

Just Transitions and the Pacific

Case study 3: Seabed Minerals in Cook Islands

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Version 2

This note constitutes an output from the Just Transitions and the Pacific project, a collaboration between the University of St Andrews' Centre for Energy Ethics, and the University of Queensland's Centre for Social Responsibility in Mining (CSRМ), in the Sustainable Minerals Institute.

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Work Package 3: to develop three qualitative case studies on the justice dimensions of extracting different ETMs in the Pacific under conditions of climate change: Papua New Guinea (copper), New Caledonia (nickel), and Cook Islands (cobalt)

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Notes on the conceptual framework

This document presents one of three country case studies produced as part of the Just Transitions in the Pacific Project – each focused on a particular Energy Transition Metal (ETM) sourced from a given Pacific country:

- Papua New Guinea (copper)
- New Caledonia (nickel)
- **Cook Islands (cobalt in polymetallic manganese nodules)**

The case studies offer a closer examination of justice issues that accompany increased pressure to extract ETMs found in the Pacific for global renewable energy technologies.

The energy justice literature generally accepts three foundational justice elements, or what Raphael Heffron and Darren McCauley (2018) have termed a ‘triumvirate of tenets’: distributive, procedural and restorative justice. Expanding on this, Heffron has developed a ‘JUST framework’ to consider ‘the role of justice in developing critical minerals’ (Heffron 2020). In summary, the framework stresses the following elements:

- three core forms of **justice**: procedural, distributive and restorative justice
- two **universal** forms of justice: cosmopolitanism and recognition
- attention to the **spatial** dimensions of developing critical metals
- attention to the **temporal** dimensions of developing critical metals and climate change initiatives

This framework unites climate, environmental and energy (CEE) justice considerations with the view towards reducing inequality and injustice within society, and we adopt these elements accordingly (see Box 1).

Box 1: Justice Dimensions

Procedural justice: refers to fairness of processes used by those in positions of authority to reach specific outcomes or decisions.

Distributive justice: recognises that the economic, political, and social frameworks that each society has result in different distributions of benefits and burdens across members of the society.

Restorative justice: emphasises peaceful processes ‘whereby parties with a stake in a specific offence collectively resolve how to deal with the aftermath of the offence and its implications for the future’ (Marshall 1999:5).

Cosmopolitanism justice: stems from the belief that we are all ‘citizens of the world’ and pushes us to consider the effects of actions beyond specific territorial boundaries or legal jurisdictions.

The JUST framework helps us to emphasise past, present, and future injustices of extracting ETMs – and the restorations or reparations that are also required – and to consider how justice issues arise over different time and spatial scales.

In the Just Transitions and the Pacific project, we extend this framing to understand how justice issues interact and transform across these scales – what we term **justice convergences**.

Building on the foregoing discussion and categorisation of justice issues related to the extraction of ETMs in the Pacific, in our project – and through the three case studies – we stress the need to understand the relationship between justice issues: how they converge and transform one another, and the effect of time and scale on these convergences and their impacts.

Country location map

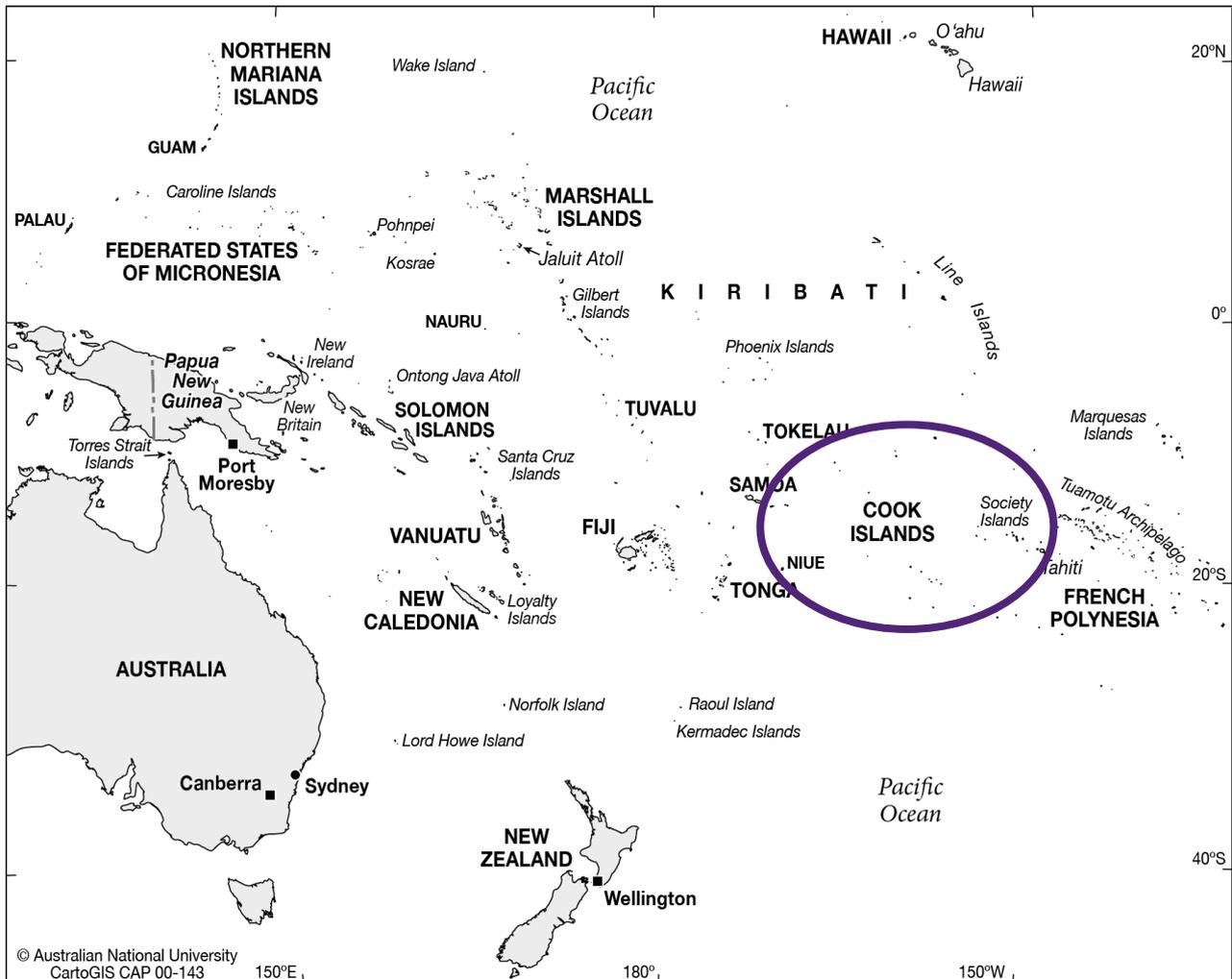


Figure 1.1 The Pacific region (source: ANU CartoGIS unit)

