previous extractive industries if it is allowed to begin.

"It is increasingly clear that deep sea mining looks set to repeat and deepen the inequities and environmental harm of previous extractive industries if it is allowed to begin."

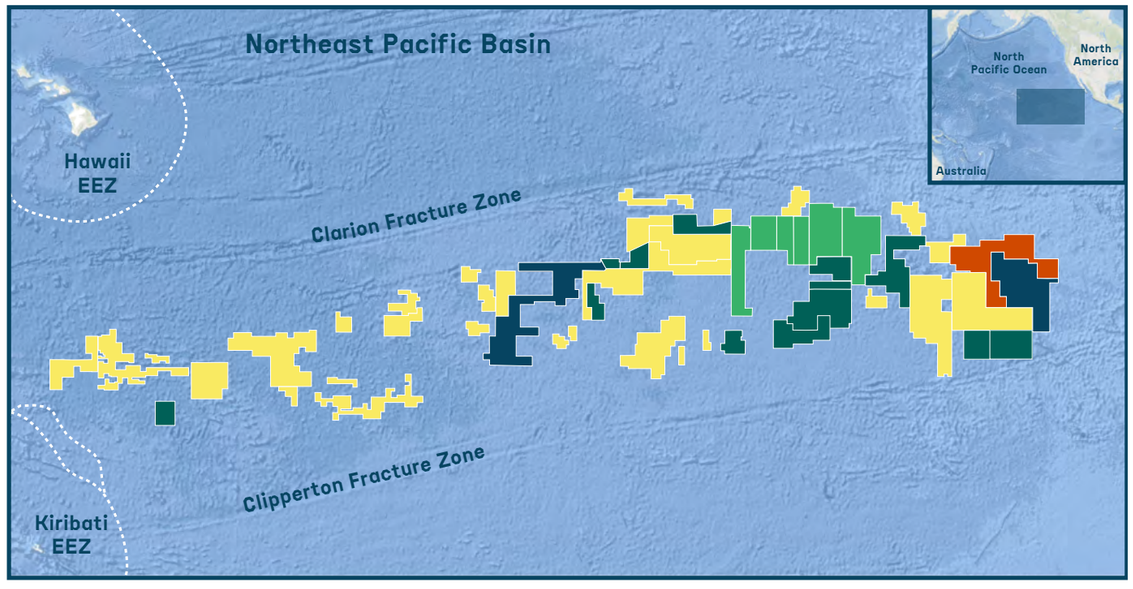
State of play

To date, 30 contracts to explore for deep sea mining potential covering over a million square kilometres of the international seabed have been given out by the ISA, with an additional application in process this year. Of these 30 exploration contracts, nearly a third (nine contracts) involve private sector companies.

UNCLOS allows for private companies to apply for ISA contracts to explore and exploit deep sea minerals, provided they are sponsored by governments that are part of UNCLOS and are "effectively controlled by them or their nationals".[12] However, the first two applications from non-State actors received by the ISA in 2008 caused surprise. Of key concern was whether private sector corporations mining the seabed could be consistent with the lofty principles of common heritage of humankind and providing benefit to humanity as a whole.

In the 12 years since these first two applications, sponsored by the Governments of Tonga and Nauru respectively for foreign private sector entities, a growing pattern has emerged. The leading proponents for deep sea mining are now corporate players who, in the words of two scientists, are "geographically, politically and economically removed from the small island nations that will bear the brunt of the consequences."[13]

"Nearly a third of the exploration contracts in the international seabed involve private companies largely headquartered in the Global North."



DEME Dredging, Environmental & Marine Engineering

DEEPGREEN

LOCKHEED MARTIN

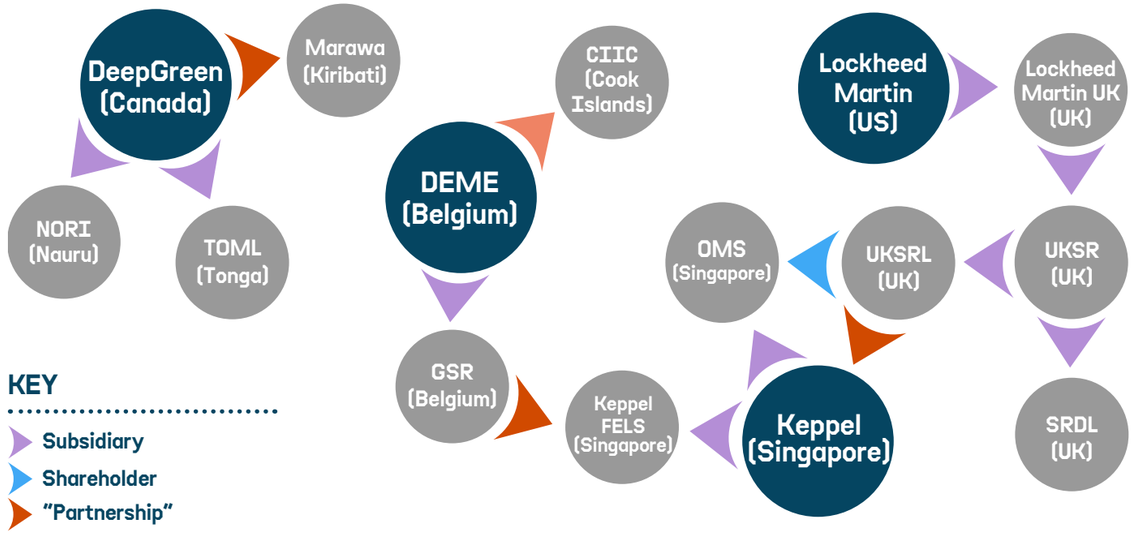
Ocean Mineral Singapore

Other contractors

Private sector dominance of the Clarion-Clipperton Zone

Half of the 16 contracts to explore for minerals in the Pacific's Clarion-Clipperton Zone are dominated by just four entities – including three private companies. By working through networks of sub-contractors, partnerships and shell companies, the dominance of DeepGreen, DEME and Lockheed Martin is not immediately obvious.

The named companies have mineral exploration rights for the areas marked by coloured blocks, including via their subsidiaries or partners. Ocean Mineral Singapore and its owner Keppel have links to both DEME and Lockheed Martin.



Mapping the ownership structures and partnerships of private deep sea mining companies.

Main private sector players

The development of the deep sea mining industry has become increasingly concentrated in the hands of a small number of private corporations based in wealthy nations, with strong links to extractive and polluting industries, operating through complex and opaque structures of sub-contractors, partnerships or subsidiaries.

DeepGreen

DeepGreen Metals Inc, previously known as Deep Green Resources Inc, is a private company incorporated in British Columbia, Canada.[14] The most vocal proponents of deep sea mining in the media and on social media, DeepGreen are now involved in three separate exploration contracts sponsored by Pacific Island nations via three different contractors: Nauru Offshore Resources Inc (NORI) sponsored by Nauru, Tonga Offshore Mining Ltd (TOML) sponsored by Tonga, and Marawa Research and Exploration Ltd sponsored by Kiribati.[15]

The extent to which DeepGreen (or members of its senior staff via Nautilus) was involved in some way in the preparation and funding of the ISA applications of all three of these sponsoring companies, and how much scrutiny there has been over DeepGreen's acquisition of these companies and their ISA contracts (detailed below), raises pertinent questions over transparency, accountability and equity in the international regime for deep sea mining.

Despite now having "acquired" the "rights"[16] to three exploration contracts sponsored by Pacific Island nations,[17] it appears that none of DeepGreen's all-male board of nine Directors and none its 18 staff, bar two country managers, are nationals of Pacific Islands or based in the Pacific Islands.[18]

Public information from 2018 suggests that DeepGreen is funded via shareholders based in Australia, Canada, US, China and Europe.[19] A 2018 document filed in Canada by DeepGreen details that its securities were distributed to purchasers in Canada, US, Australia, China, Hungary, Gibraltar and to "family, friends and business associates" in the UK.[20] The document also shows that DeepGreen did not directly compensate individuals or companies in the Pacific region, instead listing funds distributed to Canada and Dubai-based businesses, including those which appear to be linked to DeepGreen directors Gerard Barron and Brian Paes Braga.[21]

Nauru Offshore Resources Inc

NORI holds exploration rights to four areas in the Clarion-Clipperton Zone and is now a wholly-owned subsidiary of DeepGreen. When Nauru-sponsored NORI first applied for an ISA contract in 2008, it was a subsidiary of Nautilus Minerals, but three years later NORI submitted updated information to the ISA, including "changes in relation to ownership, corporate governance and raised capital."[22]

This 2011 application stated that, “NORI is no longer affiliated with Nautilus or any other entity or person outside of Nauru”.[23] At that point NORI appeared wholly Nauruan: owned by two Nauruan foundations, managed by a majority of Nauruan nationals, and the ISA Legal and Technical Commission that reviewed the application noted that NORI appeared “no longer affiliated with [...any] entity or person outside the jurisdiction of the sponsoring State”.[24] Yet the same ISA document includes David Heydon, the former CEO of Nautilus and founder of DeepGreen who was at the time serving as its CEO, on NORI’s Board of Directors,[25] and it was David Heydon who signed the ISA contract on behalf of NORI.[26]

Concerns were raised within Nauru over NORI’s ownership. In 2011, at a Deep Sea Minerals Stakeholder workshop in Nauru held by the Secretariat of the Pacific Community, participants called for greater clarity over the ownership of NORI, to “ensure that the state and people are protected” by policies and laws. The minutes record:[27] “Stakeholder concerns over NORI. Concerns were raised over NORI’s information sheet which stated that NORI is owned and controlled by Nauruan nationals and have no affiliation with any outside entity. Some participants have sought clarification on this statement as well as the identity of company Directors that were not mentioned on the information sheet.”

