



RESOURCE ROULETTE

HOW DEEP SEA MINING
AND INADEQUATE REGULATORY FRAMEWORKS
IMPERIL THE PACIFIC AND ITS PEOPLES

A REPORT BY BLUE OCEAN LAW AND THE PACIFIC NETWORK ON GLOBALISATION

This report benefitted greatly from the assistance of many people on the ground, including numerous experts and partners across the Pacific. We are especially grateful to all those representatives of government, industry, civil society, academia, think-tanks, customary landowners, and other concerned citizens with whom we met during our case study fieldwork carried out in Tonga, Papua New Guinea, and Fiji, many of whom provided us with helpful insights and legislative and other material on deep sea mining, as well as feedback on the report itself. We would also like to thank our partners at Brot für die Welt (Bread for the World), particularly Ulla Kroog and Francisco Mari, for their invaluable role in conceptualizing and supporting this work.

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1 | EXECUTIVE SUMMARY

Introduction

Deep sea mining (DSM) is an imminent venture in Pacific Island (PI) countries like Papua New Guinea (PNG), Tonga, Fiji, and the Solomon Islands (SI). Despite DSM's experimental nature and a dearth of knowledge about hydrothermal vents and deep sea ecosystems, companies are already prospecting in PI nations' waters with an aim to begin mining as early as 2018. Model legislation being touted around the region focuses more on ensuring a clear licensing regime and conditions favourable to industry than establishing effective safeguards for PI citizens. In particular, there is a general failure to incorporate sufficient environmental protections, as well as the norm of free, prior, and informed consent (FPIC) for indigenous peoples, who are most likely to be impacted by DSM. In the 21st century, and under well-established norms of international law, these omissions represent serious violations of international legal obligations.

This study undertakes a legal and policy analysis of DSM in the Pacific region, providing an overall mapping of the legislative status of DSM in eleven PI nations and additional in-depth case study analyses of Tonga, Papua New Guinea, and Fiji. Incorporating fieldwork carried out over four months, the case studies reflect on governmental capacity to effectively monitor DSM and manage resource revenue, as well as concerns about corruption, negative impacts, and lack of consultation with local communities.

Our findings would tend to encourage PI nations to take a step back and assess the prospect of DSM in their waters from every angle, not only those being

presented by industry, financial institutions, and foreign governments. While understanding and respecting the desire to develop an alternative source of national revenue, we question whether the expected benefits will be significant enough to overcome the challenges inherent in regulating multinational companies (MNCs) operating in vast Exclusive Economic Zones (EEZs) in such a new and untested industry.

Policy Discussion

While DSM is a global proposition, its launching point appears to be the backyard of Pacific Island nations. Yet PI nations and their people are particularly dependent on ocean resources for their livelihoods, and rely on the conservation of the same to ensure their present and future wellbeing and survival. Cultural traditions stretching back millennia and sustainable indigenous resource practices characterize the entire region, whose island nations might aptly be renamed "big ocean states."

Unfortunately, in modern times the Pacific way of life has been threatened by numerous outside forces, including nuclear testing, colonization, climate change, and extractive industry. DSM, heralded by fortune-seeking MNCs and mineral-seeking institutions such as the European Union (EU), financial institutions such as the International Monetary Fund (IMF), and their partners, is being presented as a low-risk venture with high returns for PI nations, many of whom could use a source of independent revenue. This framing ignores several potent realities, the most pertinent of which concerns the risks and consequences of DSM, whose nature is as unknown as the deep seabed and waters where it will take place.

Ignorance of deep ocean conditions has allowed supporters to characterize DSM as low-impact, but even a cursory look at the existing scientific literature establishes the following as likely outcomes of DSM: 1) species extinction and loss of biodiversity; 2) sediment plumes and tailings having the potential to pollute the entire water column; 3) the uptake of heavy metals and toxins by marine animals, including commercial fisheries; 4) the disturbance of marine mammals from constant noise and light in the water; 5) the risk of oil spills and accidents from increased vessel and surface traffic; 6) the destruction of coral reefs through increased acidity of water; 7) the potential for induced volcanism or seismic activity; and 8) increased carbon emissions.

For nations that depend so heavily upon fisheries, ecotourism, and marine resources for their livelihoods, these risks are extreme, and any activity which threatens them should trigger the utmost concern.

Perhaps these risks would nevertheless merit consideration, were DSM really such a lucrative proposition. However, the chances of PI nations seeing substantial revenue from DSM in the near future are low at best. Its experimental nature in this early stage and long timeline mean it will most likely be many years before individual DSM sites are profitable even for their operators. Mining ventures are notoriously high-risk and dependent on market fluctuations; there are numerous examples of high-cost mines throughout the region which fail to produce profit for either their owners or governments (see, e.g., Fiji's bauxite mine, PNG's Hidden Valley and Sinivit gold mines, PNG's Ramu Nickel mine, and the Gold Ridge Mine in the Solomon

Islands), instead producing only environmental contamination, conflict, and other social ills.

Furthermore, resource revenue brings with it the prospects of greater corruption, instability, and economic challenges such as Dutch Disease and heightened vulnerability to external shocks. While it is theoretically possible to manage some of these phenomena through transparent institutions, most small island states simply lack the manpower and resources to do this, despite otherwise good intentions.

DSM is being considered as the provenance of governments and industry, but the aforementioned impacts will be felt by communities—most notably, vulnerable ones, including indigenous groups, women, and children. It is absolutely imperative—and indeed required under international law—that indigenous peoples be not only consulted, but receive adequate and objective information enabling them to either give or withhold their FPIC to any DSM projects which may impact them.

Mapping Findings

Much of the region already has draft or final discrete DSM legislation. Of those who have older terrestrial mining regulatory regimes currently in place (PNG, Solomon Islands, Niue, Samoa, Fiji), at least two countries (PNG, Solomon Islands) are preparing new draft legislation specific to DSM. It appears the SPC-EU Deep Sea Minerals (DSM) Project has assisted all 14 PI countries included here with some aspect of their legislative preparations. The DSM legislation that looks to have been closely influenced, if not directly drafted, by the SPC,

includes that of Tonga, Tuvalu, Vanuatu, Nauru, and the Marshall Islands. Many of these frameworks include sections on sponsorship in the Area, with Nauru being the only country whose DSM legislation consists entirely of regulations toward that end. The Cook Islands and FSM have longer, more technical, regulatory provisions. About half of the legislation surveyed does not include relevant indigenous or human rights provisions, and focuses heavily on licensing regimes, rather than environmental protection. The other half makes cursory reference to FPIC, transboundary harm, or the precautionary approach, but none of these principles are anchored in particularly solid statutory provisions. Enforceability with respect to all draft and final DSM legislation in the region remains a concern, especially with respect to effective monitoring, revenue collection, and capacity.

Case Study Findings

Tonga

Initial DSM exploration licenses were approved by Tonga's previous administration without any consultation with coastal communities or the public at large, much of which remains unaware of DSM and its potential occurrence in Tonga's waters. Although the current administration has made greater efforts to provide the public with information, these consultation measures fall short of FPIC and the requirements of international law. Similarly, Tonga's DSM legislation closely resembles the SPC model framework, and could therefore benefit from stronger provisions on both FPIC and the precautionary principle.

A greater concern with respect to Tonga is the enforceability of legislative provisions and the DSM regulatory regime. Government ministries

such as the Department of Environment appear to be stretched for resources and already functioning at maximum capacity. The ability to not only effectively oversee DSM operations, but to enforce provisions such as the submission of information, the collection of fees, and the review of Environmental Impact Assessments (EIAs) is at issue in Tonga. Monitoring DSM operations, effectively managing resource revenue, forcing industry compliance, and avoiding corruption will all require substantially more personnel and resources than currently exist.

Meanwhile, exploratory mining has already impacted Tonga's fisheries sector, and threatens to further disturb its lucrative deep-water snapper fishery, among others, once drilling gets underway.

Papua New Guinea

Exploratory mining began in PNG without the FPIC of the project-affected indigenous peoples and without a functioning legislative framework to regulate DSM. Recently drafted amendments and DSM policies are an improvement, but are being floated in a governance climate marked by corruption, with the prerogatives of mining operators taking precedence over democratic accountability. Meanwhile islanders in New Ireland and East New Britain have already experienced negative impacts from the exploratory mining and drilling occurring 30 to 50 kilometres from their communities, including reported effects on shark calling and on other fisheries and cultural customs, with resultant impacts on tourism. A 2012 petition of 24,000 signatures and a 2014 petition of 1.2 million members of the Evangelical Lutheran Church in

PNG opposing DSM and Nautilus Inc.'s Solwara 1 project remain unheeded.

Additionally, the PNG government is not only unlikely to profit from what even Nautilus admits is an experimental venture with potentially low returns, but has taken out a loan and further increased its substantial sovereign debt in order to pay Nautilus \$118 million for PNG's 15% equity stake in the project. As commentators we interviewed noted, PNG now appears to be paying Nautilus's bills. With the exception of payments made to individual decision-makers along the way, it is not a reach to project that the citizens of PNG—particularly those located nearest Solwara 1—will receive little to no benefit from this project in their waters, while suffering harms caused by pollution and marine destruction. The degree of corruption, the murky and unenforceable regulatory environment, and the absence of accountability make PNG an ideal arena for unscrupulous operators and high-risk ventures.