1. Introduction: Seabed Minerals in the Pacific

Seabed minerals occur in large concentrations throughout the Pacific. They are found within sovereign territories and within the so-called 'Area', as the ocean floor beyond national jurisdiction became known in legal parlance (Figure 1). The Area and its seabed minerals are designated as the 'common heritage' of humanity and governed by an international regime. Comprised of 167 member states and the European Union, the International Seabed Authority (ISA) is mandated under the 1982 UN Convention on the Law of the Sea to organize, regulate and control all mineral-related activities in the international seabed area for the benefit of humanity as a whole. The ISA has established a set of rules, regulations and procedures – known as the 'Mining Code' – to regulate prospecting, exploration and exploitation of marine minerals in the Area. The exploration regulations were completed between 2010-2013 while the exploitation regulations remain in draft form. Pressure is mounting on the ISA to finalise the exploitation regulations after Nauru triggered what's known as the 'two-year rule', which would require the ISA to allow the nation to begin mining in two years' time under whatever regulations have been established by then (Singh 2021). Nauru sponsors a subsidiary of a Canadian company previously known as DeepGreen and now called The Metals Company which has interests in the Clarion-Clipperton Fracture Zone (CCZ) in the Pacific – an area spanning approximately 4,500,000 square kilometres. To date, the ISA has issued 31 exploration contacts, with 17 of these being for polymetallic nodules in the CCZ.

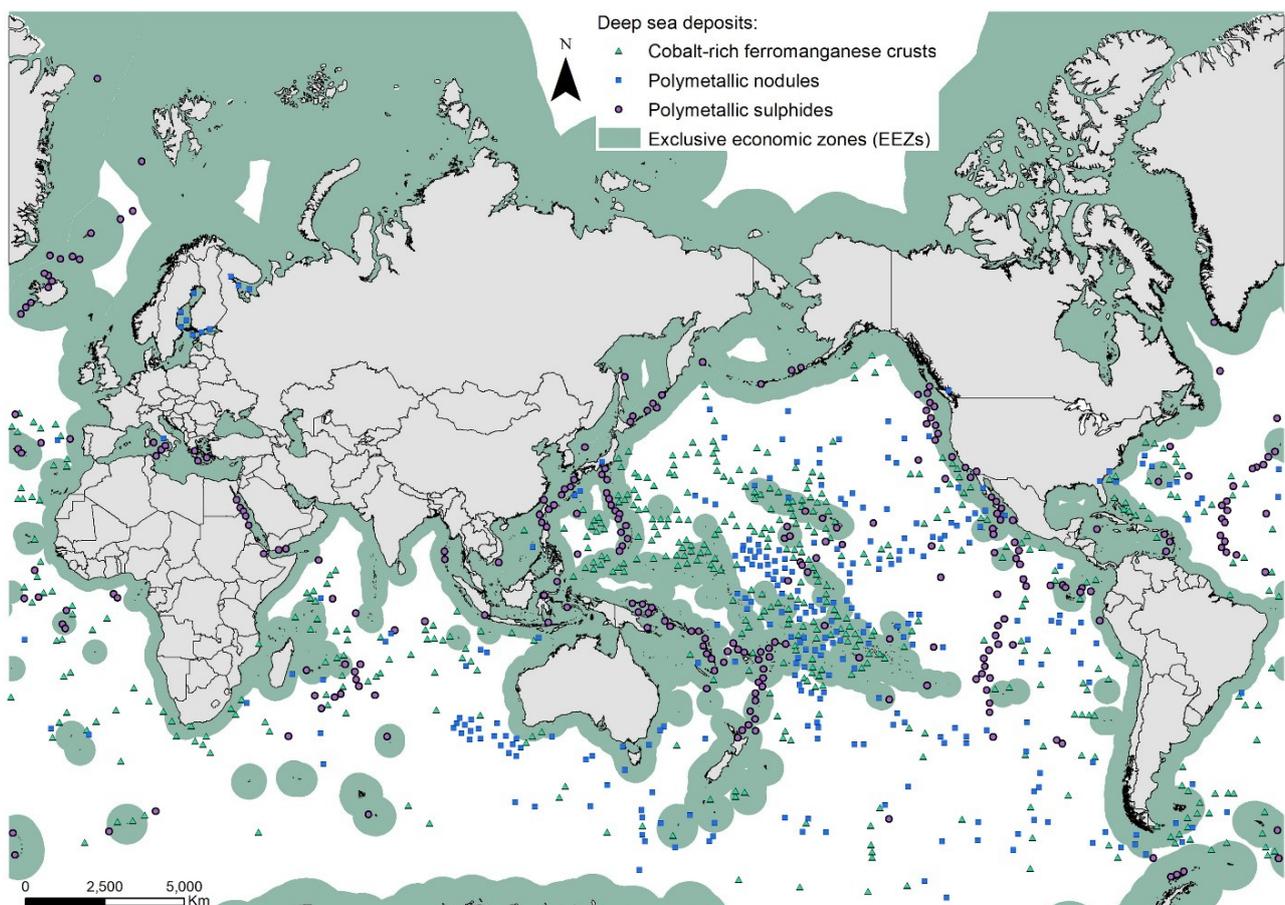


Figure 1. Location of seabed mineral deposits and their spatial overlay with the exclusive economic zones. Source: Kung et al. 2021.

Three main types of seabed minerals exist in the Pacific region: Polymetallic Sulphides, Cobalt Rich Crusts and Polymetallic Manganese Nodules (Figure 1). Polymetallic Sulphide deposits form at depths between approximately 1000 and 4000 meters beneath sea level. They emerge through hydrothermal activity in active tectonic settings (like volcanic arcs and Mid-Ocean Ridges), and are particularly rich in copper, lead, zinc, gold and silver. These chimney-like formations of dark rock atop sulphide mounds spew hot water and are surrounded by animal species different from any previously known. These deposits are also more aptly called Massive Seafloor Sulphides or 'black-smokers'. Throughout the Pacific, Polymetallic Sulphides are most abundant within the Exclusive Economic Zones (EEZ) of Papua New Guinea, Solomon Islands, Vanuatu, Fiji, Tonga and New Zealand.