The notes of this workshop also suggest limited involvement on behalf of the Nauru government with the ISA contract, with none of the government officials present at the stakeholder meeting (which included senior civil servants of Ministries of Justice, Foreign Affairs, Home Affairs, Commerce, Industry and Environment) able to “confirm ever having seen” the contract between the Nauru government and NORI.[28] The document describes how the Nauruan government was only present as “a witness” at the ceremony where NORI and the ISA signed the exploration contract for deep sea mining. This appears at odds with Barron’s portrayal that NORI “pioneered a pathway for developing states to directly participate in marine mineral development from the international seabed area.”[29]

Despite describing the other companies in NORI’s “technical alliance” as “world leading international organizations”, nowhere in NORI’s 2011 ISA application does it mention DeepGreen.[30] NORI’s 2011 ISA application states: “NORI is wholly owned by two Nauruan foundations."[31] However, DeepGreen told Greenpeace: “No change of control has taken place since NORI’s inception”.[32] In the words of DeepGreen’s website: “In July 2011, DeepGreen through its *wholly owned subsidiary* Nauru Ocean Resources Inc. (NORI) was granted a 15-year exploration contract for the NORI Project with a combined area of 74,830 km² in the Clarion-Clipperton Zone” [emphasis added].[33]

"The Nauruan government was only present as 'a witness' at the ceremony where NORI and the ISA signed the exploration contract for deep sea mining. This appears at odds with Barron’s portrayal that NORI 'pioneered a pathway for developing states to directly participate in marine mineral development from the international seabed area.'"

Tonga Offshore Mining

Tonga Offshore Mining Ltd (TOML) was originally a member of the Canadian-listed Nautilus Minerals’ company’s group, established in Tonga specifically to hold an ISA contract for nodules exploration, covering nearly 75,000km² in the Clarion-Clipperton Zone. Since Nautilus’ demise, TOML appears to have changed hands twice – with Gerard Barron now describing DeepGreen as a “committed partner dedicated to equitable development of this common heritage resource” for the Kingdom of Tonga.[34]

In a more upfront manner than either NORI or Marawa, TOML’s application for an exploration contract in the international seabed, submitted in 2008 and updated in 2011, details that TOML is a “Tongan incorporated subsidiary of Nautilus Minerals Incorporated, which holds 100 per cent of the shares of TOML through another wholly owned subsidiary, United Nickel Ltd., incorporated in Canada.” Attendees at the ISA signing ceremony in 2011 included Samantha Smith, Environmental Manager at Nautilus Minerals Inc.”[35] Dr Smith moved from Nautilus to DeepGreen and was employed at DeepGreen until recently,[36] when she started working with Belgian contractor DEME/GSR.[37]

TOML doesn't seem to have had an independent web presence. While *office@tongaoffshoremining.com* was used in very early documents,[38] a connected website does not appear to have ever existed and there are suggestions that the domain expired as early as 2009.[39]

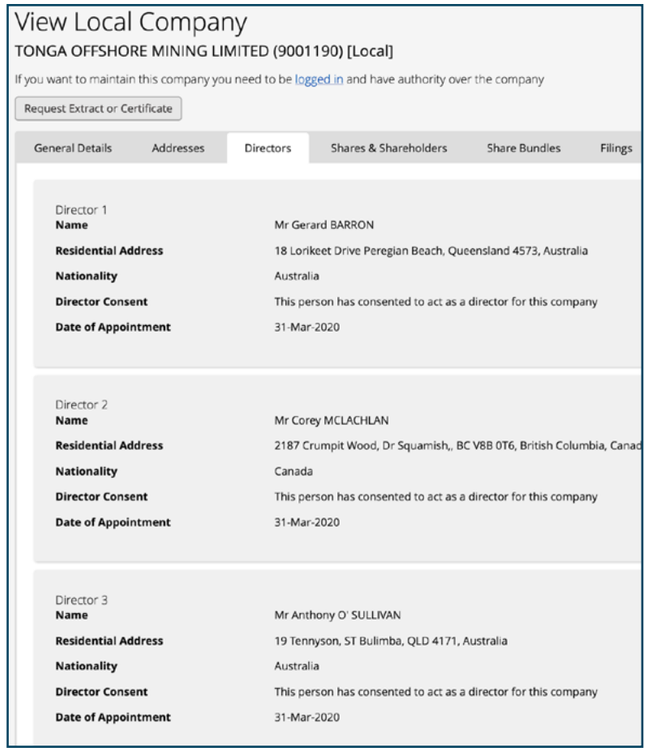
Company details for Tongan companies can be found on the ‘Tonga Business Register’.[40] Nautilus’s original operations in Tonga seem confusing, with at least six separate companies registered in Tonga with Michael Johnston, the former CEO of Nautilus Minerals, listed as a Director.[41]

The latest submitted accounts by TOML on 31 October 2019 detailed the sole share owner as Koloa Moana Resources Inc.[42] – a company registered in Vancouver, Canada, which was formerly a wholly-owned subsidiary of Nautilus Minerals.[43]

Since Nautilus commenced its descent into insolvency, the Solwara 1 deep sea mining project in PNG and Nautilus Minerals Inc (in liquidation) were restructured and acquired by Deep Sea Mining Finance Limited (DSMF) in 2019.[44] DSMF is a joint venture between international holding group USM Holdings Limited and Sultanate of Oman group MB Holding Company LLC.[45] As TOML was a fully-owned subsidiary of Nautilus from the start, it appears that TOML went to DSMF in the restructure; DeepGreen then ‘acquired’ TOML and its ISA contract in 2020, which has an inferred resource of 756 million wet tonnes of polymetallic nodules.[46] DeepGreen told Greenpeace: “We acquired TOML from Nautilus in Q1 2020.”[47] The sale price for that transaction is not known.

TOML’s company records show that three new Directors, including Gerard Barron, were appointed on 31 March 2020 – all residents and nationals of Australia or Canada.[48] This restructure also included the departure of long-term Director and Tongan national, Paul Taumpoepeau.[49]

TOML’s company records show that three new Directors, including Gerard Barron, were appointed on 31 March 2020 – all residents and nationals of Australia or Canada.



View Local Company

TONGA OFFSHORE MINING LIMITED (9001190) [Local]

If you want to maintain this company you need to be logged in and have authority over the company

Request Extract or Certificate

General Details | Addresses | Directors | Shares & Shareholders | Share Bundles | Filings

Director 1

Name	Mr Gerard BARRON
Residential Address	18 Lorikeet Drive Peregian Beach, Queensland 4573, Australia
Nationality	Australia
Director Consent	This person has consented to act as a director for this company
Date of Appointment	31-Mar-2020

Director 2

Name	Mr Corey MCLACHLAN
Residential Address	2187 Crumpit Wood, Dr Squamish, BC V8B 0T6, British Columbia, Canad
Nationality	Canada
Director Consent	This person has consented to act as a director for this company
Date of Appointment	31-Mar-2020

Director 3

Name	Mr Anthony O' SULLIVAN
Residential Address	19 Tennyson, ST Bulimba, QLD 4171, Australia
Nationality	Australia
Director Consent	This person has consented to act as a director for this company
Date of Appointment	31-Mar-2020

JOHNSTON, Michael David	TONGA OFFSHORE MINING LIMITED	*(Tonga, 7 Mar 2008-)*
JOHNSTON, Michael David	NAUTILUS MINERALS (TONGA) #3 LIMITED	*(Tonga, 16 Jul 2010-)*
JOHNSTON, Michael David	NAUTILUS MINERALS (TONGA) #4 LIMITED	*(Tonga, 16 Jul 2010-)*
JOHNSTON, Michael David	NAUTILUS MINERALS (TONGA) #2 LIMITED	*(Tonga, 16 Jul 2010-)*
JOHNSTON, Michael David	NAUTILUS MINERALS (TONGA) # 1 LIMITED	*(Tonga, 28 Sep 2007-)*
JOHNSTON, Michael David	NAUTILUS MINERALS (TONGA) #5 LIMITED	*(Tonga, 16 Jul 2010-)*

Nautilus’s original operations in Tonga seem confusing, with at least six separate companies registered in Tonga with Michael Johnston, the former CEO of Nautilus Minerals, listed as a Director.