Fiji

DSM is in the early stages of exploration in Fiji. Like Tonga and PNG, DSM exploration has preceded the development of actual DSM legislation, which exists only in the form of draft laws and policies still under review. These half-developed policies encourage operators to self-monitor, purport to allow pilot or trial mining in the exploration phase, and possess minimal provisions on consultation.

Despite having more policies related to customary land and fishing rights than its neighbours, Fiji's legal and regulatory system raise serious concerns with regards to enforcement and effective

monitoring. Its terrestrial mining regime has been plagued with oversight and capacity problems. Land mining operations have created conflict among local communities, in addition to causing serious environmental and human health impacts which have yet to be remedied. The government has prioritized mining sector growth at the expense of community needs and environmental protection, a trade-off which appears ill-conceived in light of the unprofitability of Fiji's onshore mines. As in PNG, corruption and lack of transparency, as well as an aura of authoritarianism, characterize the governance climate. These features of Fiji's onshore mining regime do not bode well for the prospects of a precautionary approach to DSM in Fiji.

Recommendations and Conclusion

When undertaking the creation of a regulatory framework for a new and untested industry such as DSM, the importance of ensuring the comprehensiveness and enforceability of such a framework cannot be overstated. Such processes take time. We recommend that countries take at least several years and ideally a decade or more to allow scientific exploration and significantly more consultation regarding the development of comprehensive and effective regulatory frameworks in line with international law. At the very least, FPIC and stronger environmental safeguards should be incorporated into all legislative and regulatory frameworks. PI nations that decide to undertake DSM at this early stage should be prepared for the challenges inherent in combating and containing marine pollution, collecting and managing resource revenue, and overseeing large MNCs in their waters. Alternatively, PI countries might elect to adopt the cautious stances of other countries (e.g., New Zealand, Australia, Mexico, and Namibia) with

respect to DSM, including requiring stringent EIAs and the highest protective measures from mining companies, as well as enacting moratoria and temporary bans on DSM until adequate scientific research and effective, enforceable regulation can be executed.

Regulatory and Legislative Recommendations

- Incorporate provisions on meaningful consultation with project-affected communities and FPIC for indigenous peoples into all DSM administrative, legislative, and regulatory instruments
- Operationalize the precautionary principle in the body of legislative text by laying out steps for companies and governments to follow, including:
 - Establishing stronger, prior EIA provisions—for instance, EIAs should not minimize risks in order to ensure project approval (i.e. “greenwashing”); they should also be subject to strong independent review by third-party experts, and the results of such reviews should be made publicly available
 - Allowing the option of bans or moratoria on mining in cases where the precautionary principle precludes action due to lack of adequate knowledge about risks and impacts
- Develop concrete provisions enshrining the avoidance of transboundary harm in legislative and regulatory mechanisms, including strengthening environmental protections and containing potential impacts, and in cases where this may not be possible, providing appropriate remedy
- Establish an effective grievance mechanism to facilitate resolution of project-affected

communities’ concerns and environmental and social impacts resulting from the mining project

Policy Recommendations

- Conduct public outreach and society-wide consultation on DSM, with a focus on indigenous and coastal communities, as well as women, youth, and other marginalized/vulnerable groups
- Create open dialogue forums and venues where individuals and the public can express views and engage in local and national conversations on DSM
- Allow for an independent capacity assessment to determine the government’s actual enforcement and monitoring abilities
- Create plans or designate funding to improve capacity and make provisions for training where existing institutions are insufficient
- Commission an independent assessment of transparency mechanisms and the ability to manage resource revenue openly and responsibly
- Consult with scientists and marine experts regarding the seabed and allocate or otherwise secure resources for further study and assessment of deep sea ecosystems
- Consult with conservation groups and environmental experts regarding national marine heritage sites and consider designating areas for preservation and protection from DSM and other exploitation; provided that such protected areas, as well as the process of their creation, are harmonized with the rights of indigenous peoples

2 | METHODOLOGY

This research study utilizes a number of cross-disciplinary methodologies, combining legal and policy analysis with fieldwork and mapping. Our policy analysis relies on both primary source material provided by our partners and interviewees, as well as secondary source material taken from a variety of reliable academic and news media outlets, including relevant scientific and political literature. We met with a variety of stakeholders during country visits, aiming to engage with a diverse range of actors, including government and church representatives, members of non-governmental, international and community-based organisations, and representatives from women and youth groups, fishing cooperatives, and industry.

3 | INTRODUCTION

As the march towards experimental mining of the deep seabed continues, ushered along by demand for minerals among existing and emerging markets, the world's eye has invariably turned towards the Pacific Ocean and the islands under whose jurisdiction many potential mine sites fall. Responding to the pressure and promise of revenue from both foreign governments and multinational companies (MNCs), most Pacific Island (PI) countries have drafted legislation intended to regulate this new extractive industry. The majority of this legislation has been undertaken without consultation or input from civil society, local communities, or, notably, the indigenous groups most likely to be impacted by deep sea mining (DSM) activities. In the 21st century, and under well-established norms of international law, the failure to

consult with and to include provisions for the free, prior, and informed consent (FPIC) of indigenous and other project-affected groups represents not just a conspicuous oversight but a serious violation of international legal obligations.

The following study is an in-depth examination of the legislation and respective community contexts of three PI countries—Fiji, PNG, and Tonga—for which DSM is an existing or imminent venture. These countries represent some of the diversity of the PI region and have been selected for different reasons. They each possess legislation relevant to DSM in various forms, from discrete legislative instruments based on the model framework released by the Secretariat of the Pacific Community (SPC),¹ to out-dated onshore mining legislation. The range of existing legislation is representative of that which exists in the region as a whole, which is briefly examined in a mapping and highlights section. This mapping aims to appraise the status of DSM legislation in the PI region, highlighting systemic omissions as well as best practices exemplified in certain legislative frameworks.

This analysis assesses compliance with established international environmental law tenets such as the precautionary principle and the avoidance of transboundary harm, as well as the norm of FPIC derived from human and indigenous rights law. It makes several recommendations regarding concrete ways to strengthen and amend existing frameworks so that they are brought in line with states' legal obligations, thereby avoiding liability and, ideally, potential rights violations.

The assessment begins with a summation of several broader policy issues implicated by DSM, which remain acutely under-examined in the dominant discourse surrounding this new and unprecedented industry and thereby warrant further consideration.

4 | POLICY DISCUSSION

This section provides some background and policy insights into the realities of DSM as they are likely to transpire in the PI region, as well as the various players and interests involved.

4.1 Big Ocean States

Pacific Islanders are world-renowned for their ocean voyaging abilities and traditions, which encompass sustainable resource practices across wide swathes of ocean separating islands in the Pacific.² Long before the codification of states' Exclusive Economic Zones (EEZs) in instruments like the United Nations Convention on the Law of the Sea (UNCLOS), Pacific Islanders could chart their genealogy based on ocean voyage routes, which extended, sometimes, for thousands of miles.³ Suffice it to say Pacific Islander wellbeing never derived solely from the land but equally and perhaps in greater part from the ocean, which, along with all of its resources, was treated as a single, sacred unit, integral to life and culture in the region.⁴ This belief, along with regular travel between distant islands, was crucial to the protection and conservation of ocean resources that characterized pre-colonization Pacific states.⁵

The traditional and frequently indigenous-held view of the ocean as a contiguous environment

to be protected inevitably conflicts with the modern regime of demarcated nation-state boundaries, and more particularly with the regimented and somewhat arbitrary allocation of marine territory through the Continental Shelf, EEZ, Area, and High Seas classifications.⁶ Nevertheless, Pacific Island states retain control over vast bands of the Pacific Ocean through these demarcations. Such control should not be lightly handed over or ceded to external interests—especially given the difficulties faced by small island states in regulating and overseeing marine spaces once an external project is approved [see *Governance Challenges* below]—regardless of whether the site in debate is two kilometres or two hundred kilometres offshore, five meters or 1500 meters below sea level, or even in the Area.

4.2 DSM Overview

DSM represents an attempt by mining companies and governments to extract valuable metals and minerals⁷ from areas surrounding hydrothermal vents⁸ on the deep seabed, at depths ranging from between 400 to 6000 meters below sea level. There are three main types of known DSM deposits: 1) seafloor massive sulphides (SMS), found beneath deep sea hydrothermal vents along the 67,000 km of volcanically active mid-ocean ridges and back arc basins at 1,500 m - 5,000 m depth, 2) polymetallic manganese nodules (MNs), potato-sized metal nodules found on the abyssal plain at 4,000 m - 6,000 m depth, and 3) cobalt-rich ferromanganese crusts (CRCs), found on summits and flanks of seamounts at 400 m - 4,000 m depth.⁹ Some of these mineral deposit sites are located close to coastal communities while others are further offshore.¹⁰ Governments are responsible for the oversight of any potential mining activity

occurring within their EEZs, and can act as potential sponsors of MNCs and other governments for prospective mining projects in the Area.¹¹

Exploration and the development of technology for these ventures has been underway since the late 1970s, but has only become commercially viable within the last decade due to surging demand for minerals used in consumer electronics such as smartphones and laptops.¹² As the value of many metals has risen and the expenses of deep sea exploration have dropped, a number of multinational mining companies have begun to invest in deep sea mining technology with the support of interested governments and parties, such as the European Union (EU).

