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A DAWN /PANG POLICY BRIEF¹



1- Development Alternatives with Women for a New Era (DAWN); Pacific Network on Globalisation (PANG)

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Claire Slatter and Maureen Penjueli. 2025. Peace Under-Sea Siege: How 'Defense' Critical Minerals Could Pull the Trigger to Mine the Ocean Floor?. DAWN and PANG, Suva (Fiji).

Introduction

The debate around deep-sea mining (DSM) has been gaining international attention focused on the likely irreversible harm it will cause to the ocean's ecosystems and climate regulatory function, with 32 countries now calling for a 'pause' or a global moratorium on DSM.² Leading proponents of DSM have been framing deep-sea minerals as critical to address the climate crisis, a solution that would entail a tradeoff between biodiversity protection and climate change action and turn the oceans' seafloor, considered the common heritage of (hu) mankind, into a new sacrifice zone. At the same time, there are growing doubts about the financial viability of DSM and whether minerals from the deep-sea will even be needed for the energy transition, as battery technologies for electric vehicles and solar panels have been rapidly advancing with alternatives that could eliminate the need for cobalt, nickel and copper. Heeding caution, 63 companies (and growing), among them Volkswagen, BMW Group, Samsung, Ford, Microsoft, Apple, Philips, and Patagonia, have either agreed not to use seabed minerals in their supply chains or declared support for a moratorium on DSM. The group includes 14 financial and insurance institutions, such as Credit Suisse, Deutsche Bank, Lloyds Banking Group, NatWest, the European Investment Bank and Swiss Re, which have announced that they will not lend or offer insurance due to the high-risks associated with DSM.³

In this article, we shift the spotlight from the framing of critical minerals for energy security to the more recent aggressive promotion of critical minerals for 'national security' and 'defense' imperatives in the context of escalating geopolitical tensions driven by Western powers. The race by US, UK, European and Nordic countries to secure mineral supply chains that are not dependent on a handful of countries, namely China, but also the Democratic Republic of Congo (DRC), Rwanda and Russia, all of which are considered either politically unstable or with interests that do not align with those of the US and its allies. In this article we argue that the dominance of China in critical minerals has refocused the search for new frontiers of minerals free from supply chain disruptions and

2- France, for example, has adopted a ban position on deep-sea mining (DSM), with President Macron calling for a global moratorium during the 2022 UN Ocean Conference.

3- Stop Deep Sea Bed Mining, "Endorsers," accessed April 15, 2025, <https://www.stopdeepseabedmining.org/endorsers/>.

unilateral trade rules on deep-sea minerals lying on the seabed beyond national jurisdiction (ABNJ). The main focus has been on the Area under the jurisdiction of the International Seabed Authority (ISA) which is mandated to organize, carry out and regulate seabed mining by licensed contractors in the region known as the Clarion Clipperton Zone (CCZ).

State-sponsored venture capital start-up companies, led by serial entrepreneurs seeking to make fortunes from public shareholder investments, have been at the forefront of the push to commence DSM in the CCZ. The shares of one such venture capital start-up, The Metals Company (TMC), which we investigate in this article, had plummeted and remained low over the last couple of years. They surged briefly in January, following US Congress's approval in late December of a Defense Department feasibility study of polymetallic nodule refining and amid growing anticipation of support for DSM by the Trump Administration.⁴

From a governance point of view, oceans including areas beyond national jurisdiction present unique and complex challenges. On land, there has been a global push to establish enhanced due-diligence to responsibly source critical minerals from conflict zones for the 'green transition.' International rules, regulations and procedures (RRP) for mining the deep seabed in the Area, on the other hand, are still being negotiated. Consensus on many aspects of the 'Revised Consolidated Text' remains outstanding with important environmental protection, financial and liability questions still unresolved. A peer-reviewed paper⁵ published in January 2024 found that more than 30 major issues in the ISA's regulations are still outstanding and that the target date to complete the regulations in mid-2025 remains unrealistic. There is, however, a possibility that mining under provisional licenses could commence ahead of regulations being adopted, thanks to Nauru, one of the sponsoring states of The Metals Company, triggering an obscure 2-year rule under UNCLOS in June 2021. The rule permits a sponsoring state to give notice that it would be submitting a plan of work

4- Julien Lefebvre "TMC The Metals Company – Still Speculative, but Cautiously Optimistic", Seeking Alpha, January 28, 2025, <https://seekingalpha.com/article/4752531-tmc-the-metals-company-still-speculative-but-cautiously-optimistic>.