Although not mentioned by name, DeepGreen CEO Gerard Barron appears to have been present at the signing of the contract between the ISA and Marawa in New York on 19 January 2015 © ISA.

Marawa

Marawa Research and Exploration Ltd is a State-owned enterprise which holds an exploration contract sponsored by Kiribati. Marawa does not appear to have had any independent office or budget itself and its website's domain name expired in May 2019.[50] However, DeepGreen's website describes how it is "proud to partner with Kiribati in this shared mission through the exploration of the country's Marawa contract area,"[51] suggesting that Marawa may have delegated contract rights and powers to DeepGreen.

At the time of its application to the ISA,[52] Marawa was run by Kiribati nationals. In ISA application forms, the address for Marawa is given as the 'Office of the Ministry of Fisheries and Marine Resources' and the email addresses given for the Board of Directors were both '.gov.ki' addresses, directed to government members and nationals from the Republic of Kiribati.[53]

Similar to NORI, Marawa's ISA application for an exploration contract made no mention of DeepGreen. It includes only a vague reference that Marawa "indicated that it would engage world experts and utilize leading technology sourced from around the globe". No explanation was provided in the application as to how Marawa would source funding to deliver the exploration contract, despite Kiribati's status as one of the Least Developed Countries (LDCs). The ISA's Legal and Technical Commission did not seem to press for clarity on this in reviewing the application.

However, there are a few clues which point to DeepGreen being involved from the beginning of Marawa's incorporation. Firstly, at the signing of the contract between the ISA and Marawa in New York on 19 January 2015, although not mentioned by name, Gerard Barron seems to be included in two pictures.[54] DeepGreen told Greenpeace that Barron was present "at the signing representing the shareholders of DeepGreen" and that he became DeepGreen CEO in 2017.[55] Barron's LinkedIn page states he has been DeepGreen "Chairman and CEO" since July 2014.[56]

Secondly, Gerard Barron told the ISA Council in February 2019 that "not long after NORI became an ISA Contractor, Nauru's Pacific Island neighbor, Kiribati, reached out to us and asked if DeepGreen could also partner with them. In 2015, Marawa Research, a state-owned company, signed an exploration contract with the ISA."[57] DeepGreen documents state that "2015 - Marawa Area rights acquired by DeepGreen, sponsored by Kiribati."[58]

Other documents, such as the World Bank's 'Precautionary Management of Deep Sea Minerals', go so far as saying that "DeepGreen prepared and funded Kiribati's application in return for an off-take agreement."[59]

Lockheed Martin/UK Seabed Resources

US weapons giant Lockheed Martin is the parent company holding exploration contracts for the single largest area of international seabed through its wholly-owned British subsidiary, UK Seabed Resources (UKSR). As the United States has not ratified UNCLOS, it is not able to act as a sponsoring State for mining activities in the international seabed. However, the United Kingdom was able to sponsor two exploration contracts for UKSR in the Pacific Ocean's Clarion-Clipperton Zone, where international exploration is focused on polymetallic nodules.

UKSR is actually two companies, both wholly-owned subsidiaries of Lockheed Martin. These are UK Seabed Resources Limited (UKSRL),[70] which "exists to hold licences which are utilised by its sister company":[71] Seabed Resources Development Limited (SRDL).[72] While the two companies are both wholly-owned by Lockheed Martin UK Holdings Limited, this company is in turn majority-owned by US-based Lockheed Martin Corporation.[73]

The beneficial owners of Lockheed Martin and therefore, by extension, the wholly-owned UKSR, include several American investment companies and pension schemes.[74] All of the largest shareholders for Lockheed Martin are large financial institutions. Lockheed Martin is a Standard & Poor's 500 company, so its stock is "a required holding for many passively managed index mutual funds or exchange-traded funds".[75] Its top shareholders include Capital Group, one of the world's largest privately-held asset management companies, and BlackRock, Inc. – the most significant investment management company in the world, publicly-traded or otherwise, with $6.28 trillion in assets under management.[76]

Annual accounts from Companies House show SRDL has made consecutive yearly losses of £3 million in 2015, £1.6 million in 2016 and around £790,000 in both 2017 and 2018.[77] The accounts describe the company as "still in the speculative exploratory phase" and interestingly note that "the principle risk is that the collection of polymetallic nodules from the seabed is *either environmentally* or commercially not viable" [emphasis added].[78] These filings confirm that

Bankrupt: Nautilus

Canadian-registered Nautilus Minerals Inc was aiming to carry out the world's first commercial deep sea mining after gaining a licence to exploit polymetallic sulphides at the Solwara 1 project in Papua New Guinea's (PNG) waters in 1997. This was never achieved and, despite gaining 100 prospecting licences in the Exclusive Economic Zones (EEZs) of several Pacific nations,[60] plus a deep sea mining exploration contract in international waters via a Tongan subsidiary, in 2019 Nautilus filed for protection from its debts in a Canadian court. Court approval was obtained for creditors to liquidate the company to get back a fraction of what they were owed, although the court rejected the PNG government's claim that it was a creditor rather than a partner. PNG's Minister for State-owned Enterprises reportedly described how over $120 million of his government's money had been "sunk into the ocean",[61] while press reports quote the new Prime Minister as describing the work with Nautilus as "a deal that should not have happened".[62] There was significant local opposition to the project from civil society, community and faith groups, including legal action.[63]
While there is no formal connection between Nautilus and DeepGreen, the overlap of several senior staff members, the involvement of both companies with NORI, and DeepGreen's acquisition of Nautilus' former ISA exploration contract via Nautilus-subsidiary Tonga Offshore Mining Ltd, suggest close links between the two companies.[64] From as early as 2001, current DeepGreen CEO Gerard Barron invested in Nautilus, with the advocacy group Deep Sea Mining Campaign citing press reports that Barron "turned a $226,000 investment into $31 million, and he successfully exited his position near the height of the market".[65] Former Nautilus CEO David Heydon set up DeepGreen in 2011 with seed funding from Gerard Barron,[66] and was DeepGreen's original CEO, with ISA documents naming him a NORI director.[67] His son Robert was Vice President of NORI[68] and COO of DeepGreen.[69]

"the company has been funded by Lockheed Martin UK Holdings Ltd, and is ultimately backed by the parent company Lockheed Martin Corporation that has provided the funding for this venture".[79]

UKSR's Directors and Officers are a mix of UK and US residents. Jennifer Warren, Director of Regulatory Affairs is, according to her LinkedIn profile, based near Washington DC.[80] Peter Ruddock is listed as a Director of numerous Lockheed Martin UK companies and is listed as residing in the UK.[81] The registered office address for both UKSRL and Seabed Resources Development Ltd is the Lockheed Martin UK Limited office.[82]

A recent report by the Financial Times suggests that Chinese sanctions placed on the American parent company are influencing UKSR, with director Christopher Williams calling on governments to speed up deep sea mining negotiations in comments summarised as: "there was a need to build mineral supply chains that were less reliant on China".[83]

While the UK government attests to its ocean conservation credentials through its 'Blue Belt' policy of Marine Protected Areas (MPAs) and its establishment of the Global Ocean Alliance, a government minister told parliament that UKSR "made reference to the helpfulness of the British government as it pursued its licence"[84] for exploratory activity. As Christopher Williams from UKSR told British MPs in autumn 2018, the company receives diplomatic support from the UK government at the ISA.[85] The UK plays a vocal and influential role in the ISA negotiations, with a seat on the decision-making Council, a British expert nominated to the advisory Legal and Technical Commission and the UK candidate, Michael Lodge, elected as ISA Secretary-General since 2016.

PETER RUDDOCK, Director of numerous Lockheed Martin UK companies, is listed as residing in the UK.

JENNIFER WARREN, Lockheed Martin's Director of Regulatory Affairs, is based near Washington DC.

"A UK government minister told parliament that UKSR 'made reference to the helpfulness of the British government as it pursued its licence.'"