4.3 European Union Interest

The EU is highly dependent on imports of “high-tech” metals such as cobalt, platinum, rare earths, and titanium, which are increasingly essential to the development of technologically sophisticated products.¹³ Under its 2008 “Raw Materials Initiative,” the EU seeks to avoid supply crises such as the one that occurred in 2000 when a boom in mobile phones led to a sudden demand for tantalum.¹⁴ The Raw Materials Initiative aims to diversify access to raw materials beyond the EU’s traditional, and sometimes unreliable, suppliers in Africa, China, and South America.¹⁵

Given its high supply risk, the EU has created programs under the Initiative geared towards developing DSM technology.¹⁶ It has also partnered with the SPC through the provision of funding and personnel to promote legislation facilitating DSM throughout the PI region as part of the SPC-EU Deep Sea

Minerals (DSM) Project.¹⁷ From 2011 to 2012, the SPC-EU DSM Project conducted a series of national-level workshops and consultations aimed to develop national DSM laws, resulting in the creation of DSM national legislation across the region, much of which has been drafted by the SPC or is based on its model framework.

EU companies are already contracting in areas beyond national jurisdiction, while French and German industries with support from their governments recently signed a Memorandum of Understanding on joint collaboration on DSM in French overseas territories in the Pacific.¹⁸ The EU’s push to fast-track DSM legal frameworks in the Pacific is likely being driven by competing rising demand for mineral products among emerging economies such as Brazil, Russia, India, and China.¹⁹

4.4 SPC’s Position

The SPC-EU DSM Project is funded by the EU.²⁰ Given the EU’s interest in obtaining access to Pacific Islands’ mineral resources, documents and communications from the SPC-EU DSM Project should be treated with a certain amount of circumspection. Both the SPC and the EU are arguably interested—not neutral—parties with respect to DSM. There are ties between DSM industry players and staff at the SPC-EU DSM Project, some of whom have been accused of putting the interests of industry before those of Pacific peoples.²¹ The SPC-EU DSM framework (also called the SPC-EU Regional Legislative and Regulatory Framework, or RLRFF), while containing provisions related to environmental protections, also greatly minimizes the risks and uncertainties of DSM in what ultimately serves as a green light to industry.²² The

exclusion of CSOs and indigenous groups' voices from the consultations surrounding the RLRf—despite stated intentions to support and encourage the participation of “local communities that can potentially be impacted by deep-sea mining activities”²³—have produced a framework which is insufficient to protect the interests of those most likely to be affected by DSM.

The promotion of DSM (and the marginalization of CSO and indigenous groups' concerns) is more evident still in the SPC's commission of a cost-benefit analysis (CBA) of prospective DSM in PNG, the Cook Islands, and the Marshall Islands, from Australian consultants Cardno, Inc. The Cardno CBA adopts an industry-centric approach to DSM, which ignores existing realities (e.g. corruption levels and existing loan/equity structures in PNG) in its analysis, as well as documented impacts of exploratory DSM. Given the admitted uncertainties and paucity of knowledge about the deep seabed [see *Risks, Uncertainties, and Impacts of DSM* below], the very notion of a cost-benefit analysis is premature (i.e., the costs are still largely unknown and unknowable until further research can be done).²⁴ The widespread distribution and promotion of this CBA among PI countries is contributing to a general attitude that DSM is a potential goldmine waiting to be stripped, rather than a minefield of probable environmental, human, and regulatory burdens.

4.5 Risks, Uncertainties, and Impacts of DSM

DSM is a high-expense, high-risk venture.²⁵ In many cases, depending on the fluctuating price of minerals globally, it may be commercially unviable, and states that seek bids and rely on

potential revenue from DSM may be disappointed as companies make their cost calculations for the next decades.²⁶

More important, however, are the risks that DSM poses to marine environments, and the likelihood that DSM will impose very real costs on the citizens of PI states. These costs should not by any means be underestimated. When operating under a recognized blanket of uncertainty where all parties concerned do not even know what they do not know,²⁷ the standards of not just the precautionary principle but basic prudence apply. In such a situation, fast tracking DSM legislation comes at the expense of time to conduct comprehensive scientific research. This type of approach prizes expediency over decreasing the uncertainty gap. Time to conduct additional research and bridge those uncertainties will lessen the chance of potentially devastating accidents and destruction to the natural environment, improve the prospects of mitigation, and reduce the chances of harm to the people who depend upon those environments for their subsistence and livelihood—i.e. most indigenous Pacific Islanders.

It is not our purpose here to go into a detailed explanation of the dangers posed by DSM, but the following is a short summary of both recognized and likely potential effects:

1. Destruction and extinction of species, including numerous undiscovered and unidentified animals²⁸
2. Disturbance of the abyssal plain for an area much greater than the mining area²⁹
3. Sustained disturbance of the water column³⁰

4. The release of sediment plumes containing heavy metals and other toxins³¹
5. The uptake by and contamination of fish and other larger pelagic animals from toxic substances³²
6. Disturbance of large marine animals, including whales, dolphins, and sharks, and other organisms from sustained light and noise from mining vessels³³
7. The potential for oil and other toxic spills by the increased frequency of ship passages, especially in and out of harbours and to shore for re-supplies, as well as the increased risk of invasive species from ballast water³⁴
8. Destruction of coral reefs through increases in acidity of water³⁵
9. Potential for induced volcanism/seismic activity and increased carbon emissions³⁶

Promoters of DSM have attempted to minimize these risks, arguing that damage can be limited to very specific sites along the deep seabed, that deep seabed communities can be regenerated elsewhere, and that widespread contamination and accidents are unlikely to occur. Given our lack of knowledge about deep oceanic environments, including basic baseline data,³⁷ such statements should be treated more as wishful thinking than as established claims.

Despite denials to the contrary, communities in both PNG and Tonga are already reporting impacts resulting from exploratory DSM. In PNG, villagers have reported an increase in the frequency of dead fish washing up on shore, including a number of unusual deep sea creatures hot to the touch, as well as excessively dusty and murky waters. They also suspect that the noise of exploratory drilling and sampling may have chased sharks from

their traditional grounds in the Bismarck Sea, impacting the customary indigenous practice of shark calling [see *PNG Case Study* below].

In Tonga, prospecting for DSM has increased the number of large vessels operating in Tonga's waters, including in and around prime fishing spots. According to Tongan fishermen, the presence of these large vessels has disturbed fish populations and forced fishing boats to make long detours to find fish in less crowded waters.³⁸ This has already impacted fishermen, who feel like they are being relegated to an increasingly narrow area of the EEZ. Such impacts have occurred merely from DSM prospecting, which, in Tonga, has yet to proceed to exploratory drilling.³⁹ These documented effects are just some examples of the upheavals portended by seabed mining, with their attendant rights implications and impacts on culture, fishing, and tourism.

Supporters of DSM have argued that mining will take place far out in the EEZ, away from coastal waters. As a result, the argument goes, coastal communities need neither 1) be consulted nor 2) worry about being affected by DSM. These claims are misleading in more ways than one. First, there are multiple prospective mine sites located within 30 miles of coastal communities, sometimes situated at close distances between multiple islands and villages. Second, even if mines are located further out to sea, mining vessels will still need to restock and make frequent trips to coastal ports, significantly increasing the risk of spills and other accidents.⁴⁰ Third, the ocean is a contiguous environment where it is much more difficult to contain pollution and stop its spread than on land. Mining that occurs far

out to sea would still produce plumes that could pollute the water column; large, transient pelagic species that swim through polluted waters may be caught elsewhere and represent a continual risk to human health in terms of consumption and to fisheries in terms of plummeting demand for hazardous stock.⁴¹ In the case of polluting migratory species, a deep sea mine in one country's EEZ may negatively affect fisheries in *other countries*, leading to transboundary harm and potential damages claims [for more on this principle, see *Annex: International Law Discussion*]. Moreover, under human and indigenous rights law [see *id.*], the norm of FPIC is operational in all areas where the *impact* is likely to be felt by indigenous populations, not only the location where the activity in question is occurring.

In short, the risks of DSM are substantial. New Zealand and Australia, with their significant regulatory and monitoring capacity, as well as terrestrial mining experience, have both recognized this. In 2012, Australia's Northern Territory Government implemented a three-year moratorium on DSM in recognition of the rights of indigenous people and their traditional practices, which was recently renewed for another three years.⁴² In 2015, New Zealand's Environmental Protection Authority refused to grant two DSM exploitation license applications on the basis of the precautionary principle, the level of risk involved, and the failure of the operator to fully account for potential impacts.⁴³ Namibia has also established a ban on seabed phosphate mining.⁴⁴ Similarly, Mexico's federal environmental authority recently denied a license for an offshore phosphate mining venture, determining that the project would destroy seabed-dwelling organisms on which

its population of endangered loggerhead turtles feed.⁴⁵ The approach of these states, which is much more consistent with the precautionary principle, and their careful valuation of projected benefits versus impacts in an atmosphere of pronounced uncertainty, should be closely examined by Pacific states.