Cobalt Rich Crusts (CRCs) form on sediment-free rock surfaces within the ocean, forming layers up to 26cm thick. CRCs form at depths between 600 and 7000 meters, but most CRCs of economic interest are found between 800 and 2500 meters (Petterson and Tawake 2019: 274). They contain elements such as cobalt, nickel, copper, tellurium, platinum, zirconium, niobium, tungsten and rare earths, and are particularly abundant near the Federated States of Micronesia, Marshall Islands, Kiribati, Tuvalu, Cook Islands and French Polynesia.

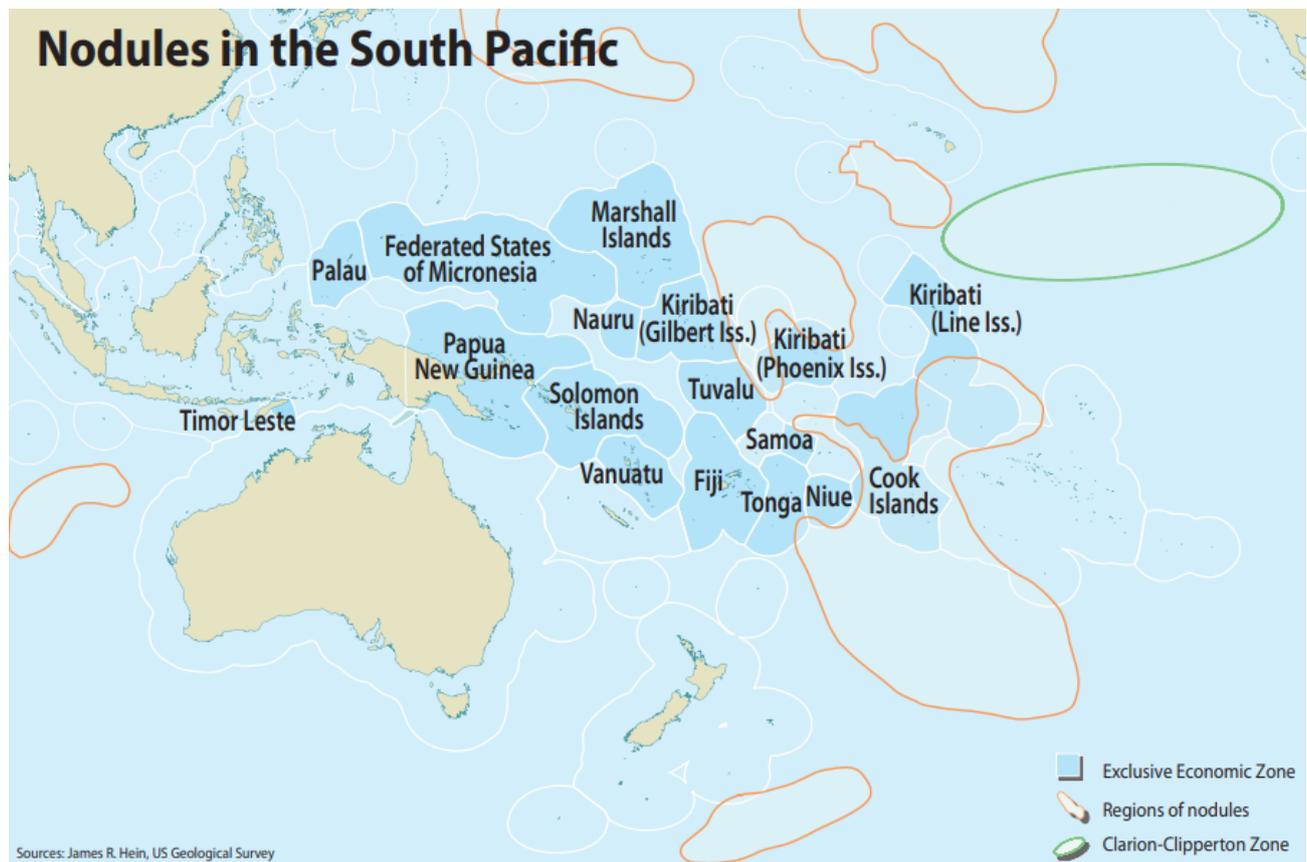


Figure 2. Polymetallic nodules in the Pacific. Source SPC 2013.

Polymetallic Manganese Nodules look like potato-shaped rocks (between 4-14cm diameter) and are found on the seafloor at depths between 3000 and 6500 meters. They form from cold seawater (hydrogenetic nodules) or ocean floor sediment pore waters (diagenetic nodules). Precipitation occurs concentrically around a pre-existing nucleus (like a shark's tooth or lithic fragment), and

they accrete at a rate of approximately 1-10mm per million years for hydrogenetic nodules and 1-300mm per year for diagenetic nodules. Polymetallic nodules contain cobalt, copper, nickel, rare earths, molybdenum, lithium and yttrium. They are present in large quantities in the CCZ, and within the EEZ of French Polynesia, Kiribati, and Cook Islands (Figure 2). These nodules are so rich in four essential metals needed for building batteries (cobalt, nickel, copper and manganese) that they are often called ‘a battery in a rock’.

2. Seabed minerals and governance in Cook Islands

Cook Islands is one of several Pacific ‘hot spots’ for polymetallic nodules. Unlike many other Pacific nations, Cook Islands has no prior history of terrestrial extraction. Seabed mineral exploration began in the Cook Islands EEZ in the 1960s, and by the 1970s surveys revealed significant resources of polymetallic nodules. Surveys conducted from 1985 to the 2000s by the Japan-SOPAC Cooperative Study were among the most comprehensive oceanographic surveys of the Pacific, and included oceanographic surveys conducted within the Cook Islands EEZ. A range of other Pacific surveys by French, USA, New Zealand and other research ships supplemented Japanese data. The results of these surveys are staggering. The nodules found within the Cook Islands EEZ constitute the world’s largest and richest resource of polymetallic nodules within a sovereign territory. Cook Islands nodules are largely of hydrogenetic origin, meaning these small nodules have formed very slowly over millions of years. These nodules represent a very large share of the world’s currently known cobalt resources. It is estimated that some 8.9 billion tons of nodules are present within the whole Cook Islands EEZ area, with a total value of approximately 10 trillion US dollars (Petterson and Tawake 2019: 276).