Ocean Mineral Singapore

Ocean Mineral Singapore Pte Ltd (OMS) also holds an exploration contract in the Clarion-Clipperton Zone, sponsored by Singapore, which controversially gained a contract from the ISA over a site reserved for developing nations. Under UNCLOS, to prevent mining of the international seabed disproportionately benefiting wealthier, developed nations, certain parts of the international seabed can only be sponsored for activities by developing countries, known as 'reserved areas'. However, unlike other international fora like the UN Framework Convention on Climate Change, the ISA does not define which countries classify as developing or developed. Singapore is not a member of the G20 nations but has been invited to participate in G20 summits and processes over the past decade. When Singapore received its exploration contract in 2015, its GDP was $308bn[86] – making it the third richest country in the world at the time per capita.[87]

OMS is a subsidiary of the offshore and marine company Keppel, which has been listed on the Singapore Exchange since 1980. OMS' application to the ISA describes Keppel as having $23 billion in assets, and being part of a wider multinational conglomerate with businesses in offshore and marine, infrastructure and property development, employing 40,000 employees in more than 30 countries, with around half located in Singapore.[88]

In 2017, Keppel Offshore & Marine reportedly admitted paying $55 million in bribes to secure contracts in the offshore extractives industry,[89] described as worth around $1 billion in Brazil.[90] 17 executives were involved, including senior executives, and the company reportedly paid $422 million in settlements to the US, Brazil and Singapore.[91]

"In 2017, Keppel Offshore & Marine reportedly admitted paying $55 million in bribes to secure contracts in the offshore extractives industry, described as worth around $1 billion in Brazil."

In April 2020, the Belgian deep sea mining company Global Sea Mineral Resources (GSR), owned by DEME (see below), announced it had signed a memorandum of understanding with Keppel FELS, a subsidiary of Keppel Offshore & Marine, for the development of machinery to "collect, transport and store polymetallic nodules".[92] Their press release does not mention Keppel's subsidiary OMS, but includes a quote attributed to Aziz Merchant, Executive Director of Keppel Marine and Deepwater Technology Pte Ltd who is elsewhere described as 'Director of OMS'.[93]

The relationship between OMS and UKSR/ Lockheed Martin has been described by UKSR as a "partnership with OMS and its parent Keppel Corporation",[94] raising further concerns over who stands to benefit from any future mining in areas of the seabed that are intended to be 'reserved' for developing nations. In 2013, Lockheed Martin were discussing a partnership with Fiji to apply for an ISA contract for a reserved area bordering the UKSRL area in the Pacific.[95] These discussions were curtailed when OMS applied for the same site. Company accounts submitted by UKSRL detail that "in 2013 UK Seabed Resources Ltd purchased a 19.9% holding" in OMS, that UKSRL's "share in this joint venture remains at 19.9%" as of 31 December 2018, and that UKSRL "entered into an agreement to uptake" over a million additional ordinary shares in OMS in January 2019.[96] OMS and UKSRL have been open about the fact that the two contractors are collaborating in their exploration survey and data collection work.[97] It was also publicly reported that a company related to UKSRL is one of OMS' shareholders,[98] and press reports have described the OMS contract as a 'joint venture' between Keppel and Lockheed Martin.[99] The Abyss2020 research trip – which one of the participating scientists, a researcher from London's Natural History Museum, described publicly as "The #Abyss2020 UKSR/OMS expedition"[100] – was detailed by National University of Singapore as "the Journey to uncover mysteries of the Pacific Ocean",[101] but is not formally described as a joint venture with UKSRL.

DEME/Global Sea Mineral Resources and the Cook Islands Investment Corp

The company sponsored by Belgium to explore for deep sea mining potential, Global Sea Mineral Resources (GSR), also has links to Pacific Island-sponsored exploration contracts. GSR is a wholly-owned subsidiary of the Belgian dredger DEME which is the biggest division of Brussels-based civil engineering contractor Compagnie D'Entreprises (CFE) – controlled by the Belgian investment group Ackermans & van Haaren. Going up the chain of control leads to various companies registered in Belgium,

Luxembourg and the Netherlands.[102]

GSR was originally G-TEC Sea Mineral Resources, co-owned with the Société Régionale Wallonne d'Investissement, but had DEME's Financial Manager for Benelux Operations, Daniel Boen, on its board and used a site owned by the DEME Group for its offices.[103] G-TEC Sea Mineral Resources' application to the ISA for an exploration contract in 2012, sponsored by Belgium, mentioned the support of an unnamed "Belgian industrial partner".[104] DEME acquired G-TEC Sea Mineral Resources and renamed it as Global Sea Mineral Resources in 2014.[105]

GSR then entered into a joint venture arrangement (JVA) for nodules exploration in the international seabed with the Cook Islands Investment Corp (CIIC). CIIC is the Cook Islands State-owned enterprise responsible for holding national state assets. CIIC itself holds the ISA exploration contract, and has subcontracted the delivery of the contract to the JVA. GSR is providing technical expertise and assisting with financing,[106] and is thus involved in the 75,000km^2 exploration contract area sponsored by the Cook Islands, which fits neatly in between parts of the 75,000km^2 area sponsored by Belgium in the Clarion-Clipperton Zone. Despite this Belgian company's involvement in both areas, GSR's original ISA exploration refers to the "fairness and equitability" whereby the ISA would be able "to allocate one part of the area to GSR and to retain the other part as a reserved area" for a developing nation to apply for.[107]

However, as the State sponsoring the contract, the Cook Islands bears full legal responsibility for the performance of the ISA contract and potential liability for any damages that may be caused as a result of those activities – even if, in practice, a third party like GSR is carrying out the work. As CIIC holds government assets, such as the Cook Islands' telecommunications infrastructure, water system and airport, the risk of being sued for liabilities is an issue of high public concern.

Almost a decade before GSR announced its work with Singapore-registered Keppel FELS, GSR's owners DEME set up a deep sea mining company with the Dutch IHC Merwede Holding B.V (known as IHC Royal today), called OceanfIORE,[108] which was originally located in the Netherlands[109] but then moved to Singapore. Press reports indicated OceanfIORE's interest in exploring seabed mining potential within

KRIS VAN NIJEN, formerly a senior member of staff at OceanfIORE, is now the Managing Director of GSR.

PETER JANTZEN: "Providing investors high yielding investments into asset-owning companies specializing in acquisition and value development of Deep Seabed Mineral concession areas."'

"The Jamaica Environment Trust raised concerns about both the environmental impacts and 'the implications for Jamaica', including financial risks, of this contract sponsorship."

the national waters of Pacific nations,[110] and company staff participated as experts in the Secretariat of the Pacific Community's Deep Sea Minerals (DSM) Project workshops.[111] The DSM Project received funding from the EU, and gave input to regional legal frameworks setting the conditions of collaboration between Pacific nations and contractors for applying for ISA contracts. OceanfIORE does not appear to exist beyond 2016. Senior former OceanfIORE staff (General Manager Kris Van Nijen, Manager for R&D Paul Vercruysse and project engineer Simon Boel) work for DEME's newer deep sea mining company, GSR.[112]

Blue Minerals Jamaica

Blue Minerals Jamaica Limited (BMJ), sponsored by Jamaica, is the latest company to have applied for an exploration contract in the Clarion-Clipperton Zone.[113] BMJ's application to the ISA describes "a multinational enterprise engaged for more than 35 years in carrying out challenging marine projects in the offshore oil and gas industry and currently engaged in the deep seabed mining sector" as an important shareholder and operational partner, but does not disclose the identity of this other company.[114]

While the Jamaican Foreign Affairs Ministry describes Blue Minerals Jamaica Limited as a Jamaican registered company,[115] a Blue Minerals Limited is also registered in the UK[116] – with the same Peter Jantzen, Blue Minerals Jamaica's CEO, listed as a Director. This UK company was incorporated on 24 September 2015 and has been dormant since 2016.[117] Alongside Peter Jantzen, who is listed as a UK resident,[118] Swiss-residing Romeo Spinelli[119] [120] is listed as a Director according to information submitted to Companies House. One of Mr Jantzen's LinkedIn profiles describes his job (under a separate company he runs called 'Capital Power Management Limited') as "providing investors high yielding investments into asset-owning companies specializing in acquisition and value development of Deep Seabed Mineral concession areas."[121]

The Jamaica Environment Trust, a Jamaican environmental non-profit, has raised concerns about both the environmental impacts and "the implications for Jamaica", including financial risks, of this contract sponsorship.[122]

Links to fossil fuel and terrestrial mining companies

The leading deep sea mining proponents frequently insist that mining the seabed would be a cleaner alternative to terrestrial mining and would secure metals and minerals essential for the zero-carbon transition.[123] In reality, some of the deep sea mining private companies have multiple links with fossil fuel or terrestrial mining industries – sectors with track records of contributing to environmental destruction, global inequality and climate change. For example:

- DeepGreen signed an off-take agreement for 50% of the copper and nickel mined annually from the Nauru-sponsored area with multinational mining company Glencore, which has headquarters in Baar, Switzerland, and registered offices in Saint Helier, Jersey.[124] The ultra-deepwater drillship that DeepGreen is working to convert into a nodule collection vessel with Switzerland-based Allseas,[125] was previously owned by Petrobras.[126] According to the Deep Sea Mining Campaign, London Mining Network, and Mining Watch Canada: "As start-ups, Nautilus and DeepGreen both developed high-profile partnerships with international terrestrial mining companies, which they leveraged to raise capital in centres like New York, London and Toronto".[127]
- Blue Minerals' Directors Jantzen and Spinelli previously worked together at JS Capital Power, a firm specialising in providing financial consulting services for investment in oil and gas.[128] They both have histories of working with various offshore industries, including Spinelli's time as a strategist for Maersk Oil Trading.[129] According to LinkedIn, Jantzen still works at JS Capital Power and, while Spinelli left the company in March 2019, he now works for Shell in Business Development, Marine LG.