Given the difficulties inherent in managing resource revenue [see *Governance Challenges* below], the lack of capacity for oversight and regulation, and the aforementioned environmental and health risks, DSM should be treated as a high-risk venture with likely far-ranging impacts on ocean resources, other industries like fisheries and tourism, and human rights. As the World Bank notes, DSM "is of a completely different nature, magnitude and severity than any other deep sea engineering activities carried out so far."⁴⁶

4.6 Governance Challenges: The "Resource Curse," Revenue Management, and Corruption

DSM represents a potential revenue source to PI governments, some of whom are looking for new and alternative Foreign Direct Investment (FDI), and almost all of whom are committed to creating growth, jobs, and economic opportunities for their citizens. That said, PI governments should treat with caution the prospect of enrichment via DSM, and closely examine past and current examples of onshore mining in the region, as well as the track record of extractive industries globally and with respect to smaller, developing nations.⁴⁷ Even where extractive projects are carried out with care and respect towards the local environment, peoples, and indigenous groups,⁴⁸ resource revenue brings with it the likelihood of mismanagement, increased

opacity and governance hurdles,⁴⁹ and potential economic downslides.⁵⁰

In particular, where a sharp influx of revenue from natural resources is injected into a local economy, inflationary problems (the so-called Dutch Disease) may result.⁵¹ Other common features of resource dependency and the resource curse include the following: 1) extractive industries generate few jobs; 2) the incidence of violent conflict is higher in resource-dependent countries; 3) institutions and governance suffer in resource-dependent countries; 4) resource windfalls increase corruption, especially in non-democratic regimes; 5) resource extraction can lead to negative environmental and health impacts; 6) devastating socio-economic effects; and 7) disparate impacts on women, children, and indigenous peoples.⁵² It requires considerable institutional capacity and regulatory oversight to properly distribute and manage resource revenue in order to prevent such effects.⁵³ Indeed, even countries like Norway,⁵⁴ with its ideal resource management scheme, have experienced economic slow-downs and development obstacles as a result of resource revenue.⁵⁵

Some countries around the region have made admirable attempts to establish best practices sovereign wealth funds in line with Norway's model.⁵⁶ However, complex revenue management schemes are challenging to put into practice and require significant manpower and regulatory capacity. With a median population size of approximately 100,000,⁵⁷ PI nations and their governments are small and understandably limited in terms of the number of personnel they can devote to any one agency or area.⁵⁸ Thus, DSM Authorities are being

assembled from ministers and representatives of other departments, who already have full dockets and workloads [see below *Case Study Analysis*]. Manpower shortages and capacity limitations pose problems with respect to effective DSM management. Sometimes political will and the best intentions are not enough to overcome simple manpower and resource requirements to effectively carry out tasks such as the amount of reporting required by initiatives like the Extractive Industries Transparency Initiative (EITI).⁵⁹

Other island countries with comparable population sizes have attempted, in good faith, to join such initiatives, and have been forced to leave after capacity constraints prevented their full compliance with the requirements of the EITI.⁶⁰ Revenue collection and the enforcement of tax and royalty schemes pose another challenge; getting large companies to pay fees, taxes, and royalties has proven difficult [see *Tonga and PNG Case Studies* below]. It is easy to envision a situation where a PI nation is left with a disaster in its waters, little or no promised revenue, and no mechanism for remedy or for forcing the responsible party to account for its actions [this has already been seen in the PI region with respect to onshore mining; see below]. Many PI nations have only a few patrol boats and lack the air or marine power to survey their waters effectively, depending upon external powers to do so. Countries examined in this report are hard-pressed to have more than one, often untrained, government observer accompanying DSM missions. Under-reporting for DSM, including the amount and grade of minerals obtained, could be a problem, as it has been in the fisheries sector, particularly where offloading and

transfers occurs at sea. In short, it will be difficult for small island states to effectively oversee DSM in their waters, especially if these initiatives extend to multiple operations scattered throughout a country's EEZ.

Another concern, and one that was voiced strongly to us during interviews, is the potential for corruption in the DSM process. Combating corruption is an ongoing challenge in many PI countries, and many stakeholders and onlookers, including government officials, fear that it will be all too easy for bribery to weaken—or all but obliterate—regulatory efforts.⁶¹ With resource-strapped government departments, outright or illegal corruption will not even be required to produce influence, as regulators may be swayed by simple promises of additional equipment or funded training programs for their staff. When it comes to operating in small island countries, MNCs will often provide the funding and personnel to self-regulate their own activities—with all the concordant conflicts of interest.

Unfortunately, there are already well-known examples of mismanagement and corruption with respect to onshore mining in the region, with disastrous results for PI citizens and indigenous peoples. The effects of phosphate mining and the sharp influx of revenue it produced in Nauru is one such stark example.⁶² In Kiribati, phosphate rock-mining from 1900 to 1979 stripped away 90% of the surface of Banaba Island, rendering it uninhabitable and forcing the relocation of the island's people.⁶³ The Gold Ridge Mine in the Solomon Islands was sold by its Australian owner to a local company, along with all of its liabilities, for \$100; only after it assessed the mine did the local company realize the environmental clean-

up costs could reach \$40 million.⁶⁴ In addition to being at least two years away from full operations, heavy rains have now caused the mine's toxic tailings dam to overflow, spilling tens of millions of litres of contaminated water containing arsenic, cyanide, and other heavy metals into local streams and villages.⁶⁵

In Samoa, sand and gravel mining have “significantly contributed to environment degradation and coastal erosion in some areas...reduc[ing] the resilience of natural coastlines to storm events and in some cases caus[ing] significant damage to coastal infrastructures.”⁶⁶ Tonga has also suffered similar effects from an inadequately regulated sand mining operation.⁶⁷ And the state of mining in PNG is well known, where numerous ill-managed mines with no effective environmental and labour standards has led to civil conflict, degraded ecosystems, and endemic corruption.⁶⁸

DSM supporters maintain that offshore mining carries fewer risks and disturbances than onshore mining; however, in terms of the resource curse and Dutch Disease it is likely to be comparable. DSM will also be more difficult to monitor than onshore mining due to the challenges inherent in policing thousands of square kilometres of ocean, versus relatively focused land mine sites. Of note is the observation that DSM is *not replacing* terrestrial mines, which are managed by different companies and interests—thus, even if it is true that DSM may have fewer impacts than onshore mining, there will still be higher net negative impacts if DSM is allowed to proceed. Finally, the dependence of PI nations on their ocean resources, as opposed to land

resources, particularly in the areas of fisheries and tourism, requires an additional level of scrutiny when assessing the risks of DSM against the future development of the region. Countries may still make the decision to garner revenue and short-term cash influxes, but this approach should be considered with its attendant risks and mitigation strategies, rather than framed as a beneficial windfall with minimal side effects. At best, resource revenue is difficult to manage, while historically it has often harmed citizens, contributed to instability, and precluded other opportunities for investment at the expense of long-term sustainable development.

4.7 Effects of Extractive Industry Activity on Indigenous Peoples and FPIC

The history of the relationship between extractive industries and indigenous peoples has been a problematic one. Time and time again extraction of natural resources has centred on indigenous peoples' lands and territories, to their detriment. Historically, the limited protections afforded indigenous peoples by their national governments have resulted in grave and substantial human rights violations, including development-induced displacement, the degradation and pollution of indigenous land and health, and atrocities extending to torture, ethnic cleansing, and crimes against humanity.⁶⁹

We recognize that every PI country treats indigeneity differently. Some countries see themselves as Pacific islanders or nationals first, while other countries with complex histories of multiculturalism and migration encounter controversy with the use of indigenous classifications. However, under the common UN understanding of indigenous

peoples,⁷⁰ at least some communities—and in many cases, a majority of citizens—in every PI nation qualify as indigenous, and are extended protections as such. Indeed, the Pacific is perhaps unique among the world's regions in having so many countries where the majority can be considered indigenous at large. In this sense, PI nations are accorded both unique privileges and special duties of care under international law. Any major development or extractive process will look different in almost every PI nation than other countries where indigenous populations constitute a small minority. In many cases, community and nation-wide consultations will be required, while FPIC will almost certainly be triggered in any extractive venture taking place in Pacific waters or lands. Rather than lament such exigencies, governments can rest assured knowing that they have carried out consultation and consent procedures in line with international best practice, not to mention national traditions built on communal decision-making.

We would advise governments to reconcile their domestic legal frameworks and systems of resource ownership with the international definition of indigenous peoples. In order to comply with their international legal obligations, governments would be wise to consider extending outward from the norm of FPIC to the general practice of consultation with and obtaining consent from local, coastal, and other potential project-affected communities. This will help to avoid future problems and community conflict through pre-emptive public awareness on the issue of DSM. [For more on the legal underpinnings of the norms of FPIC and relevant

environmental principles, see *Annex: International Law Discussion*].