5- Kristina M. Gjerde, Duncan Currie, Pradeep A. Singh, and Harriet Harden-Davies, "From What-If to What-Now: Status of the Deep-Sea Mining Regulations and Underlying Drivers for Outstanding Issues," *Marine Policy* 160 (2024): 105547, <https://www.sciencedirect.com/science/article/pii/S0308597X23005006>.

for exploitation in two years. This imposed a 2-year deadline (which has since passed) for the ISA to adopt mining regulations, failing which, plans of work to commence exploitation could be provisionally approved by the ISA.

Finally, discussions on ‘defense’ critical minerals and the military-industrial complex – which is to say the intertwined interests of national armies, weapons manufacturing industries and increasingly civilian institutions such as academic institutions - have been almost non-existent in the ocean space. This is despite the clear principle in the UN Convention on the Law Of the Sea (UNCLOS), that use of the Area be ‘exclusively for peaceful purposes’. Moreover, beyond the Seabed Disputes Chamber of the International Tribunal on the Law of the Sea (ITLOS), mechanisms to address concerns over the hyper-securitization of oceans, including within Exclusive Economic Zones (EEZs) linked to military activities and defense ‘strategic interests’ in the ocean, are not as well developed.

Meanwhile, there has been a noticeable rise in often overlapping security and defense pacts negotiated in secret amongst allies to secure continued unfettered access to vast tracts of the Pacific Ocean, including EEZs. Recent analysis by the *Guardian Newspaper* suggests that there are now more than 60 such agreements and initiatives, including several infrastructure and equipment deals to support defense and security interests in the Pacific.⁶ One of the largest security pacts to be signed in 2021 was AUKUS, the Australia, United Kingdom and United States enhanced trilateral security partnership. The aims of this security pact are to promote deeper information and technology sharing and foster deeper integration of security and defense-related science, technology, industrial bases and supply chains, including minerals. We conclude by making key recommendations for consideration by ISA and member States.

6- Prianka Srinivasan and Virginia Harrison, “Mapped: the Vast Network of Security Deals Spanning the Pacific, and What It Means,” *The Guardian*, July 9, 2024, <https://www.theguardian.com/world/article/2024/jul/09/pacific-islands-security-deals-australia-usa-china>.

Defense critical minerals and the geo-politics of supply and demand

Military activities in the ocean are becoming more and more frequent for a host of reasons which include recognition of the geo-strategic importance of the sea and of sea power; the rise in size and capability of navies of many states, including China; escalating geo-political rivalry; increased defense spending on munitions and advanced weapons systems, including nuclear powered (or armed) submarines; and the resurgence of undersea competition and underwater surveillance, all of which involve naval powers extending their activities across vast oceanic areas.

An often-overlooked factor in advanced defense capabilities and technological innovations is the supply chain of minerals which are used to produce virtually every component of the arsenals of national Defense Departments in states with military forces and navies. These minerals are deemed vital to countries' defense industrial bases, enabling the production of military platforms such as fighter aircrafts, tanks, missiles, submarines, ammunition and artillery shells and nuclear warheads. Yet the importance of supply chains of minerals makes them dangerously vulnerable to three types of disruptions: foreign export controls; rising military demand (in addition to energy transition demands) amid great power competition (US–China conflict); and disrupted sea-lanes in key areas including the Panama Canal.

With their limited domestic mineral production capacity, both the US and Europe have traditionally been heavily dependent on mineral imports including from China and Russia. According to the EU Briefing Note on 'Securing Europe's supply of critical raw materials', the EU imports between 75 and 100 percent of most metals it consumes, while the US is almost 100 percent import reliant for 12 of the 50 minerals identified as critical by the US Geological Survey (USGS) and 50 percent import reliant for another 29.⁷ China is the top producer for 29

7- Mahnaz Khan, Andrew David, David Kelm, and Sarah Stewart, "Strategic Defense Critical Minerals: A Targeted List for National and Economic Security," *Silverado Policy Accelerator*, September 24, 2024. <https://silverado.org/reports-and-publications/strategic-defense-critical-minerals/>.

of these critical minerals and also dominates the mineral processing sector, refining between 40 and 90 percent of the world's supply of rare earth elements such as graphite, lithium, cobalt and copper, while Russia dominates the supply of nickel.