ACCOUNTABILITY, EQUITY AND ENVIRONMENTAL PROTECTION

Although the ISA's own rules state: "If the nationality or control of the Contractor changes [...] the Contractor shall promptly notify the Authority forthwith",[130] switches in contractor control, such as the change of NORI ownership from two Nauruan foundations (as reported in NORI's ISA application) to private foreign ownership, and TOML's change of ownership, twice, could not been found in avaliable information published by the ISA.

DeepGreen told Greenpeace: "No change of control has taken place since NORI's inception" and that, "the ISA was notified regarding the change of TOML's ownership."[131] This lack of accountability and transparency over who owns the leading proponents of deep sea mining raises a number of concerning issues.

Monopolising the global commons

UNCLOS specifies that exploration and mining in the Area should ensure "the enhancement of opportunities for all States Parties, irrespective of their social and economic systems or geographical location, to participate in the development of the resources of the Area and *the prevention of monopolization of activities in the Area*" [emphasis added].[132] But UNCLOS is "unclear as to the maximum number of applications that may be made by any [...] entities".[133]

As the situation stands now, half of the 16 exploration contracts the ISA has handed out in the Pacific's Clarion-Clipperton Zone are dominated by just four entities – including three private companies. But by working through their networks of sub-contractors, partnerships or subsidiaries, it is not obvious that DeepGreen, DEME and Lockheed Martin have this dominance.[134]

Concerns about the potential for monopolistic behaviour in the global commons of the international seabed have been voiced.[135] Governments in the ISA Council amended the Regulations that cover nodules exploration contracts in 2014 to include the wording: "The Legal and Technical Commission may recommend approval of a plan of work if it determines that such approval would not permit a State Party or entities sponsored by it to monopolize the conduct of activities in the Area with regard to polymetallic nodules or to preclude other States Parties from activities in the Area with regard to polymetallic nodules."[136] This seems to require the Legal and Technical Commission (LTC), as the ISA's advisory body, to consider whether or not a monopoly exists when reviewing any new application for nodule exploration, and yet what constitutes a monopolisation is not clearly defined. Furthermore, with a decision expected shortly from the ISA on Blue Minerals Jamaica's application for an exploration contract, if the "multinational enterprise [...] currently engaged in the deep seabed mining sector" mentioned as a partner in BMJ's application[137] remains anonymous, it is difficult to see how the ISA can be robustly considering if monopolisation is occurring or not.

It does not appear that there are processes or thresholds currently in place at the ISA to enable governments to set boundaries with regards to contractor dominance – let alone monitor the growing dominance of parent companies that are involved in more than one contractor.

Effective control and liability risks for developing nations

UNCLOS indicates that the ISA will verify that any private company applying for a deep sea mining contract has the appropriate nationality or can be "effectively controlled" by the sponsoring State or by nationals of the sponsoring State. The ISA is also supposed to look at financial and technical competence of that applicant.[138]

Imposing this effective control condition makes sense because a non-State entity like a private corporation is not directly bound by UNCLOS or other aspects of international law which apply to States. State sponsorship of ISA contracts is designed to ensure that the sponsoring State will ensure company compliance with the contract and environmental laws. Apart from this 'due diligence' obligation of the sponsoring State, there are a number of other direct obligations that the sponsoring State must implement as a matter of international law. These include some direct environmental obligations (e.g. conduct of environmental impact assessments, the application of the precautionary approach and employment of best environmental practices).

However, this State sponsorship system only works if there is a genuine link between the State and the contractor. If the contractor can be thinly capitalised and controlled from overseas, the sponsoring State can be left holding the liability or, worse yet, a liability may attach to no one, leaving the environment to suffer the loss. As investigations into the leading deep sea mining companies show, several exploration contracts are held by small operators or subsidiaries that are controlled by overseas parent companies or who largely operate through overseas sub-contractors.

This situation raises important considerations about the equity, accountability and environmental risks of deep sea mining. These include:

- Whether a relationship of 'effective control' exists between contractors like NORI, UKSR and TOML and their respective sponsoring States of Nauru, UK and Tonga, or if these companies are managed and owned by overseas nationals.
- Whether sponsoring States such as the Pacific Island nations and the UK are expected or able to regulate parent companies like Canadian-based DeepGreen, Belgium-based DEME or US-based weapons manufacturer Lockheed Martin.
- Whether parent companies like Lockheed Martin and DeepGreen, who are not identified in official paperwork as ISA contractors and State-sponsored companies, are appropriately accountable to the ISA and local rules of their sponsoring States, given their decision-making powers over their subsidiaries' seabed minerals activities.
- Whether any changes in rights to explore ISA contract areas affect the economic benefits that sponsoring State governments may expect to derive from their sponsorship if any mining goes ahead.

This situation also raises important liability questions. Does the international community know who is actually doing the mining, and have their technical, financial and environmental compliance credentials been checked? Should parent companies which stand to benefit economically from the activities of their subsidiaries be liable for compensation in the event of damages? Where the home state of the parent company is different to the sponsoring State, should that home state have any role or responsibilities within the ISA regime?

"As investigations into the leading deep sea mining companies show, several exploration contracts are held by small operators or subsidiaries that are controlled by overseas parent companies or who largely operate through overseas sub-contractors."

The ISA's interpretation of 'effective control' has enabled this situation, with the attendant risks and uncertainties outlined above, to arise. To date, the ISA appears to have focused on the location of the registration of a company only when granting contracts to non-State actors. For example, because NORI and TOML have registered offices in Nauru and Tonga respectively, this was seen as meeting the requirement for 'effective control'. This means there appears to have been an absence of greater scrutiny over the nationalities and locations of who owns or manages the companies in practice – despite these being key to understanding who is making decisions that could create environmental risks, who is responsible for a failure to comply with laws and regulations, and who stands to potentially benefit from any deep sea mining that goes ahead. This is an application of a so-called 'regulatory' test of 'effective control', as opposed to an economic test: it amounts to a refusal to look behind the corporate veil and a failure to provide the oversight necessary to adequately meet the foundational principles and obligations of UNCLOS.[139]

While it appears that the issue of 'effective control' was on the agenda for discussion by the LTC at the ISA's July 2020 session, the lack of transparency over LTC discussions (the LTC meets behind closed doors and issues no minutes of its meetings, only an overall report) means any outcomes remain as yet unknown.[140]

Environmental liability

While no deep sea mining has yet taken place in international waters, scientists are already warning that it threatens unavoidable harm to deep sea ecosystems. Deep sea mining risks causing serious and irreversible damage, driving further biodiversity loss and potentially damaging an important carbon sink: the deep ocean.[141] To protect the ocean from overexploitation and the damage caused by the cumulative impacts of human activities, and consistent with the precautionary principle and the ecosystem approach, Greenpeace believes the deep ocean must remain off limits to the mining industry.[142]

The opaque ownership structures and questionable interpretation of 'effective control' for the private contractors currently involved in the efforts to explore the deep sea for mining potentially cloud the issue of who has liability for environmental harm and this will increase the level of risk if deep sea mining is ever allowed to begin.

UNCLOS, ISA Regulations and an ISA contract together prescribe what activities and what environmental impacts are permitted by a contractor. The contractor is the primary actor liable for any failure to comply with its obligations under its contract with ISA. However, if the contractor causes harm, the sponsoring State may also be liable if it has not upheld its own legal responsibilities as a sponsoring State. These include a due diligence obligation to ensure contractor compliance.[143]

That means if an ISA contractor were to undertake unlawful activities or cause harm (to a third party e.g. a coastal State or a fisheries company, or possibly to the environment itself) beyond the scope and severity of impacts that have been politically 'allowed', the sponsoring State would be liable for that damage unless it can show it has taken every sensible step and made the best possible efforts to secure its contractor's compliance with relevant laws and its ISA contract.[144]

"Nauru, as one of the sponsoring States of a DeepGreen-controlled contract, has observed that 'these liabilities or costs could, in some circumstances, far exceed the financial capacities of Nauru [...] the State may potentially face losing more than it actually has.'"