The Cook Islands EEZ spans some two million square kilometres. The government exercises full control over resources with the EEZ including minerals on the seabed. Successive governments have maintained an interest in the sustainable extraction of seabed minerals for the benefit of Cook Islands people. In 2009 the Cook Islands government approved the world’s first Seabed Minerals Act and established the Cook Islands Seabed Minerals Authority in 2012, another world first as a government unit specifically focussed on seabed minerals and mining.¹ The 2009 Seabed Minerals Act came into force in 2013 but was replaced by an updated version in June 2019 (the 2019 Seabed Minerals Act). The 2009 Act was thought to be overly complicated and needed to be adapted to suit new seabed mining regulations and the provisions of the 2017 Marae Moana Act – an overarching law that established a vast marine park covering the entire terrestrial sea and EEZ of the Cook Islands (representing another world first).²

The name of the area and the Act (‘Marae Moana’) means ‘ocean sanctuary’, signifying the sacred significance of the ocean for Cook Islanders. The primary purpose of the Act is ‘to protect and conserve the ecological, biodiversity, and heritage values of the Cook Islands marine environment’ (S3,1). It formalises a ‘terraqueous’ identity based on the interconnection between marine and terrestrial environments. The Seabed Minerals Act is subordinate to the Marae Moana Act which lays a legal foundation for a mixed-use marine protected area and bans industrial activity within 50 nautical miles of each of the fifteen islands. Specific zones are linked to specific purposes, including conservation, commercial fishing, tourism, and seabed minerals activities. The Marae Moana Council, Technical Advisory Group and Coordination Office are responsible for implementing the Marae Moana Act.

¹ See <https://www.sbma.gov.ck/>.

² See <https://www.maraemoana.gov.ck/>.

The Cook Islands Seabed Minerals Authority (SMA) is responsible for implementing the Seabed Minerals Act and regulating all seabed minerals activities with Cook Islands jurisdiction. The SMA is comprised of legal and technical officers who are supported by an Advisory Committee of community leaders. Like the ISA, the SMA has formalised regulations to manage exploration activities while mining regulations are still being drafted. In 2021 the SMA invited applications for seabed exploration licences. Following a technical review process and a short period for public comment, the SMA recommended three applications for approval. On 17 February 2022 Cabinet formally approved three exploration licences to conduct seabed minerals exploration activities within the EEZ. The companies licenced to carry out this work are joint venture arrangements between international marine exploration companies and local Cook Island companies, reflecting a requirement for domestic participation. These companies are CIC Limited, CIIC Seabed Resources Limited, and Moana Minerals Limited. Figure 3 illustrates the exploration areas within the EEZ.

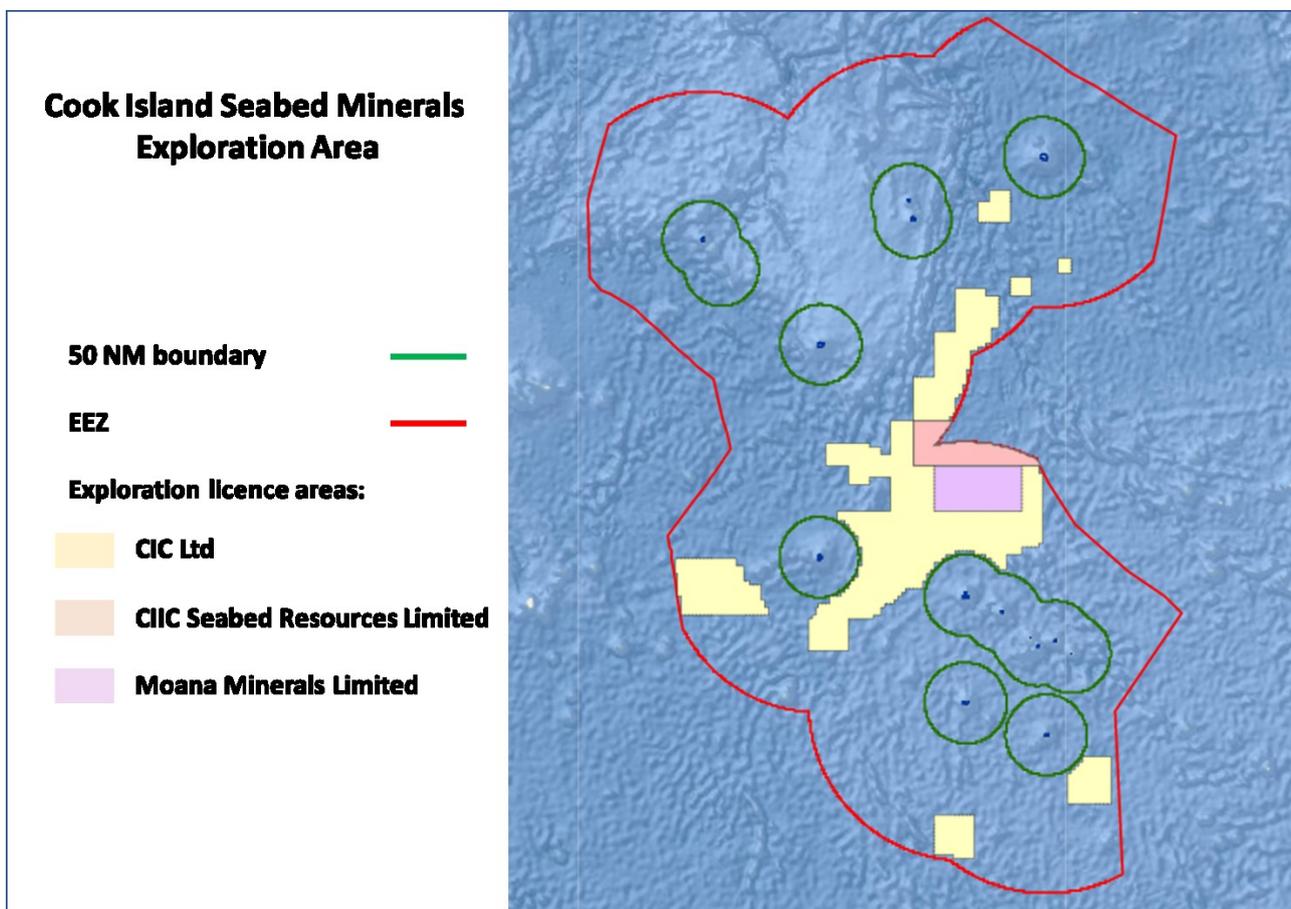


Figure 3. Map of exploration zones and nodule areas within the Cook Islands EEZ. Source: compiled by author using data from Seabed Minerals Authority.