5 | COUNTRY MAPPING

Status of DSM Legislation in 14 Pacific Island Countries

Country	DSM Legislation	Current Status
Cook Islands	Yes	2009 legislation, entered into force in 2013; currently operational
Fiji	Yes	Drafted in 2006; currently in consultations
FSM	Yes	2014 draft regulations awaiting approval
Kiribati	Yes	Not publicly available at this time
Marshalls	Yes	2014 draft legislation under review
Nauru	Yes	Enacted in 2015
Niue	Yes	Draft DSM bill with Crown Law
Palau	No	2015 marine sanctuary law may apply to DSM, would prevent DSM in 80% of Palau's EEZ
PNG	Yes	Draft DSM policy currently under review (1991 onshore mining law still in effect)
Samoa	No	Older resource management legislation in place
Solomon Is.	Yes	Draft DSM policy currently in consultations; old onshore mining law in effect
Tonga	Yes	Enacted 2014, currently operational; supplemental regulatory legislation currently being drafted
Tuvalu	Yes	Enacted in 2014
Vanuatu	Yes	Drafted in 2014, currently under review

Overview of Regional DSM Legislation

5.1 COOK ISLANDS

The Cook Islands (CI) is an archipelago of 15 small islands between New Zealand and Hawaii, with a population of approximately 13,000 people.⁷¹ It is a semi-independent self-governing country in free association with New Zealand, whose citizens hold New Zealand citizenship as well as status as Cook Islands nationals. Although its total land area is only 240 square kilometres (92.7 sq mi), the CI's EEZ covers 1,800,000 square kilometres (690,000 sq mi) of ocean.⁷² Tourism is the main industry in the

Cook Islands with about 100,000 visitors each year, followed by fisheries, offshore banking, pearls, and agricultural and marine exports.⁷³

A recent survey estimates that the Cook Islands' EEZ contains 10 billion tonnes of polymetallic manganese nodules (MNs), located at depths of 3,000-6,000 metres.⁷⁴ The Cook Islands has been actively pursuing the development of a DSM industry, requesting assistance with regards to a comprehensive regulatory framework and sovereign wealth fund from the SPC-EU DSM project, as well as from the IMF

and other advisers.⁷⁵ CI has an established Seabed Minerals Authority, reporting to the Minister of Finance and comprising a Seabed Minerals Commissioner, a Legal Advisor, and a Natural Resources Advisor (funded by the Commonwealth Secretariat).⁷⁶ SPC has agreed to provide an expert to conduct MN resource assessment in the CI through an SPC-CI cost-sharing arrangement.⁷⁷ Although a recent tender for exploration received no bids,⁷⁸ negotiations are reportedly ongoing with foreign governments and MNCs regarding both exploration in the Cook Islands' EEZ and CI sponsorship of DSM in the Clarion-Clipperton Fracture Zone (CCFZ).⁷⁹

With respect to legislation, the CI Parliament passed the Seabed Minerals Act in 2009, making it the world's first national legislation dedicated to regulating seabed minerals activities.⁸⁰ The Seabed Minerals Authority was established by the CI Government Cabinet on June 26, 2012, and the Seabed Minerals Act 2009 officially entered into force on March 1, 2013.⁸¹

Although the CI legislation has been held up as a model framework for the region, it is heavily technical and focuses more on the details of the regulatory regime than on enshrining relevant environmental and human rights protections into national law. It contains no mentions of the precautionary principle, the avoidance of transboundary harm, indigenous rights, or human rights. There is very little on consultations with affected communities or the public at large. In this sense, it lacks sufficient protections and is almost entirely an administrative document related to the establishing of a mining regime. A separate

instrument, the 2015 Seabed Minerals (Prospecting and Exploration) Regulations, contains a short section requiring DSM companies to apply the precautionary approach; however, it provides no instructions on how to do this in the context of DSM in the Cook Island's EEZ.⁸² These regulations also have a short section on Community Consultation, whereby "the Authority *may* consult with the community in relation to any Application for a Title"⁸³ (emphasis added). This mirrors the language in the original 2009 Seabed Act in which certain environmental provisions are also made optional with respect to the granting of prospecting permits.⁸⁴

5.2 THE FEDERATED STATES OF MICRONESIA

The Federated States of Micronesia (FSM) is an independent sovereign nation in free association with the U.S., comprised of four states (Yap, Chuuk, Pohnpei, and Kosrae), around 607 islands, and more than 2,600,000 square kilometres (1,000,000 sq mi) of the Pacific Ocean, constituting the 14th largest EEZ in the world.⁸⁵ FSM's waters contain cobalt-rich crusts (CRCs) along with other potential minerals. In 2007, FSM issued a foreign investment permit to Neptune Minerals Public Limited Company authorizing them to "undertake meaningful commercial exploration leading to definition and appraisal of Seabed Massive Sulphide deposits... in the area of Yap Arc and Back-Arc structures located north and west of the Yap Island Group."⁸⁶

In 2012, a resolution of the FSM Congress urged "the president to review a mining proposal and authorize a foreign company to engage in a seabed mining survey pending applicable legislation that regulates seabed mining, and to

propose new or amendments to existing national legislation that explicitly provides for the procedures, fees and regulatory mechanisms over mining activities in the exclusive economic zone of the Federated States of Micronesia.”⁸⁷ At the time, FSM had no explicit DSM framework and directed Public Law No. 17-57—requiring an environmental impact assessment on development activities occurring in the EEZ—to manage all DSM exploration, with the intention of developing a DSM regulatory framework before the commencement of actual mining.⁸⁸ The SPC approached FSM regarding seabed legislation and held a DSM consultation workshop there on July 3, 2012,⁸⁹ offering to help develop an exploration contract agreement in the absence of legal instruments.⁹⁰

FSM currently has draft DSM legislation. The legislation is similar in length to Cook Islands, containing many detailed regulatory and licensing provisions and purporting to establish some form of a sovereign wealth fund for DSM revenue. In addition to recognizing FSM’s duties to apply the precautionary approach and prevent transboundary harm, it contains one provision similar to that of the SPC-EU DSM framework recommending FPIC “if marine or coastal users likely to be directly adversely affected by the Seabed Mineral Activities are identified by the NSRA or the Title Holder at any time, including through the Application and Environmental and Social Impact Assessment processes.”⁹¹ There is no mention of indigenous peoples.

5.3 KIRIBATI

Located in the central Pacific, the Republic of Kiribati comprises 33 atolls and reef islands and one raised coral island, dispersed over 3.5

million square kilometres (1,351,000 sq mi), the largest EEZ in the region. Kiribati has CRCs as well as MNs.⁹² Kiribati signed a contract with the International Seabed Authority (ISA) through its state-owned company Marawa Research Exploration, joining Nauru and Tonga as countries that have already sponsored exploration in international waters.⁹³ The contract aims to gain an exploration license for MNs in the CCFZ, and was prepared and funded by DeepGreen Resources Inc., another DSM company, in return for an off-take agreement.⁹⁴

SPC held a stakeholder consultation workshop in Kiribati in 2011, and is doing a literature review of existing laws in Kiribati in preparation for DSM policy and legislation development.⁹⁵ A cross-Ministerial National Offshore Management Committee was also established to progress DSM matters.⁹⁶ As of this writing, Kiribati purportedly has draft DSM legislation, but it is not publicly available or accessible. A Policy Statement delivered by President Taneti Maamau to Parliament in April 2016 indicates Kiribati’s commitment to exploring DSM to expand its revenue base and as a means of easing the pressure of over-harvesting on the fisheries sector.⁹⁷

5.4 THE MARSHALL ISLANDS

Located in the northern Pacific, the Republic of the Marshall Islands (RMI) is a sovereign country with a population of around 50,000 people, spread out over 29 coral atolls comprising 1,156 individual islands and islets. The RMI has CRCs along seamounts in its waters⁹⁸ and was included in the recent Cardno CBA. The SPC held a DSM consultation workshop there in 2012, followed by a visit from

their legal advisor in 2013,⁹⁹ and is preparing a cabinet paper for the establishment of a National Offshore Minerals Committee.¹⁰⁰ In April 2015, the RMI, with the assistance of the SPC, commenced public consultations with different stakeholders on DSM, with a particular emphasis on the draft national DSM policy and seabed management bill, which was submitted to the RMI cabinet in June 2015.¹⁰¹

The National Seabed Management Bill of 2014 is still in draft form, awaiting approval by the legislature. It has been reviewed and edited by the former legal advisor of the SPC, and contains content and language similar to other DSM legislation in the region and the SPC-EU DSM framework. On the shorter side (64 pages), the Bill's provisions for consent, consultation, and FPIC are limited and consigned to the same language as those in other PI legislations. Likewise, the precautionary principle receives cursory treatment, and the duty to avoid transboundary harm is not included in the legislation, despite a section on sponsorship in the Area. It is primarily a technical document designed to establish a licensing regime and institutions for DSM, similar to the SPC-EU DSM framework.