This is a high bar: this due diligence obligation requires sponsoring States to implement laws and keep national measures updated so they are 'reasonably appropriate' for securing compliance by their mining contractors, and requires States to actively monitor the contractor's operations in coordination with the ISA. Failure to do so may leave the State liable for any resulting damage.

Therefore, a key question is whether the laws of sponsoring States effectively bind the operator who is actually carrying out activities in the deep sea. Tonga and Nauru's laws bind the DeepGreen subsidiaries – although this might not mean much if TOML and NORI have limited assets in Tonga and Nauru respectively. DeepGreen told Greenpeace: "TOML and NORI hold key assets (ISA Exploration Contract, Sponsorship Agreement), employ staff and administer local work programs".[145] If TOML and NORI entered liquidation, how would Tonga and Nauru respectively be able to ensure that they would not be left holding the liability? The same question can be asked of the UK and its contract with Lockheed Martin-owned UKSR.

Apart from a reliance on contractor insurance, sponsoring States have so far not been adept at incorporating liability provisions related to deep sea mining into their national regulations.[146] While most of the sponsoring States working with private sector contractors have attempted to off-set State risk by seeking indemnifications from their contractors, this indemnification approach does not work insofar as a contractor is insolvent or a shell company.

Nauru, one of the sponsoring States of a DeepGreen-controlled contract, has previously observed that "these liabilities or costs could, in some circumstances, far exceed the financial capacities of Nauru [...] the State may potentially face losing more than it actually has."[147] The Chair of Tonga's Civil Society Forum, Drew Havea, has also raised concerns that any contractual violations by TOML could leave Tonga exposed to high costs to pay.[148]

Numerous cases where contractors have failed to comply with terms in their exploration contracts have already been reported by the ISA's LTC, although a lack of transparency means the details of these failures and the contractors involved remain confidential.[149]

Inequity of environmental impacts

Both scientists[150] and the industry itself have warned that deep sea mining would cause irreversible environmental damage which risks affecting citizens in countries far beyond the limited number of sponsoring States. Fish populations and other marine creatures could be adversely affected by mining-generated noise and light pollution, as well as the discharged sediment from processing ships that could create massive, standing midwater sediment plumes. Worse still, impacts from increasing risks to food security will fall disproportionately on developing countries. Scientists have warned that "communities that rely on fish stocks for subsistence could be particularly vulnerable to the impacts of seabed mining".[151] More than one billion people worldwide rely on seafood as their main source of protein.

Furthermore, scientists are warning that mining poses an additional climate risk of releasing carbon stored in deep sea sediments and disrupting the natural processes that add to those stores. Deep sea sediments are known to be an important long-term store of 'blue carbon' – the carbon that is naturally absorbed by marine life – a proportion of which is carried down to the sea floor as those creatures die. Scientists have warned that because deep sea mining will physically disturb the sediment, mining operations present significant risks in disrupting carbon sequestration and may re-suspend stored carbon into the water. A leading network of deep sea scientists recently cautioned that, even if unquantified, deep seabed mining could alter "important deep-sea ecosystem services that remove carbon from the biosphere."[152] Many developing countries, especially SIDS, are on the frontline of the climate emergency and are already experiencing significant disruptions and impacts, without the additional risk of disrupting blue carbon stores and processes.

FELIVARU, THE MALDIVES. Pole and line fishing is vital to the Maldives economy and provides crucial employment, but fish stocks are threatened by industrial fishing and deep sea mining. Worse still, sea level rise caused by climate change risks making the islands completely uninhabitable. © Greenpeace / Paul Hilton.

The Deep Sea Mining Campaign, London Mining Network and Mining Watch have noted: “The development of seabed mining regulations, at both Pacific regional and international levels is occurring in haste in the absence of meaningful public debate and with little consideration of the precautionary principle and the free, prior and informed consent of the Pacific island citizens who would be adversely affected by this unprecedented industry.”[153]

Doubts over the economic benefits to sponsoring States

The murky acquisitions of ISA contracts by a small number of parent companies also creates a lack of transparency over the extent to which sponsoring States would financially benefit from any deep sea mining. This includes whether or where contractors would pay tax. For example, if UKSR were to pass any profits to ultimate parent company Lockheed Martin, taxes could be paid in the US. UKSR confirmed to Greenpeace that UKSR and Lockheed Martin UK are “UK-registered – and thus UK taxpaying – entities”.[154] In 2018, the then UK Business Minister Claire Perry stated that the company would be subject to “pay UK royalties (levels to be negotiated)” but was silent as to any anticipated corporate income tax payments in the UK.[155]

Nauruan laws set a national 25% business profits tax for a resident company controlled by non-residents. However, DeepGreen may be able to channel any profits via another tax jurisdiction (e.g. Canada, where the company is registered), by transfer pricing, or other means to move costs and profits between related companies. If the taxation regime is circumvented, the principal benefit for Nauru may derive only from any payments that Nauru has agreed with NORI/DeepGreen via contractual arrangements, which are confidential. As NORI is a DeepGreen subsidiary, Nauru may never take ownership of any minerals mined so would not directly benefit from their sale. This point also applies to Tonga (TOML is not a State-owned company), to the UK’s sponsored contracts through Lockheed Martin’s wholly-owned subsidiary and to Belgium, through its contractor DEME. When Fiji was considering whether to work with Lockheed Martin on mineral exploration in the international seabed, a briefing note prepared for the Fijian government advised: “Income from DSM activities is likely to be relatively low compared to mining within national jurisdiction”.[156]

Nautilus had disclosed terms of their previous financial relationship with Tonga regarding the TOML ISA contracts:[157] “TOML has agreed to a royalty with the Tongan government of US$1.25 per dry ton of nodules for the first 3 million dry tons of nodules mined in any one year and US$0.75 per dry ton for all dry tons mined thereafter in that same year.”[158] If these terms remained consistent when DeepGreen took over the contract, based on predictions of a maximum annual production level for nodules in the Clarion-Clipperton Zone of three million dry tons,[159] Tonga would receive $3.75million per year – in stark contrast to ISA financial models predicting sponsoring States would benefit to the tune of hundreds of millions of dollars per year.[160]

Questions have been raised over the viability of mining Marawa’s contract area, sponsored by Kiribati but acquired by DeepGreen. It doesn’t appear that DeepGreen has published a study of the Marawa contract in the same way they have for the NORI or TOML contract areas, which have been given inferred resources of 900 million and 756 million tons of nodules respectively.[161] In DeepGreen documents such as ‘Metals for our Future’,[162] while the financial possibilities of NORI’s contract area are discussed in detail, only the size of the area allocated for Marawa is included. Despite appointing Country Managers

"When Fiji was considering whether to work with Lockheed Martin on mineral exploration in the international seabed, a briefing note prepared for the Fijian government advised: 'Income from DSM activities is likely to be relatively low compared to mining within national jurisdiction'."

CHRISTOPHER WILLIAMS, Managing Director of UK Seabed Resources, whose unsubstantiated claim that deep sea mining would bring £40 billion over 30 years to Britain was included in high-level government documents and the then Prime Minister’s speech.

"The Foreign Office confirmed that: 'Lockheed Martin provided the figure for the speech' given by former Prime Minister David Cameron announcing the UK’s sponsorship of exploration contracts."

for Tonga and Nauru this year, DeepGreen do not appear to have appointed a counterpart for Kiribati.

For the UK, no government department has been able to substantiate the single estimate used to underpin the claim that deep sea mining would bring £40 billion over 30 years to Britain.[163] This figure has been central to the UK’s defence of its involvement in deep sea mining, appearing in high-level documents such as Foreign Office Annual Reports[164] and ministerial evidence to Parliament’s green watchdog.[165] However, Greenpeace UK investigations indicate that this estimate derives solely from a calculation by Lockheed Martin about their UK subsidiary’s predicted revenue. Freedom of Information requests have revealed that the £40 billion estimate came exclusively from industry, with the UK government holding no independent information verifying or analysing the assumptions behind the figure: “The estimate figure was produced by UK Seabed Resources, a wholly owned subsidiary of Lockheed Martin. We do not hold any information which provides this department with what assumptions UK Seabed Resources made in their calculations.”[166] The Foreign Office also confirmed that: “Lockheed Martin provided the figure for the speech” given by former Prime Minister David Cameron announcing the UK’s sponsorship of exploration contracts. UKSR Director Christopher Williams told British MPs that the estimate came from a “fairly straightforward multiplication of the annual revenue generated by a 3 megaton operation [...] multiplied over 30 years of mining”.[167]

While a former UK business minister told parliament in 2018 that her department was “commissioning independent analysis which will report in early 2019” on any economic benefits of deep sea mining,[168] and gave MPs an update in February 2019 that this study “should be completed this summer”,[169] none of this analysis has yet materialised.

CORPORATE INFLUENCE ON INTERNATIONAL NEGOTIATIONS

The private companies dominating deep sea mining exploration also appear to exert a heavy influence over the international negotiations determining the future of the seabed.