3. Seabed mining narratives

Multiple drivers have increased the pressure to explore and exploit the seabed. Regardless of whether Cook Islanders prefer to see themselves as belonging to a 'small island developing state', a 'large ocean island state', or even a 'developed state' (as the OECD prefers), Cook Islands faces

significant economic constraints. The country is heavily reliant upon tourism and assistance from New Zealand and has few options beyond tourism and fishing for growing or even sustaining the current economic base. It also has one of the largest ratios of ocean to land mass. These geo-economic features are reflected in the population: approximately 15,000 people reside in the Cook Islands while some 90,000 people of Cook Islands descent live elsewhere (predominantly in New Zealand). Transport is expensive and most goods must be imported. Covid-19 exposed this vulnerability and the need for economic diversity. In this environment, seabed mining presents itself as an attractive option for economic growth.

Despite a long-standing interest in developing seabed minerals, low commodity prices previously made this an unviable proposition. But the recent surge in demand for critical metals, or what we call 'energy transition metals' (ETMs), for building low-carbon technologies and energy systems has dramatically changed the situation. Rising commodity prices have also added to this pressure. In 2012 a tonne of cobalt cost about US \$23,000; by 2018 prices had jumped to more than US \$93,000 before settling around US \$73,000 in early 2022 (Figure 4).

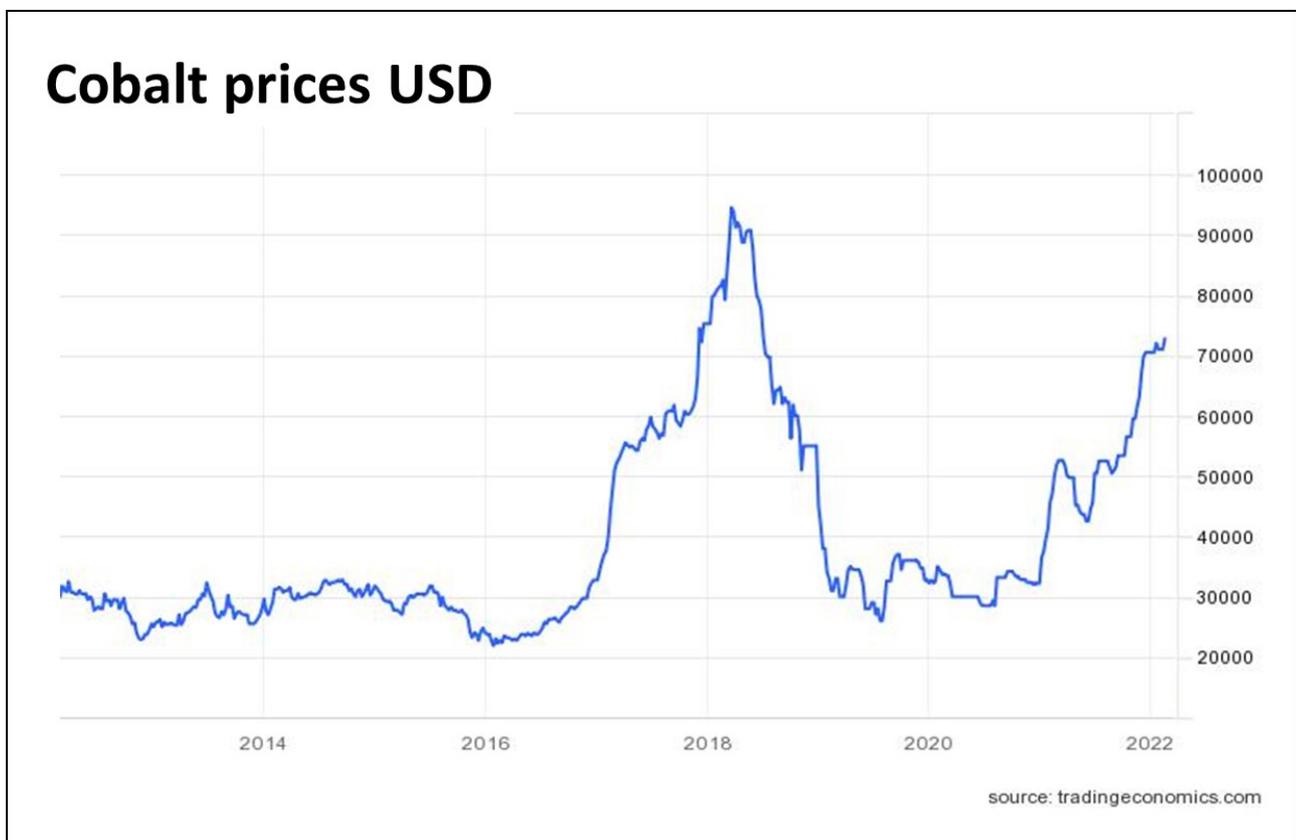


Figure 4. Cobalt prices, US dollars 2012-2022. Source: tradingeconomics.com

Global demand for ETMs is linked to a growing consensus on the need to rapidly transition to low-carbon energy systems. The justification for mining seabed minerals is frequently framed around the following narrative: society must address runaway climate change and find sustainable ways to supply the raw materials for clean energy futures. The underlying assumption is that seabed mining will meet the massive need for ETMs and avoid the social and ecological harms characteristic of terrestrial mining (see Box 1). Industry champions, technology companies and a

growing number of states push versions of this narrative, sending the message ‘there is no alternative’.

BOX 1 Harvesting or mining the seabed?

The language used to describe commercial scale exploitation of nodules includes terms like ‘deep sea mining’, ‘extraction’, ‘harvesting’, ‘gathering’, ‘picking up’, ‘recovering’ and ‘collecting’. Several of these terms are used interchangeably in the applications for exploration licences in Cook Islands EEZ.

While some concerned observers prefer to use terms like ‘mining’ or ‘extraction’, which helps to signal the harm associated with resource exploitation, some exploration companies prefer to describe their activities as a form of resource ‘harvesting’. Public comments on the exploration applications noted the difference in terminology. Commenting on the application by CIC Ltd, the Te Ipukarea Society wrote ‘The inherent bias in the proposed EMMP is shown in the term “harvesting”. Crops are harvested. Taro is harvested. Minerals are mined.’