NATO's Secretary General warned in 2023⁸ of the need to avoid over-dependence on Chinese minerals, while the US accused China of weaponizing minerals using trade rules such as export restrictions, including complete bans. In increased efforts to diversify supply chain sources, the US Department of Defense (DOD) announced early this year that it had added the United Kingdom and Australia (AUKUS allies) in addition to Canada as domestic supply sources of defense critical minerals, a 'friendshoring' strategy making them eligible to receive priority funding under the Defense Production Act.⁹ The Trump Administration's subsequent initiation of a trade war with allies such as Canada may have closed that supply source. The February 28 Oval Office debacle of a meeting with Zelensky to discuss a yet to be signed agreement with Ukraine to bring an end to the Ukraine/Russia war on US terms, together with subsequent US tweaking of the draft agreement, could similarly jeopardize US ambitions of shoring up massive supplies of critical metals through a 'trade' deal primarily aimed at exacting reparations for the cost to the US of Ukraine's war with Russia.

Meanwhile, an escalation in the corporate-led drive to commence DSM has exposed a concerning challenge.¹⁰

DSM Metals for War? An illegal end use under UNCLOS

UNCLOS stipulates clearly that 'The high seas shall be reserved for peaceful purposes' (art 88); that 'The Area shall be open to use exclusively for peaceful purposes by all States (art 141); and that 'Marine scientific research in the

8- https://www.nato.int/cps/en/natohq/news_231765.htm

9- Department of Defense, "Securing Critical Minerals Vital to National Security," *Defense.gov*, Feb. 16, 2024. <https://www.defense.gov/News/News-Stories/Article/Article/4026144/securing-critical-minerals-vital-to-national-security-official-says/>.

10- Lauren Kent and Alayna Treene 'Trump accuses Ukraine's Zelensky of 'trying to back out' of proposed minerals deal', CNN World, April 1, 2025, <https://edition.cnn.com/2025/03/31/europe/ukraine-minerals-deal-trump-zelensky-intl/index.html>.

Area shall be carried out exclusively for peaceful purposes and for the benefit of mankind as a whole, in accordance with Part XIII' (art 143). To these ends, UNCLOS prohibits any non-peaceful uses of the Area (art 88). We argue that peaceful uses of the Area requires peaceful uses of its resources.

In this regard, the 28th March 2025 announcement by TMC, the Vancouver-registered venture capital start-up mining company that has been leading the charge in the push to commence DSM in the Area, is deeply concerning. TMC announced that the company's US subsidiary TMC USA LLC (TMC USA) had formally initiated a process with the National Oceanic and Atmospheric Administration (NOAA) under the US Department of Commerce to apply for exploration licenses and commercial recovery permits under the US's Deep Seabed Hard Mineral Resources Act of 1980 (DSHMRA). Presumably this means the company would bypass the ISA and not await the conclusion of international regulations for mining the deep seabed, nor for provisional approval by the ISA.¹¹

This brazen announcement of an intention to seek licenses to exploit minerals under a US law that predates UNCLOS, a convention which the US has never signed or ratified, deliberately defies international law and challenges both the ISA as an inter-governmental regulatory body, and multilateralism more generally. TMC's decision, rationalized by being stalled in commencing mining by ongoing delays at ISA in completing complex mining regulations masks an insidious plan by the company. That is, to supply the US Defense Ministry with critical metals, and to do so in the context of increasing tensions between the US and China, a burgeoning new arms race and periodic talk of war. Any intended, in fact planned, military end use of critical metals from the deep seabed surely violates the principle of exclusive peaceful use of the Area (art 88).