These companies are lobbying governments to urgently finalise rules that would allow for full-scale mining exploitation to begin,[170] with a financial regime that would maximise any corporate profits.

Corporations' presence at the ISA

Private mining companies do not have participant status at ISA annual sessions. They are not State parties, nor can they qualify for ISA observer status as this is reserved for non-governmental or intergovernmental agencies. However, contractors do routinely attend ISA meetings in Kingston, Jamaica, including as members of their sponsoring State delegations.

Controversially, in a February 2019 session of the ISA Council, spokesmen from DeepGreen[171] and GSR's parent company DEME[172] addressed the meeting under their sponsoring State flag, sitting at the seats marked Nauru and Belgium respectively.

DeepGreen's CEO, speaking from Nauru's seat, told the governments gathered: "Personally, I get very uncomfortable when people describe us as deep sea miners. At DeepGreen, we don't think of ourselves as developing a mining business." In DEME's intervention on behalf of Belgium, the company's CEO Alain Bernard bluntly referred to points made from Nauru's seat as "the former intervention of DeepGreen".

DeepGreen's Chief Legal Counsel, Robert Milbourne,[173] also attends[174] and is said to verbally intervene at ISA meetings without acknowledging his link to DeepGreen, under the accreditation of observer NGO 'Mining Standards International' for which he is Managing Director.[175]

Left: The ISA's 24th Council, March 6 2018
© Francis Dejon, IISD/ENB

Corporate lobbying

The private sector contractors' lobbying focus has been to urge governments to rapidly finalise the 'Mining Code' – the rules that would enable exploitation to go ahead in the international seabed. DeepGreen's CEO Gerard Barron has publicly commented on the timeframe, telling media: "If we don't see it in place by end of 2022 we may as [well] go home and think of something else to do."[176]

Within these Mining Code rules, the companies have lobbied in the interests of boosting their profit margins. The financial negotiations are some of the most politically polarised discussions at the ISA and centre around how to uphold the UNCLOS principle of the international seabed as the common heritage of [hu]mankind. The ISA needs to agree the payment regime for contractors, also known as the 'royalty rate'. The ISA must also consider whether deep sea mining may cause adverse impacts on the economies of developing countries dependent on land-based mining, and how any economic assistance arrangements to mitigate this will be paid out of royalties collected.[177] The final outstanding question on the financial regime is how the remaining revenue collected by the ISA from contractors (once any compensation payments have been made and ISA administrative costs have been covered) would be equitably shared amongst ISA member States. The ISA's sharing of benefits is supposed to achieve "overall development of all countries, especially developing States",[178] but the ISA's debates about how to achieve this so far remain behind closed doors within the ISA's Finance Committee.[179]

Recently, GSR, NORI and UKSRL jointly submitted an 'industry position paper'[180] to ISA discussions on the royalty regime, outlining how "we are looking forward to playing a central role in bringing significant benefits to humankind". The paper suggests that deep sea mining would bring several benefits to humankind – including, counterintuitively, "promoting recycling by increasing the global in-use metal stocks". The three contractors also "urge the international community to consider a precautionary approach" – although not on the question of

whether to allow mining in the international seabed in light of scientific uncertainties. Rather, they suggested a precautionary approach should be used regarding royalty rates "which may superficially appear to generate greater revenues to the Authority but in practice will disincentive the commercial investment required for this unique industry to begin."

GSR in particular has been instrumental in influencing the design of a proposal for the ISA's payment regime for contractors. These negotiations began with a series of small, unofficial and contractor-dominated workshops[181] during which a financial model was created using inputs from GSR. Subsequently, the ISA Secretariat contracted the Massachusetts Institute of Technology (MIT) to undertake further economic modelling work focused on nodules in the Clarion-Clipperton Zone, which produced recommendations for a royalty rate that appeared to be heavily influenced by the GSR work. The ISA royalty rate that has been proposed from the MIT model, which started at just 2% of the metals' value, is based largely on private sector arguments about the need for a high internal rate of return for them, in order to incentivise the initial investment required at the outset to start deep sea mining operations. A revised financial model presented to governments in February 2020 estimates a majority of any overall profits from a mining operation going to the contractor (54%). The rest would then be divided between the sponsoring State (18%) and an environmental fund (3%), with a quarter going to the ISA to cover administrative costs, compensation claims for economic losses from land-based mining States, and the equitable distribution to the ISA's 160+ member state governments in a bid to honour the "common heritage of [hu] mankind".[182] The African Group, representing 47 nations, have noted this could lead to "pitiful" pay-outs for developing countries.[183]

A particular bone of contention has been around whether or not the ISA's payment regime includes a profit-based element. The private sector companies have argued that deep sea mining is a high-risk investment, so the regime should incentivise "first movers", thereby benefitting their investors and shareholders based largely in the Global North.[184] To date, as far as is known, there has been no discussion at the ISA as to where and to whom the contractors' share of any profits from any deep sea mining will ultimately flow.

GSR, NORI and UKSRL are urging governments to stick to an ad valorem royalty only[185] i.e. the contractors would pay a fixed percentage of the metal value at the time they mine, which does not vary if they subsequently manage to sell the minerals at a high profit. The African Group have repeatedly raised concerns over basing the payment regime on what can drive sufficient profit for private sector companies, rather than what constitutes sufficient financial returns to humankind for the loss of its common heritage resources in the international seabed. Their paper submitted to the ISA Council in 2018 concluded: "The African Group is concerned that principles and mechanisms designed to render the Area a level playing field, and which are the cornerstone of the Convention, are at risk of being eroded. The African Group does not wish to see an exploitation regime that facilitates the loss of common heritage resources in return for minimal or no benefit to the populations of African countries, and other developing States."[186]

To increase revenue to member States on the basis of the currently proposed royalty rate, the ISA would need to issue more contracts, over greater areas of the seafloor, causing larger, more serious and greater cumulative environmental impacts. MIT has not been able to factor a 'value' of the deep ocean or ecological 'costs' of deep sea mining into their model.

"The African Group have repeatedly raised concerns over basing the payment regime on what can drive sufficient profit for private sector companies, rather than what constitutes sufficient financial returns to humankind for the loss of its common heritage resources in the international seabed."

CORPORATE CAPTURE: AN ENABLING ENVIRONMENT FOR BUSINESS AGENDAS

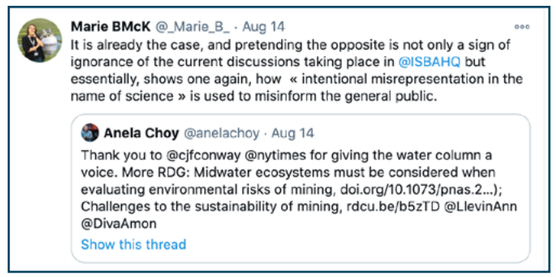
Despite being the UN agency responsible for regulating deep sea mining, the ISA has consistently prioritised the development of deep sea mining over the preservation of the deep ocean in its interpretation of safeguarding the common heritage of [hu]mankind.

This has created an enabling environment for a deep sea mining industry dominated by a small number of Global North-based companies, raising significant doubts over whether, as the ISA Secretary General Michael Lodge claims: "Deep seabed mining has the potential to provide us with long-term socio-economic benefits".[187]

A 2016 paper by the ISA Secretariat[188] looking at whether activities in the international seabed are being carried out for the benefit of humankind as a whole seemed to argue that partnerships such as Nauru/NORI and Singapore/OMS provided a sufficient benefit to developing States. However, that same year the interim report of an independent review of the ISA which interviewed various ISA stakeholders[189] found that: "It is questionable whether the Authority has enhanced opportunities for all States Parties. It has approved exploration contract applications from some developing States, and it could do more. Some ambiguities were identified by respondents, particularly the term 'developing State' (not defined by the Convention) – some countries that rank highly on the Human Development Index and/or Gross Domestic Product rankings still hold this status. This has potential to influence access to sites reserved only for developing States. Several respondents questioned whether the reserved area system is effective in promoting opportunities [...]".

In public, representatives from the ISA Secretariat, the staff mandated to play a neutral administrative role, have made increasingly pro-mining public comments. The ISA's figurehead Michael Lodge recently told Belgian MPs that he considered a moratorium on deep sea mining to be "anti-science and anti-knowledge".[190] Lodge and his Special Assistant Dr Marie Bourrel-McKinnon frequently like or retweet social media posts from deep sea mining companies.[191] Both Lodge and Bourrel-McKinnon also react negatively on social media to comments that raise concerns about deep sea mining and its environmental impact.[192] For example, in response to a recent NY Times op-ed[193] authored by Dr Steven Haddock and Dr Anela Choy based on the PNAS article 'Midwater ecosystems must be considered when evaluating environmental risks of deep-sea mining',[194] Bourrel-McKinnon tweeted" "[This] shows on[c]e again, how « intentional misrepresentation in the name of science » is used to misinform the general public".[195] This tweet was liked by Lodge.