CIC Ltd said they describe their activities as ‘harvesting’, not mining, ‘because there is no accurate term that has been agreed upon which strictly applies to the process of gathering nodules’. Drawing upon dictionary definitions, CIC Ltd argued that mining, which entails ‘the activity of removing substances such as coal or metal from the ground by digging’, does not ‘accurately reflect picking up nodules off the bottom of the ocean; they do not require digging or pulling a substance out of the ground.’ Whereas the term ‘harvest’, defined as ‘to collect a natural resource in order to use it effectively’, more ‘accurately describes picking up nodules and their potential usage.’³

In their public summary video that accompanied their technical application, the CEO of CIC Ltd opined on the problem of using ‘mining’ to describe their activities, which conjures up images of landscape destruction:

‘This is more like gathering, in fact there is not really a good term in English. Probably in Māori the term ko’i ko’i is more appropriate, really it is literally gathering these things up without disturbing anything’... Now what we have to go and do with this research is, is do some trials with gathering these, of ko’i ko’i; this is toku moana.’

The strategic use of Rarotonga Māori terms serves to legitimise future seabed mining activities, and to make nodule collection appear like local subsistence activities. Regardless of whether ‘mining’ or ‘gathering’ is a more technically appropriate descriptor, we can understand the strategic use of language as part of the linguistic politics, or the politics of terminology, forming around this nascent frontier industry.

Although the Cook Islands government has said ‘it wants to be at the frontier of the new gold rush’ (Doherty 2019), the official government position stresses the need for an informed decision on the future of seabed mining. Opening Marae Moana for exploration will supposedly provide Cook Islands with the knowledge to understand whether seabed mining can be conducted in manner that is consistent with Marae Moana principles, namely ecologically sustainable use of the natural environment. If this represents a ‘precautionary approach’, not everyone shares this view. There have been calls by some Cook Islanders for a moratorium on seabed exploration and mining. In 2019 former director of Marae Moana argued in favour of 10-year moratorium on seabed mining to allow for research on its environmental impact. In September 2021, the IUCN at the World Conservation Congress put forth Motion 069 calling for ‘protection of deep-ocean ecosystems and

³ Cook Islands Seabed Minerals Authority, public comments on exploration applications, Te Ipukarea Society - Questions and Responses. See: <https://www.sbma.gov.ck/public-comment-submissions-1>

biodiversity through a moratorium on seabed mining.⁴ The vote was overwhelmingly in favour of the motion. A growing number of corporations have also signed a ‘Business Statement Supporting a Moratorium on Deep Seabed Mining’.⁵ These corporations, which include numerous vehicle manufacturers and technology producers, have indicated they will not source minerals and metals from deep sea mining until further studies and research is completed. An expanding list of financial institutions have likewise prohibited or restricted investments in or financing of seabed mining.

While several Pacific nations have supported this moratorium, with Fiji recently calling upon all ocean states to ban seabed mining (Pacifica Environews 2022), the Cook Islands government has defended its support for seabed exploration. Prime Minister Mark Brown has argued they are making an ‘educated gamble’ and would base their decisions ‘on information and knowledge, not on a time frame’ (Blades 2020). The government and the SMA stress that no commitment to seabed mining has been made, and the Prime Minister has stated the government will ‘continue to proceed with caution, taking actions based on the best available science, to sustainably manage our SBM [seabed mineral] resources for the benefit of our people’ (SMA 2022). However, some conservation groups remain concerned about the decision to approve exploration licences fearing that it sets an inevitable pathway to seabed mining.

4. Justice dimensions of seabed exploration and exploitation

In identifying the justice dimensions of exploring and exploiting seabed minerals in Cook Islands two caveats should be stated: seabed mineral exploration has only just been approved, and there are no examples within the Pacific (or elsewhere) of commercial scale seabed mining that can illustrate the full range of risks and impacts of this frontier industry. We are grappling with huge uncertainties. However, we can apply insights from other seabed exploration projects, just as we can apply *some* insights from terrestrial mining activities – as all seabed minerals activities will entail *some* terrestrial dimensions (e.g. governance of wealth, environmental regulation, and decision making processes mostly occur on dry land even if they relate to the oceans).

The recent granting of three exploration licences will provide the first serious test for the nation’s seabed minerals governance regime. We can therefore examine the justice dimensions surrounding events so far, and the likely justice issues that will require attention as exploration activities get underway. From this perspective, the ill-fated Solwara 1 project in Papua New Guinea provides a useful point of comparison. We can also identify potential pressure points and risks that may accompany commercial scale seabed mining activities if Cook Islands decides upon that pathway. The following sections explore these justice dimensions using the framework described at the beginning of this case study.



4.1 Procedural justice

Principal procedural considerations concern the regulatory regime (legislation, regulations, policies and relevant political and technical institutions), and the processes for consultation and consent.

Recent reviews of Cook Islands seabed legislation provide a starting point. Klaas Willaert has compared the domestic laws of Cooks Islands, namely the 2017 Marae Moana Act and the 2019 Seabed Minerals Act, with the international legal framework governing the Area to assess whether they contain equivalent rules, mechanisms and safeguards. While he concludes that ‘the relevant

⁴ See: <https://www.iucncongress2020.org/motion/069>.

⁵ See: <https://www.noseabedmining.org/>.

legislation of the Cook Islands more than matches up to its international counterpart' (Willaert 2021: 424), the strength of these safeguards is still dependent on the capacity and capability of the government institutions responsible for implementing them. In the case of Papua New Guinea, the Mineral Resources Authority consistently struggles to regulate the excesses of the mining industry, where deep asymmetries persist between influential and well-resourced mining companies and a comparatively poorly resourced bureaucracy. Critics have long argued that the Papua New Guinea government and its agencies have been 'captured' by the extractive industries. Cook Islands may well confront similar challenges in the future.

Anthony Kung's (2019) review of the draft Seabed Minerals Bill 2019 provided recommendations to strengthen seabed minerals legislation. Recommendations on 'civic participation' are particularly relevant for consultation and consent processes. The draft Bill contained a requirement for title holders to obtain 'Free Prior and Informed Consent' (FPIC) of marine or coastal users before commencing seabed minerals activities. Recommendations were made to clarify what constitutes FPIC, and what degree of dissent is enough to prevent seabed minerals activities. In the end, the 2019 Seabed Minerals Act removed all reference to FPIC.

This omission opens the potential for a major justice risk in a frontier industry: who decides whether seabed exploitation should take place, how are these decisions made and under what conditions do these processes occur? The question of consent for seabed exploitation has mostly been discussed in relation to the Area, where the common heritage of humanity is at stake (e.g. Jaeckel et al 2016; Zalik 2018). The Solwara 1 project in Papua New Guinea provides a closer comparison for Cook Islands, where these activities would occur within national jurisdiction.