TMC has been the most persistent and aggressive first-mover mining contractor, with a talent for providing shifty justificatory arguments for DSM. The company's

11- In *Strijd om de diepzee (The Battle for the Deep Sea)*, directed by VPRO Tegenlicht, aired February 2, 2025, on NPO, Barron had hinted that the US could pursue deep seabed mining without being hindered by the ISA, and that 'his' application might go to the USA regulator and not to the ISA https://npo.nl/start/serie/vpro-tegenlicht/seizoen-0_3/vpro-tegenlicht_19/afspelen

initial argument that the abyssal plain was a lifeless desert was demonstrated by marine scientists to be patently false. It's subsequent, initially more compelling argument that the critical minerals on the seabed were needed for a global transition from fossil fuels and to thereby save the planet lost credence with rapid advances in battery technology diminishing the need for critical metals. Its more recent argument that seabed mining will cause far less environmental and social harm than land-based mining is also specious as seabed mining will not end of land-based mining but inflict on the planet yet another destructive extractive industry the unknown impacts of which could be the ultimate tipping point on both the biodiversity and climate fronts.

TMC also argued that DSM offered a development boon to resource-poor small island states in the Pacific, such as the three from which it sought sponsorship to attain exploratory licenses from ISA. Based on modelling by the Commonwealth and more than enough evidence of the 'paradox of plenty', this claim is also contestable. In any case, its intention to apply to the US is at variance with its subsidiary Nauru Ocean Resources Inc's (NORI) contract with Nauru, potentially placing Nauru in an invidious position: does it collude in the US breach of international law, or does it throw away all its hoped-for financial benefits? TMC's pivot to securing an assured market and nodule refining facilities in the US for the critical minerals it is intent on extracting in the CCZ may be read by some as politically strategic and commercially astute. It is very in line with TMC's history of rogue behavior. It also places the US on the wrong side of international law.

TMC began pitching to US policy makers in the Biden Administration the imperative of acquiring plentiful supplies of critical minerals from the deep seabed to meet US security and defense needs. It did so fully aware of growing US/China rivalry and China's known control of extensive land-based critical minerals and domination of the supply chains. The company's assurances about being able to supply the metals, and its exploratory discussions on the feasibility of nodule refining in the US, preceded Congress' allocation of Defense Funding to assess the feasibility of domestic nodule refining capacity. News of the latter was welcomed on May 23 2024 by TMC CEO, Gerard Barron, who revealed at the same time that TMC's US subsidiary actually had 'an outstanding application seeking a \$9 million grant under the Pentagon's Defense Production Act Title III

program’ to undertake feasibility work itself on a ‘domestic refinery for nodule-derived intermediate products.’¹²

The electoral victory of Trump was welcomed by Barron as ‘the best news for the deep-sea mining industry’¹³ and ‘the shot in the arm this industry has been waiting for.’¹⁴ President Trump’s March 20, 2025 Executive Order invoking emergency powers through the Defense Production Act to boost the ability of the US to produce critical minerals indicated a fast-tracking of US plans for nodule refining and an urgency in acquiring critical metals. The President’s statements were: ‘Our national and economic security are now acutely threatened by our reliance upon hostile foreign powers’ mineral production. It is imperative for our national security that the United States take immediate action to facilitate domestic mineral production to the maximum possible extent.’ A proposed massive US arms build-up is very clearly on the horizon, indicated by President Trump’s most recent announcement that he would seek a \$1trillion Department of Defense budget to ramp up Pentagon spending, a move which a leading US defense analyst said will only benefit weapons manufacturers.¹⁵

A Reuters article on March 11, 2025 on plans to locate the domestic nodule refinery on Pentagon military bases said ‘using military bases for processing would underscore the importance Trump is placing on critical minerals for national security. Fighter jets, submarines, bullets and other weaponry used by the U.S. military are built with minerals processed by Beijing’.¹⁶ And here’s

12- *The Metals Company*, “TMC Commends U.S. House Representatives for Allocating Defense Funding to Critical Minerals and Supply Chain Strengthening,” March 29, 2025, <https://investors.metals.co/news-releases/news-release-details/tmc-commends-us-house-representatives-allocating-defense-funding>; see also Greenpeace, “5 Reasons to Be Hopeful in the Fight Against Deep Sea Mining,” Greenpeace International, July 11, 2024, <https://www.greenpeace.org/international/story/68290/5-reasons-to-be-hopeful-in-the-fight-against-deep-sea-mining>.