5.5 NAURU

Located in the South Pacific, Nauru has 9,488 residents in a 21 square kilometre (8.1 sq mi) area. Nauru has a long history of land mining, having engaged in extensive phosphate strip mining beginning in the 1960s, which seriously harmed the island's environment, devastating about 80 percent of Nauru's land area, and killing an estimated 40 percent of marine life in the country's EEZ through silt and phosphate

runoff.¹⁰² Income from phosphate mining created a temporary largesse among Nauru's citizens, which has since been almost completely depleted due to excessive spending and mismanagement of the Nauru Phosphate Royalties Trust.¹⁰³

Nauru's EEZ seabed mineral resources are reportedly limited, in consequence of which the country has sought exploration licenses in international waters in the CCFZ, the first PI state to have secured such licenses from the ISA (its application was also prepared and funded by DeepGreen).¹⁰⁴ Nauru subsequently requested the ISA for an advisory opinion on state parties' obligations and liability for seabed mining from the Seabed Disputes Chamber of the International Tribunal for the Law of the Sea.¹⁰⁵

On October 23, 2015, the government of Nauru passed its International Seabed Minerals Bill to regulate its engagement in seabed mineral activities undertaken within the Area.¹⁰⁶ The Nauru Justice Department worked closely with the SPC-EU DSM Project, obtaining legal and technical assistance, including drafting instructions, in the lead up to the enactment of the Act.¹⁰⁷ The Act establishes a Nauru Seabed Minerals Authority to monitor and manage Nauru's involvement with seabed mineral activities, as well as a Seabed Minerals Fund to manage DSM revenue. There is mention of the precautionary principle; however this is immediately preceded by a promise not to impose burdensome regulations on Sponsored Parties.¹⁰⁸ There is also an attempt to indemnify Nauru against any liability incurred by a Sponsored Party, a provision that may not actually prevent Nauru from being held liable for transboundary harm [see transboundary

harm and liability discussion in *Annex: International Law Discussion*].¹⁰⁹ There is no mention of FPIC or indigenous peoples.

5.6 NIUE

Niue is a self-governing state in free association with New Zealand, with a population of around 1,190. It has both MNs and CRCs in its waters.¹¹⁰ The SPC held a stakeholder consultation workshop on DSM there in April 2012.¹¹¹ Unlike many PI countries, as of 2012, Niue's EEZ has been surveyed only once for deep sea minerals, so there is limited information about Niue's DSM potential.¹¹² Niue has a 1999 Niue Minerals and Aggregates Policy, which makes little mention of offshore work or seabed minerals, as well as five items of legislation currently in force that are relevant to DSM but not DSM-specific.¹¹³ This includes the 1977 Mining Act, which requires the establishment of a Mining Office and Mining Inspectors; however, this Office has never been established and, in fact, the SPC notes that its establishment "seems unfeasible given Niue's limited resources."¹¹⁴ Instead, terrestrial exploration licenses are issued on an *ad hoc* basis, with "a lack of clarity within Niue with regards to what the process is and [who] has responsibility."¹¹⁵ A 1970 Amendment Act states: "The Niue Assembly may, by Act of the Niue Assembly, make provision for prospecting for and mining minerals (including minerals in the seabed or subsoil of the continental shelf of Niue), for the vesting of any minerals or classes of minerals in the Crown, and for any other like or related purposes."¹¹⁶

A draft Bill for the national regulation of DSM mining, and licensing Regulations, prepared by the SPC, are with Niue's Crown Law Office.¹¹⁷

5.7 PALAU

Located in the northern Pacific, Palau's EEZ is nearly 630,000 square kilometres (243,200 square miles)—roughly the size of France¹¹⁸—and contains both CRCs and SMS deposits, which have not yet been extensively sampled or explored.¹¹⁹ Palau has been offered assistance with the development of DSM legislation by the SPC-EU DSM Project, which hosted a National Stakeholder Consultation Workshop on DSM in Palau in 2012.¹²⁰ The SPC has suggested that Palau review and incorporate DSM into its 2011 Petroleum Act, which governs and administers oil and gas resources in Palau's EEZ.¹²¹

According to the Legal Counsel of Palau's House of Delegates, the Palau National Marine Sanctuary Act 2015, which protects eighty percent of Palau's EEZ from exploitation, could theoretically apply to seabed mining. Specifically, Section 149 of the Act establishes the Palau National Marine Sanctuary as a no-take zone from which the "fishing and the extraction, disturbance, destruction, removal or alternation of any Sanctuary resource is expressly prohibited."¹²² The definition of resource includes "any organism or organic matter which is or has been living,"¹²³ and assumedly would extend to the living organisms and organic matter on the deep seabed. However, there is no specific mention of DSM, inorganic matter is not covered by the law's plain terms, and it is ambiguous at this time whether Palau would allow DSM in the 20% of its EEZ not covered by the Act, or whether the country would, now or in the future, consider sponsorship of DSM in the Area.

5.8 SAMOA

Samoa has one of the smaller EEZs in the region, surrounded by Tokelau, American Samoa, Tonga, and Wallis and Futuna. Compared to other jurisdictions, the average grade of Samoa's deep sea minerals (primarily CRCs) appears to be relatively low.¹²⁴ To date, Samoa does not have stand-alone legislation on seabed minerals or DSM. It has older legislation from the 1990s establishing some frameworks for general resource management: these include the 1989 Lands, Surveys and Environment Act, the 1993 Land For Foreign Purposes Act, and the 2008 Water Resources Management Act (the only document of the three to provide limited mention of the precautionary principle); none of the three frameworks incorporate sufficiently specific human rights or environmental protections, and nothing specific to DSM. Samoa has had problems stopping illegal beach and lagoon sand mining, including reports of local council members accepting bribes to allow mining to proceed, which has resulted in coastal erosion, pollution, and other adverse impacts on coastal communities.¹²⁵

The government of Samoa has hosted regional workshops on DSM policy and legislative drafting, organized and funded by the SPC. For now, it appears to be taking a wait-and-see approach to DSM.

5.9 SOLOMON ISLANDS

The Solomon Islands (SI) is a sovereign country consisting of six major islands and over 900 smaller islands lying to the east of PNG and northwest of Vanuatu in Oceania. It has a population of around 600,000, and an EEZ of 1,340,000 square kilometres.¹²⁶ SI's SMS deposits have received interest from both

Nautilus Minerals Inc. and Australian company Bluewater Metals.¹²⁷ The government has issued at least 90 exploration licenses to these companies, who have been prospecting in SI's waters for the last several years.¹²⁸ SPC held Stakeholder Consultation Workshop proceedings in SI in 2012, and has reviewed and provided comments on SI's draft DSM policy.¹²⁹

In addition to older onshore mining legislation, SI now has a draft DSM policy which is being assessed in Parliament. The policy recognizes that the "existing land-based regulatory and legal regime in place is insufficient and inadequate in providing effective and proper management of the country's DSM resources and deep seabed mining activities"¹³⁰ and recommends either amending SI's *Mines and Minerals Act* or developing dedicated DSM legislation.¹³¹ Like other policies based on SPC's recommendations, the SI DSM Policy includes mention of the precautionary approach, transboundary harm, and international law, but its consultation provisions do not include the FPIC of indigenous peoples and are insufficient to meet current norms of international law. It simultaneously violates the precautionary approach in the Policy by anticipating, without sufficient evidence, "that the onland and social impacts of deep seabed mining in the country will be minimal."¹³² It does have several provisions for inclusive stakeholder consultations, which should be expanded to meet the standards of FPIC.

5.10 TUVALU

Tuvalu is a Polynesian island nation located midway between Hawaii and Australia, comprised of three reef islands and six atolls, with a population of around 10,000. Tuvalu has

both MNs and CRCs in its waters; it has expressed interest in sponsoring DSM activity in the Area and has met with one DSM company.¹³³ With technical assistance from the SPC, which held a consultation workshop there in 2012,¹³⁴ Tuvalu passed its Seabed Minerals Act in 2014, becoming the fourth PI country to enact specific legislation for DSM activities, after the Cook Islands, Fiji, and Tonga.¹³⁵ Under the Act, coastal communities must be consulted before granting approval for mining projects within Tuvalu's waters, including any mining project Tuvalu sponsors in international waters. Tuvalu's legislation appears to be modelled closely after the SPC-EU DSM framework, and includes the familiar provisions on the precautionary approach, one mention of transboundary harm, as well as the one provision related to FPIC; the document likewise excludes mention of indigenous peoples. There are also some unusual elements, such as an Advisory Council to assist the minerals authority, which will include some non-public officials, including those representing women's groups and coastal communities.¹³⁶ More provisions of this sort, as well as expanding consultation clauses to include FPIC, will help to bolster Tuvalu's legislative protections.

5.11 VANUATU

Vanuatu is an independent island nation of some 82 islands located in the South Pacific, with a population of around 270,000. Past studies of Vanuatu's waters revealed the presence of SMS deposits within its EEZ.¹³⁷ Between 2009 and 2013, the government issued 145 licenses for offshore mining exploration and prospecting, including to Nautilus, Bismarck Mining Corp., and Bluewater Metals, without any public consultation.¹³⁸ Vanuatu is currently

conducting a more thorough consultation process with stakeholders around the country, including local chiefs, and has introduced initiatives related to FPIC and indigenous consultation, although it is not yet clear exactly how or if this will apply to DSM.¹³⁹

In 2014, Vanuatu's Ministry of Lands prepared a draft Policy on DSM with advice from the SPC-EU DSM Project.¹⁴⁰ SPC is also providing technical and financial support to the government of Vanuatu to conduct consultations with stakeholders; it has provided assistance to Vanuatu since its inception in 2011, including a 2012 National DSM Stakeholder Workshop.¹⁴¹ There are currently 154 underwater exploration licenses in Vanuatu.¹⁴²

Vanuatu's draft DSM policy contains language highlighting the importance of consultation with local peoples and an environmentally and socially responsible management scheme, as well as some recognition of the rights of indigenous peoples. However, much as its consultative practice stands apart from the rest of the region, the Policy, in a section most likely drawn from SPC terminology, also minimizes the risks of DSM, in violation of the stated need to abide by the precautionary principle. Specifically, it states that operations will occur "far offshore," and that on-land impacts, if any, will be "minimal" if not outright "negligible,"¹⁴³ while also conflating the general public of Vanuatu with impacted indigenous peoples. There is also no clear requirement for or delineation of FPIC.