Like Cook Islands, Papua New Guinea's Mining Act does not specify the need for developers or the state to obtain FPIC from affected communities. However, legislative silence has not made the need go away, largely because a coalition of civil society actors now expect the principle of FPIC to be applied at all new mining projects in the Pacific. The main dilemma for the Solwara 1 project was defining who or what constituted an affected community that might grant their free prior and informed consent for the project (Filer and Gabriel 2018). This dilemma partly emerged out of the national policy framework which has created a specific type of negotiation space around terrestrial mining projects which the national government failed to adapt for a new set of circumstances. Under this framework, customary landowners who stand to be affected by a project have certain rights in terms of consultation, consent, compensation and access to benefits. Because government officials maintained that the seabed cannot have any 'landowners' apart from the state itself, this created a great deal of debate about who belongs to the 'community' that should provide consent for the project. The (partial) solution to this dilemma was to create a kind of artificial community known as the 'coastal area of benefit' comprising those local level government ward units most proximate to the project.

Although Cook Islands has designed its policy framework specifically for seabed minerals, similar questions around the issue of consent remain. This question is partly clarified and partly complicated by a unique piece of legislation that recognises the strong connection all Cook Islanders have with their oceanic territory, namely the Marae Moana Act. The Act applies to all Cook Islanders: it 'provides for the establishment, control, care, and development of the marae moana' (S3, 3a), and is designed to 'encourage engagement in the protection and management of the marine environment by interested persons and groups, including...communities' (S3, 2c). It also applies a 'Principle of community participation', whereby 'all stakeholders should participate in the planning and implementation processes...and the shared ownership of responsibility should be promoted and encouraged in the decision-making processes of the marae moana' (S5d). From a

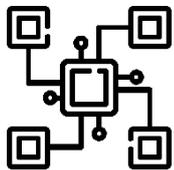
justice perspective, the Marae Moana Act provides the foundation for local communities (however they are defined) and civil society (wherever they may be located) to demand decision-making processes are aligned with the principle of free prior and informed consent (e.g. Aguon and Hunter 2018). How this might be achieved is still a difficult practical and political problem, and this is likely to be a point of contention as seabed minerals activities continue to develop and the stakes increase.

Underscoring this dilemma is the need for information. This is a recurring challenge for the extractive industries, where affected communities are often poorly placed to make informed decisions about prospective projects – to provide their *informed* consent (or informed rejection). The volumes of technical, economic, political, and social data that need to be digested is often overwhelming for government regulators, let alone communities. This issue has been well documented for extractive projects in the Pacific and Australia. This challenge is doubly difficult in the case of seabed mining, where there is a dearth of data on the impacts of seabed extraction. When assessing whether to consent to further seabed minerals activities, Cook Islanders currently have no comparable cases they can consider to better understand what they stand to lose or gain.

The Solwara 1 EIS was critiqued on a number of technical points (e.g. Steiner 2009, 2013), and probably does not constitute the kind of ‘best environmental practice’ the Cook Islands government had in mind when it drafted the 2019 Seabed Minerals Act (see S7, 2f). This underscores the boarder point about the uncertainties and risks of a frontier industry. The Papua New Guinea government long ago adopted a generic approach to Environmental Impact Assessment (EIA) and tried to fit the Solwara 1 project into this framing. As Kung and colleagues have noted, Cook Islands, and the ISA, have also adopted generic approaches to EIA as the primary mechanism for understanding the social and environmental risks and impacts of seabed exploration and exploitation. As a result, substantive standards for social and environmental protections are lacking. These standards need to grapple with as-yet uncertain social, environmental and governance risks of seabed mining. The generality of the regulations likely reflects the current state of knowledge about what types of risks and impacts will accompany seabed mining, and to what extent mitigations are available and/or feasible for regulators to consider crystallising into law (Kung et al. 2021: 8).

The problem is less to do with EIA as a precautionary mechanism, and more the risk of applying EIA methodologies to a frontier industry when there is only limited ‘baseline’ environmental data and no functional precedents to draw upon. In most cases, EIAs for terrestrial mining can draw upon experience and knowledge from projects that are similarly designed and situated in comparable environmental and social contexts. As Kung and co-authors note, neither type of similarity is available for seabed mining in Cook Islands (2021: 8). This places an increased onus on exploration companies to gather environmental data; and if any company is ever awarded a licence for exploitation, then they will need to be prepared to commission and resource environmental studies to help fill knowledge gaps. These are likely to be far more complex and expensive than those typically commissioned for terrestrial mining. However, as we have seen in the terrestrial mining industry, company commissioned EIAs are frequently under scoped and under budgeted. In some cases, ignorance of social and environmental impacts is a deliberate strategy to enable ‘business as usual’ (Lawrence and O’Faircheallaigh 2022). When regulators depend upon the extractive industries to identify environmental and social risks and impacts, it frequently leads to compromised outcomes as corporate commercial imperatives and state economic interests are foregrounded.

The Cook Islands SMA and the National Environment Service (responsible for the Environment Act) will require a much greater level of institutional capacity than what currently exists among its terrestrial counterparts in other Pacific nations where extractive activities occur. Government investment in the SMA has already drawn some criticism by those who think it has been funded at the expense of other government priorities. The practical aspects of EIA for seabed mining are likely to be vastly different than for terrestrial mining, which places another burden of uncertainty on the SMA as it regulates a frontier industry. One issue frequently cited is that the remoteness of seabed mining activities will make it much harder for regulators and other concerned citizens to observe activities and impacts and therefore hold developers (and the state) to account.⁶ However, we often find these same spatial dimensions are mobilised to justify seabed mining. Social and political narratives that construct the deep sea as 'dark', 'remote', 'invisible', or devoid of meaningful life are used to legitimise frontier activities. During a series of community consultation meetings in 2018, Cook Islands Prime Minister reportedly described the animals in the deep sea as the size of *kuntu* or lice (Reeves 2021), possibly as a way of downgrading (largely unknown) ecological risks.



4.2 *Distributive justice*

Distributive justice dimensions largely concern the spread of costs and benefits of exploring and exploiting seabed minerals.

The seabed minerals regulations set out requirements for exploration activities to contribute to the national interest. Exploration activities must entail local engagement, training and business development. The regulations provide the basis for distributing economic benefits and opportunities linked to exploration activities, and the SMA have emphasised the need to ensure that exploration activities provide value to Cook Islanders (not just the companies licenced to explore). Likewise, the regulations require exploration activities to meet the environmental management standards established under the Environmental Act. The SMA and the Cook Islands government have determined that these conditions have been met, and this is the basis upon which licences have been granted. As exploration activities proceed actual distributive justice patterns may become clearer.