It could be argued that such behaviour conflicts with obligations under ISA Staff Rules,[196] or the International Civil Service Standards of Conduct.[197] However, there does not seem to be much accountability for conduct of ISA Secretariat staff currently, including no public complaints mechanism. There also does not appear to have been a review of Lodge's performance as Secretary-General as he seeks re-election this year.



Legal and Technical Commission members employed by contractors

The ISA's institutional framework also deprioritises responsible environmental management. Having failed to heed calls for the establishment of a scientific or an environmental committee, environmental considerations are made by the powerful yet secretive LTC. Meeting behind closed doors, the LTC keeps key information about what is being found by contractors in the deep sea confidential – including information about compliance failures.

Only three of the LTC's 30 members hold biological or ecological expertise.[198] Its membership is dominated by experts from the same countries that sponsor or hold ISA contracts to explore for deep sea minerals.[199] Academic Klaas Willert has pointed out that "not diminishing their status as highly regarded experts, the LTC members could offer member States a privileged position from which to exert influence".[200] Willert has also raised the question of whether it is appropriate for the LTC to rely on funding contributions made by contractors and sponsoring States to support its members from developing countries to participate, or if this "could affect the impartiality" of the commission charged with recommending whether applications for contracts are approved and holding contractors' behaviour to account.[201]

Some LTC members are even employed by ISA contractors. Carsten Ruehlemann, a member since 2019, works for Germany's Federal Institute for Geosciences and Natural Resources (BGR),[202] which holds exploration contracts in both the Pacific and Indian Oceans. Nobuyuki Okamoto, a member of the LTC since 2009, established Japan Oil, Gas and Metals National Corporation (JOGMEC) in 2004 and has since held a Director role in the organisation, which holds an exploration contract in the Western Pacific Ocean.[203]

Revolving door

The corporate influence over deep sea mining negotiations is not confined to private companies' presence at ISA negotiations. Close links exist between senior staff at deep sea mining companies and the governments sponsoring these companies to gain exploration contracts in the international seabed.

For example, Christopher Williams, a director at UKSRL and its sister company SRDL, was previously a government private secretary in the UK Cabinet Office – the ministry whose function is to "support the Prime Minister and ensure the effective running of government".[204] According to his LinkedIn profile, after working in government from October 2010 to August 2013, Williams began at Lockheed Martin as Head of UK Government Affairs. UKSR confirmed that "UK Seabed Resources Managing Director Christopher Williams joined Lockheed Martin after the company was launched in 2013 with the support of the then Prime Minister of the UK David Cameron."[205] Cameron announced that UKSRL obtained their first exploration contract in March 2013. According to transparency data, in October 2014 Cabinet Office minister Jeremy Heywood met "Lockheed Martin - Discussion on Seabed Mining".[206] This would have been just over a year after Christopher Williams joined Lockheed as Head of UK Government Affairs. UKSR confirmed to Greenpeace that Williams was not present at this meeting.[207]

"Close links exist between senior staff at deep sea mining companies and the governments sponsoring these companies to gain exploration contracts in the international seabed."

ROBERT HEYDON, a key figure at DeepGreen and son of DeepGreen founder, David Heydon, was an 'advisor' to Nauru during hearings of the ITLOS Seabed Disputes Chamber in 2011.

"These cosy relationships provide a further reminder of the small number of individuals making a concerted effort to get this risky industry off the ground."

In Belgium, the former Minister of Economic Affairs who supported GSR's application became an advisor to the company after his term in office ended and has, in that capacity, joined the Belgian delegation to the ISA on at least one occasion.[208]

In May 2019, a job application for 'NORI Country Manager' was posted on the official government of Nauru website.[209] This application describes the role as being "the company's representative in Nauru and the 'face' of the company. The position will be integral to ensuring there is a 'positive perception of NORI and the industry'". This position appears to have been filled in mid-2020 by Peter Jacob, joining DeepGreen as Country Manager for Nauru and bringing "decades of experience from his work within the Government of the Republic of Nauru" – including serving as Chief of Staff for the Office of the President and Director of Trade for the Department of Foreign Affairs and Trade.[210] Notes from a Deep Sea Minerals Stakeholder workshop in Nauru in 2011, held by the Secretariat of the Pacific Community, show that NORI's Board of Directors "included two government ministers" but clarified that "they have been appointed in their capacity as citizens of Nauru and not as Cabinet Ministers".[211] [212]

Jacob, while in government, worked alongside Robert Heydon (son of former Nautilus CEO, DeepGreen founder and reported former NORI Director: David Heydon) – himself a key figure at Nautilus and DeepGreen – at hearings of the International Tribunal on the Law of the Sea's (ITLOS) Seabed Disputes Chamber in 2011, where Heydon is listed as an 'Advisor' to Nauru.[213] ITLOS was providing an Advisory Opinion on the responsibilities and obligations of States regarding activities in the international seabed. Heydon, publicly linked with NORI at the time[214] and in his verbal submissions, argued: "The Nauruan delegation is hoping that the Seabed Disputes Chamber ensures that the UNCLOS system is interpreted now to encourage, not deter, this private sector participation. Indeed, it would be a pity if failure to provide legal certainty and failure to encourage private sector investment in the Area were to contribute to denying developing States access to the raw materials they require to pull themselves out of poverty".[215]

These cosy relationships provide a further reminder of the small number of individuals making a concerted effort to get this risky industry off the ground.

NAURU, coral reef. The country's economy and environment collapsed after exhausting its phosphate reserves. Deep sea mining threatens new environmental and financial risks.
© Paul Hilton / Greenpeace.

CONCLUSION

When UNCLOS was being negotiated, deep sea mining was thought to "yield a net balance of benefits to the international community as a whole".[216] Five decades on, this is seriously in doubt.

The deep sea mining industry, while yet to begin commercial operations, has become dominated by a small number of private companies seeking sponsorship through nations where they, and even their subsidiaries, have limited presence. Scientific warnings are that deep sea mining will cause unavoidable, irreversible harm to the deep sea and may risk the health of the wider ocean. The scientific community does not yet fully understand how (or even if it will be possible) to mitigate the impacts of or restore ecosystems that would be affected by deep sea mining operations. Greenpeace advocates the application of the precautionary principle because substantial legal and environmental uncertainties surround any proposed deep sea mineral extraction, and knowledge gaps exist in our understanding of the oceans – particularly of fragile deep sea ecosystems.[217] The protection of ocean ecosystems and of the livelihoods of communities that depend upon the sea must be prioritised.

It is increasingly clear that far from upholding the principles of stewardship of "the common heritage of [hu]mankind" and the protection of the marine environment that governments agreed to in 1982, opening up the international seabed to commercial mining will help the rich get richer while worsening the international inequities of environmental harm.

Mineral exploration of the deep sea, a global commons, has become monopolised by a concentrated number of corporations headquartered in the Global North, working through subsidiaries, partners or subcontractors in a bid to maintain the illusion that deep sea mining can be a global public good. Though very few developing nations are involved in the ISA exploration contracts, those that are sponsoring States stand exposed to liabilities and risk from the opaque and complex corporate structures of their foreign private contractors. What's more, negotiations for a financial pay-out are politically wrought and increasingly dominated by cutting a deal which serves the interests of private company shareholders in the Global North. The so-called regulator appears reluctant to enquire behind the facade of sponsorship arrangements and is increasingly advocating a pro-mining agenda.

Adding unnecessary pressure on the planet's life support systems during a nature and climate emergency will only worsen global inequities and stands in stark contrast to the commitments world leaders are making to reverse biodiversity loss, limit climate disruption and leave no-one behind.[218]

Governments face key political decisions in the next 12 months, including whether to establish a Global Ocean Treaty that would put ocean protection at the heart of high seas governance, or to prioritise their diplomatic resources into opening up a new frontier for industrial resource extraction in the world's largest ecosystem: the deep sea.

To avoid opening the world's largest ecosystem to an inequitable and environmentally risky new industry, Greenpeace calls on governments to:

- Ensure the deep ocean remains off-limits to mining operations by not authorising or sponsoring any deep sea mining, not subsidising deep sea mining research, exploration and/or exploitation activities,[219] and no longer developing the Mining Code under the ISA.
- Agree a strong Global Ocean Treaty as soon as possible in 2021 that not only enables governments to create ocean sanctuaries across the global oceans, protecting marine life from multiple extractive activities, but also delivers global rules and high standards to protect marine life from the most damaging industries seeking to plunder the global oceans.
- Establish a comprehensive network of ocean sanctuaries covering at least 30% of the world's oceans by 2030, where all extractive activities are prohibited.

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