Conclusions: Mapping

In general, much of the region already has draft or final discrete DSM legislation. Of those who

have older terrestrial mining regulatory regimes currently in place (PNG, Solomon Islands, Niue, Samoa, Fiji), at least two countries (PNG, Solomon Islands) are preparing new draft legislation specific to DSM. It appears the SPC has assisted all PI countries included in this report with some aspect of their legislative preparations, consistently holding workshops and offering support. The DSM legislation that appears to have been closely influenced, if not directly drafted, by the SPC, includes that of Tonga, Tuvalu, Vanuatu, Nauru, and the Marshall Islands. Many of these frameworks include sections on sponsorship in the Area, with Nauru being the only country whose DSM legislation consists entirely of regulations toward that end. The Cook Islands and FSM have longer, more technical and detailed regulatory legislation. There are few distinctions in terms of tailored protections or environmental standards based on the different types of DSM deposits. About half of the legislation surveyed makes cursory reference to FPIC, transboundary harm, or the precautionary approach, but none of these principles are anchored in particularly solid operative statutory provisions. Significant reworking and amending is called for in order to bring DSM legislation across the region in conformity with international law and best practices.

6 | CASE STUDY ANALYSIS

6.1 TONGA

6.1.1 Overview

Just west of the International Date Line lies the island Kingdom of Tonga. Tonga is comprised

of four island groupings of 176 individual islands, 40 of which are inhabited, scattered over approximately 700,000 square kilometres of ocean constituting 7% of the world's coral reefs and 6% of the world's sea mountains.¹⁴⁴ The only Pacific nation never to have been colonized by a foreign power, Tonga is the last remaining Polynesian monarchy. From 2008 to 2010, it began a transition to a parliamentary democracy; the current Prime Minister Akilis Pohiva is considered the first democratically elected head of government. Tonga's total population is around 106,000.¹⁴⁵

6.1.2 Status of DSM in Tonga

Regionally, Tonga is near the forefront of the DSM frontier, behind only PNG. There are currently three companies—Nautilus Minerals, Korea Institute of Ocean Science and Technology (KIOST), and Blue Water Metals—operating in Tonga, which have already obtained between 7 to 25 DSM prospecting licenses each.¹⁴⁶ At least one of those companies—Nautilus—has been exploring Tonga's waters since 2008.¹⁴⁷ Tongan waters contain SMS at depths ranging from 600 to 2000 meters below the surface. According to the Ministry of Lands and Natural Resources, around one-fifth of Tongan waters have been licensed for DSM exploration.¹⁴⁸ The previous administration offered exploration licenses for free, excepting a nominal application fee; the current administration charges a yearly rental fee for prospecting based on area.¹⁴⁹ As Tongan law requires that foreign companies be incorporated domestically, mining companies have local offices and subsidiaries based in the capital, Nuku'alofa.¹⁵⁰

According to company representatives, Nautilus is currently somewhere between the fifth and sixth stages of a seven-part DSM exploration process; the last steps are the most difficult and capital-intensive and involve actual drilling, which has not yet occurred in Tonga's waters, but which is expected to begin this year (2016).¹⁵¹ Nautilus has found 19 promising prospecting sites in its licensed exploration areas, and will probably drill in all of them, at different times.¹⁵² Eight of these sites are located in the vicinity of the North East Lau Basin near the Niua group (Tonga's northernmost group of islands) while the other eleven are around the Valu Fa Ridge near Tongatapu.¹⁵³ No EIAs have been required by the government for exploration.¹⁵⁴ The date for actual mining will depend on the quality and grade of minerals uncovered once drilling begins.¹⁵⁵ Nautilus already has a contract in place with a Chinese company for all processing and refining of minerals.¹⁵⁶ The company has provided some scholarships, amounting to around AUD\$600 per year per student for vocational studies meant to train future DSM workers, and has also provided some equipment (a computer, etc.) to government ministries.¹⁵⁷ Tonga is already sponsoring Nautilus through its local subsidiary, Tonga Offshore Minerals Limited (TOML), in the Area (specifically, the CCFZ).¹⁵⁸ The other companies currently exploring Tonga's waters are less publicly accessible and transparent with their activities than Nautilus, but have also indicated their intentions to proceed with mining in Tonga's EEZ once the exploration phase is completed.¹⁵⁹

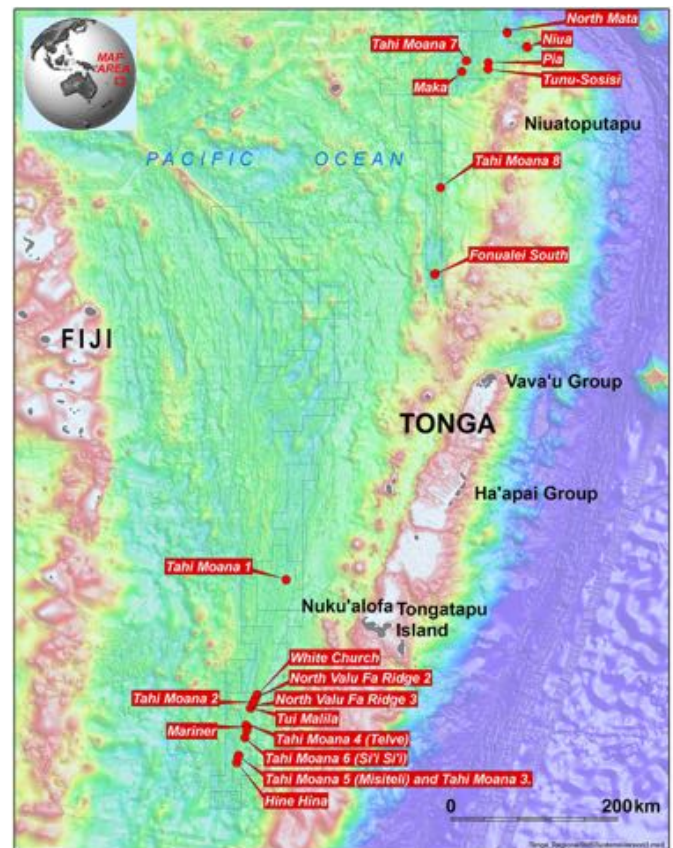


Figure 1: Nautilus's prospective DSM sites in Tonga's EEZ

6.1.3 Legislative Context

In August 2014, the previous administration of Tonga passed the Seabed Minerals Act into law. Prior to the law's passage, the government permitted companies to explore without a legislative framework.¹⁶⁰ The 2014 Seabed Minerals Act is a regulatory framework which expresses the major aims and guidelines surrounding DSM. A separate, more detailed law implementing the framework and elaborating procedures relating to fees, forms, and regulations is currently being drafted, and is expected to be finalized sometime in early 2017.¹⁶¹

The 2014 Seabed Minerals Act is based on the SPC-EU DSM framework. According to

Tongan government officials and CSOs, SPC-EU officials and lawyers worked closely with Tonga, providing funding as well as actual draft legislation based on the SPC-EU DSM framework, which Tonga then adapted.¹⁶² In particular, provisions on consultation were shortened and removed from the draft framework, based on the notion that all resources in the Kingdom are vested in the Crown, and thus neither consultation nor consent from affected communities is necessary for extractive projects.¹⁶³ There is some feeling among the public that some members of parliament (MPs) did not closely read the 2014 Seabed Minerals Act before passing it into law.¹⁶⁴

6.1.4 Consultations

According to some local civil society, media, and government officials, no consultations were held with the public, CSOs, or even other government ministries until after the 2014 legislation had already been enacted.¹⁶⁵ A survey undertaken by the Tupou Tertiary Institute and involving 69 villages indicates that, as of 2015, 92% of Tongans were completely or mostly unaware of the issue of DSM, or the possibility of DSM taking place in Tongan waters.¹⁶⁶ The survey further finds that 72% expressed doubt that, if DSM were to happen, the government of Tonga could effectively regulate it.¹⁶⁷ There is a general perception that the DSM process is being rushed as a consequence of pressure from mining companies, the SPC, and those within Tonga seeking an alternative revenue source to build infrastructure and/or reduce dependence on donor budget support.¹⁶⁸

The current government has conducted significantly more consultation with respect to

the new legislation (also drafted by SPC) and DSM, engaging with other ministries (Fisheries, Environment, and Tourism), and making efforts to provide information to the public; in particular it has provided information via television and radio broadcasts, at least some of which has reached the outer islands.¹⁶⁹ These efforts have mainly focused on awareness raising and promoting a public dialogue; there has been no attempt to obtain any form of consent from coastal, indigenous, or other affected communities such as local fishermen. Nautilus has also held several public information sessions, including press conferences, providing its annual report and other information to media; there are few reports of KIOST and Blue Water Metals communicating their activities to the public.¹⁷⁰

Consultations with CSOs have occurred mainly on Tonga'tapu, and are usually conducted in English, with limited or no translation into Tongan.¹⁷¹ According to the Tupou Tertiary Institute, other CSOs, and media outlets, communications regarding DSM are usually directed toward a set of pre-selected organizations and resemble the messaging provided by mining companies, which focuses on technical descriptions of DSM and its benefits, with little discussion of potential impacts on fisheries or local communities.¹⁷²