Nevertheless, we can point to certain justice elements that will require attention in the future – within environmental and social impact assessments for prospective seabed mining and policies governing these activities. These elements cover and converge around environmental, social, economic, political and cultural issues across different spatial and temporal scales. For example, there is potential for environmental impacts to occur at sea and on land – as seabed mining will still require some terrestrial infrastructure and activities. It may be (theoretically) easier to identify who is impacted by onshore environmental damages. Depending upon the scale and location of the incident there may be greater complexities associated with identifying who is impacted by damages to the marine environment. This complexity relates to the fluidity of the ocean and the common relationship all Cook Islanders have to the Marae Moana area. Similar observations have been made in relation to the Area – as the common heritage of humanity. Significant marine impacts would therefore be experienced in a general way by all Cook Islanders, even though some people or groups may experience these impacts more directly (for example, due to an oil spill occurring closer to one island). The fluidity of the ocean also means transboundary environmental

⁶ However, it is important not to overstate the level of visibility that regulators and other actors have over terrestrial mining activities. In many cases, the impacts of terrestrial mines are 'invisible', as a result of the 'absence' of the state or the industry's reluctance to allow external scrutiny.

impacts are a distinct possibility. This means decisions and actions made in Cook Islands jurisdiction could have far reaching consequences for neighbouring nations. As discussed in the next section, this raises further complexities for restorative justice.

The distribution of economic gains (and losses) from future seabed mining will be the subject of much debate within Cook Islands. Hein et al. (2015) estimated that some 8.9 billion tons of nodules are present in the Cook Islands EEZ area, with a total value of approximately US \$10 trillion. They calculated that for a 'realistic' mining operation with a life of 20 years, collecting 2.5 million tons of nodules annually, the Cook Islands EEZ could support between 18-46 mining operations. Although various social, economic and political constraints would likely prevent a situation where the government permitted this many operations simultaneously, it indicates huge potential for economic development. These type of figures no doubt fuel what some commentators have described as 'ocean mining mania'.

Government revenue would be primarily received through royalties and taxes, while the public would directly benefit through limited employment and business opportunities (meaning only some Cook Islanders would access these benefits). A cost benefit analysis commissioned by the SPC-EU Deep Sea Minerals project (SPC 2016) indicated that a mining operation with a lifespan of 21 years in an area with a high abundance of nodules would generate annually US \$2.4 million in income to Cook Islands workers, US \$1 million from support services and spending, and contribute US \$43.2 million to the GDP (about 15% of the current GDP) (see also Petterson and Tawake 2019: 277-278).

Two scenarios were modelled for managing and distributing revenues. In the first scenario, the government would bank 75% of revenues in a sovereign wealth fund, and spend 25% on health and education services, and infrastructure. In the second scenario, the government would distribute the non-sovereign wealth fund revenues among all Cook Islands residents, who would then spend these funds on goods and services (generating further economic multiplier effects). The second scenario is somewhat closer to the distribution model proposed for the Solwara 1 project in Papua New Guinea, where 20% of royalties from that project would have been directed to the local government ward units in the 'coastal area of benefit', which mirrors the arrangements for terrestrial mining where the landowning community are entitled to receive 20% of royalties collected from these projects (Filer and Gabriel 2018: 398). But we also know from terrestrial projects in Papua New Guinea and elsewhere in the Pacific, that the rapid consumption of very large amounts of cash (however it is distributed) frequently leads to all sorts of social ills and justice issues, many of which are invisible to the state and its policy makers.⁷

Recent research has highlighted the accounting gap in cost-benefit analyses for extractive projects (Owen et al. 2021). It is argued that the localised costs incurred to access mining 'benefits' and 'opportunities' are rarely accounted for. Extractive companies, and governments, routinely present mining enclaves as 'landscapes of pure value', which places a zero value on what communities contribute to the exchange and assumes that communities incur no cost in providing it (2021: 6). In making this point, the Owen and co-authors argue that the costs of benefits to communities be measured in similar terms to the costs incurred by developers.

⁷ Not least among these issues is the potential for all these revenues and funds to encourage rapid in-migration as people of Cook Islands decent (of which there are many) seek to access some of these new benefits. Similarly, Cook Islanders living elsewhere may also pressure their relatives residing in Cook Islands to send them a share of the benefits, in what may become a kind of reverse rural remittances economy.

In a context where there is a lot of attention on the upside value of future seabed mining, and where the social and environmental costs of these activities are shrouded by uncertainty, it is imperative greater attention is given to understanding these costs over the long term.



4.3 Restorative justice

Restorative justice dimensions concern the need for remedy for past, current and future injustices related to seabed minerals activities.

The most obvious justice issues concern remedy for environmental damages. At this point, there are still many uncertainties surrounding the form and scale of potential environmental impacts from seabed mining. This uncertainty creates major challenges for mitigation, but also for understanding what types of remedy pathways would need to be established as part of the governance and regulation of seabed mining activities. There will be a need for access to remedy for justice issues that may occur at the local, national and potentially international (or transboundary) scale.

The terrestrial experience had shown mine affected communities consistently struggle to access to remedy pathways. The UN 'protect, respect, and remedy' framework has identified the responsibility of states to protect their citizen from human rights abuses, and the responsibility of corporations to respect human rights, and the need to ensure that affected communities have access to remedy. However, in practice, access to remedy has remained the weakest pillar in this framework. This is especially the case throughout the Pacific. Cook Islands will need to consider how existing remedy pathways can be strengthened, and what types of additional pathways will be required to account for the range of justice issues that would accompany seabed mining.

Another fundamental restorative dimension relates to environmental rehabilitation. In the case of terrestrial mines, there is a more established knowledge base for land rehabilitation processes. The uncertainties surrounding the environmental effects of seabed mining, including the form and scale of transformation to the seabed, complicate efforts to plan for rehabilitation. Whether it is even possible to rehabilitate disturbances to the seabed remains unknown. These uncertainties will determine the long-term legacies of seabed mining.

Some aspects of the seabed are well understood, including the time scales for nodule accretion. Polymetallic nodules in the Cook Islands EEZ formed over many millions of years. It can be assumed that once these nodules are mined, they will essentially never form again in these areas. Not only is this troubling for rehabilitation processes, but also for remedy.

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