13- Cecilia Jamasmie, “Trump Is the Best News for Deep-Sea Mining — TMC CEO,” MINING.COM, April 10, 2024, <https://www.mining.com/trump-is-the-best-news-for-deep-sea-mining-tmc-ceo/>.

14- Carl Surran, “TMC Shares Surge as Incoming Trump Presidency Seen Supporting Deep Sea Mining,” *Seeking Alpha*, January 15, 2025, <https://seekingalpha.com/news/4395388-tmc-shares-surge-as-incoming-trump-presidency-seen-supporting-deep-sea-mining>.

15- William Hartung ‘Does America Really Need A \$1 Trillion Pentagon Budget?’ *Forbes*, April 7, 2025, <https://www.forbes.com/sites/williamhartung/2025/04/07/does-america-really-need-a-1-trillion-pentagon-budget/>. See also *Democracy Now*, April 09, 2025.

16- Ernest Scheyder and Jarrett Renshaw, “Trump Seeks Minerals Refining on Pentagon Bases to Boost US Output,” *Reuters*, March 10, 2025, <https://www.reuters.com/world/us/trump-seeks-minerals-refining-pentagon-bases-boost-us-output-sources-say-2025-03-10/>.

the rub: TMC's deliberate courting of the US Government to support the mining and refining of critical minerals from the deep seabed for US defense and security purposes, challenges the UNCLOS principle of reserving the use of the deep seabed in the Area exclusively for peaceful purposes. Military end use of these critical minerals will include weapons systems manufacture and support arms buildup by the most powerful, nuclear-armed state, in the context of an escalating new Cold War. This strikes at the very heart of the UNCLOS principle of exclusive use for peaceful purposes and may indeed be illegal.

Conclusion and Recommended Action by ISA and Implicated States

The announced rogue plan of action by TMC to advance the realization of its determination to start profiting from mining the seabed by seeking mining licenses outside of the ambit of UNCLOS and ISA, requires the strongest condemnation by ISA member states. The Secretary General of ISA, Leticia Carvalho has already expressed her deep concern, emphasizing that the Authority holds exclusive jurisdiction over all activities in the international seabed area, which is recognized as the common heritage of all human kind. She went further to state that any efforts such as those by TMC to take unilateral actions would 'violate international law and undermine the fundamental principles of multilateralism, the peaceful use of oceans and the collective governance framework.'¹⁷

Member States of the ISA, as argued by legal experts in the international moratorium campaign, must hold together and urgently get behind the call for a moratorium on DSM to save the ocean from a deep-sea minerals resource grab for weapons manufacture and war-making. It is indeed imperative that they not allow a corporate-enabled seizure of critical minerals from the deep seabed for purposes that conflict with the 'peaceful uses' principle in UNCLOS. We remind member States of their obligations under art 138 of UNCLOS - 'The

17- Leticia Carvalho, "Announcement by The Metals Company," *International Seabed Authority*, March 28, 2025, <https://static01.nyt.com/newsgraphics/documenttools/f20fa9b010d15d20/0710c17f-full.pdf>; *The New York Times*, March 30, 2025, <https://www.nytimes.com/2025/03/30/us/politics/trump-mining-metals-company.html>.

general conduct of States in relation to the Area shall be in accordance with the provisions of this Part, the principles embodied in the Charter of the United Nations and other rules of international law in the interests of maintaining peace and security and promoting international co-operation and mutual understanding.’

Given the urgency of the issue, we call on member states of the ISA to consider blacklisting TMC and thereby sending an unequivocal message to any other contractors that may decide to follow suit.

TMC’s plan of action may effectively entail dumping its Pacific Island state sponsors. International lawyers will be looking at both the legal implications of TMC’s proposed use of the DSHMRA, and the legal implications for ISA and the company’s Pacific Island state sponsors if TMC attempts to implement DSHMRA-approved mining in the NORI-D tenement it holds in the CCZ, where it has undertaken exploration work and test mining.

We call on the governments of Nauru and Tonga to demonstrate their respect for international law, multilateralism and the ISA by considering cancelling their sponsorship of TMC.

As a Canadian company, TMC’s intention to pursue DSM outside of international law and international regulation, directly conflicts with Canada’s strong moratorium position on DSM.

We call on Canada to deregister TMC.