6.1.5 Regulatory and Capacity Challenges: EIAs, Monitoring, and Collection of Fees

CSOs, media, fishermen, and government ministries all mentioned the potential for corruption in the DSM process, which there is little institutional capacity to regulate.¹⁷³ Local CSOs are quite concerned about Tonga's ability to effectively manage resource revenue and regulate DSM in the EEZ.¹⁷⁴ In the words of

one commentator, “Tonga is a small country, with limited infrastructure and few people; how are we to oversee multibillion dollar companies with all of their resources?”¹⁷⁵ Another NGO expressed concern over the ability of companies to pay for equipment for the government, which could serve as a form of influence, in addition to more direct forms of bribery.¹⁷⁶ According to the Civil Society Forum of Tonga, Tonga’s cultural context makes reporting corruption difficult because of the existence of family ties and the tight communal nature of social interactions.¹⁷⁷ The Chairman of the Tonga Fishermen’s Association believes that it will be nearly impossible to police DSM operations, and that the threat of bribery with respect to regulators is very real.¹⁷⁸

Commentators point to the fact that Tonga has no significant history of mining or experience managing resource revenue of this sort.¹⁷⁹ The only mining to take place in Tonga was a sand mining operation carried out over the past decade by a local private company; even this small-scale operation, which purportedly went through an EIA approval process, was insufficiently regulated, resulting in damage to local ecosystems and communities.¹⁸⁰ Instead of remaining in its licensed sand mining area, the company reportedly took sand illicitly from multiple points along occupied coastal shorelines, leading to noticeable sea level rise, land erosion, reef damage, and resultant impacts on locals and fishermen in affected areas.¹⁸¹

Some CSOs believe many supporters of DSM envision an easy windfall and hold unrealistic ambitions regarding the feasibility of propositions such as building a local refinery to process minerals and other infrastructure-heavy

endeavours.¹⁸² They express concern regarding Tonga’s capacity to carry out or regulate the EIA process, indicating that this process is also open to corruption and that a lack of resources will lead to the company essentially doing the EIA themselves.¹⁸³

Tonga’s 2015 Income Tax (Amendment) Act establishes a 3% royalty rate on seabed mining, as well as a 25% income tax rate on mining companies—a measure that the mining companies purportedly fought hard to preclude.¹⁸⁴ As yet, there is no separate Authority to manage DSM, which will likely be overseen by existing Ministries (most likely the Ministry of Lands and Natural Resources).¹⁸⁵ There are also plans to establish a Sovereign Wealth Fund, based on Timor-Leste’s oil management fund, which will be managed by the Ministry of Finance, with a high threshold for the release of DSM funds for government use.¹⁸⁶

With respect to the EIA process, current EIA legislation does not yet cover DSM, but it is likely that the Ministry of Environment, Energy, Climate Change, Disaster Management, Meteorology, Information and Communication will review EIAs according to the following process: the mining company will pay for the EIA directly and hire a consultant of its choosing (accredited by the Ministry) to carry it out.¹⁸⁷ Once the EIA is submitted, three people within the Department will review it and the EIA will follow the process set forth by the 2003 Environment Impact Assessment Act, including a period of public consultation and consultation with other government industries. Currently, the Department reviews EIAs for around seven to ten major projects annually;¹⁸⁸ it

has limited capacity to review more than this, and access to only one in-house lawyer shared among six other departments falling under the Ministry.¹⁸⁹ According to representatives of the Environment Department, there is no enforcement mechanism to collect the required 1% administrative fee of the total capital cost of all major projects going through the EIA process—a fee meant to fund monitoring efforts by the Department.¹⁹⁰ Companies rarely pay the fee, preferring to be penalized a mere TOP\$500 (~USD\$224) for non-payment.¹⁹¹ To date there have been no prosecutions for non-payment, resulting in severe underfunding of monitoring efforts.¹⁹²

The difficulty in enforcing collection of this fee is disconcerting when one considers what similar difficulties might arise in collecting the much more significant royalties and income taxes envisioned for DSM. If a company were to default, or refuse to pay the mandated percentages, Tonga might not have the capacity to force the company to pay or the resources to engage international arbitration or other judicial enforcement mechanisms.

Currently, Tonga has three patrol boats working as part of the Pacific Maritime Surveillance partnership; it depends primarily on the New Zealand and Australian air forces for ocean surveillance.¹⁹³ One Tongan government observer is sent out on mining vessels in the exploration phase; this practice will continue during actual mining.¹⁹⁴ According to the Geology Department of the Ministry of Lands and Natural Resources, companies have been reluctant to provide detailed information to the government regarding the grade of minerals, the specific location of mine sites, and ocean floor

imaging, despite legislative requirements to do so.¹⁹⁵ There are concerns that companies may not share valuable genetic and biodiversity data as well, and that it will be difficult to force them to do so, or to centralize data-gathering in a way useful to scientists and Pacific communities.¹⁹⁶

6.1.6 Concerns about Impacts

In addition to the general concern regarding the potential for corruption and mismanagement of DSM funds, there is a waning of enthusiasm for DSM among the public as a result of growing concerns about climate change and any project which could potentially further harm the environment.¹⁹⁷

Tongan women's groups in particular are concerned that the negative impacts of DSM will be disproportionately felt by vulnerable people—especially women and children, who tend to shoulder the greatest impacts in the case of disasters or environmental harms.¹⁹⁸

Tongan fishermen are also extremely concerned about DSM in Tonga. They report that mining companies and the government have avoided any serious engagement or consultation with them, only contacting them in March 2016.¹⁹⁹ There have been efforts to demarcate Tonga's waters into reserved areas for tourism (e.g. designated whale-watching areas), boat passageways, mining, and fishing, but fishermen have resisted pressure to plot their fishing areas and suffer any further restrictions within the EEZ.²⁰⁰ The existing DSM exploration licenses cover traditional fishing grounds, and have already disturbed both commercial and local fishing operations simply from the effects of increased numbers of large vessels in the water; these vessels have reportedly changed fish

patterns, forcing fishermen to make large detours to find new fishing grounds, creating additional burdens on an already stressed industry.²⁰¹

Moreover, according to the Head of the Tonga Fishermen's Association, some of the prospective mining may occur at shallower depths of 600 to 900 meters, affecting prime fishing areas for snapper, one of Tonga's large commercial fisheries.²⁰² Along with other valuable deep-water fisheries, snapper populations show an affinity for the organisms and sulphurous water located near or above the hydrothermal vents, and regularly swim at depths of 100 to 500 meters and near seamounts.²⁰³ Deep sea fishing drops lines at depths of 1000 meters and more, and other valuable fisheries occupying depths of 500 to 1200 meters could be directly impacted by exploratory drilling.²⁰⁴ The Head of the Fishermen's Association states that fish will move to other waters and other countries' EEZs as a result of even minor disturbances, and that the effects on Tonga's growing fisheries—a substantial contributor to Tonga's economy—could be disastrous, especially if tailings or plumes are dispersed by strong deep water currents or storm systems and taken up by wildlife.²⁰⁵ Subsistence fishing and cultural practices could likewise be affected; like New Irelanders in PNG, Tongans also have a cultural practice of shark calling, which may be similarly disrupted if large-scale mining is allowed to proceed.²⁰⁶

6.1.7 Legislative Analysis

As earlier mentioned, Tonga's 2014 Seabed Minerals Act (SMA), passed by the Tongan Legislature on July 23, 2013, was enacted on

August 20, 2014. The legislation was drafted by the SPC and subsequently modified by Tongan authorities without consultation with the public. Overall, the SMA is one of the shorter DSM frameworks (66 pages); it emphasizes general principles and relegates more detailed administrative regulatory provisions to separate, subsequent legislation. In contrast to other countries in the region, Tonga's SMA does emphasize the precautionary principle and the importance of environmental protections; however, it is lacking in sufficiently developed and strong protections for indigenous and coastal communities, and recognition of the potential harms of DSM and the need for provisions on remedies.

Another concern is the enforceability of the legislation, as numerous provisions of the SMA appear to be impractical to implement in the Tongan context, while others are already being disregarded. This is likely due to discrepancies between SPC's draft text and the reality for Tongan policymakers on the ground. For example, the legislation calls for the establishment of a separate Tonga Seabed Minerals Authority, with Minister, CEO, and staff, and is followed by twenty cumbersome administrative and regulatory functions relative to DSM to be carried out by this separate Authority.²⁰⁷ In reality, Tonga lacks the personnel and resources to establish a separate Seabed Minerals Authority, and has decided to split some of these functions among existing Ministries, with the Ministry of Lands and Natural Resources taking the lead on DSM, the Environment Department heading up the EIA process, and Revenue and Tax Departments in charge of collecting royalties and taxes, respectively.²⁰⁸ The numerous provisions in the

SMA incorporating best international practice are likewise laudable, but remain potentially impossible to implement in reality due to capacity constraints.

This is not to say that it is not worthwhile to continue to strengthen the legislation by adding amendments bolstering human and environmental protections. Strengthening the legislation is an important signalling step to both industry and the public, in addition to being required in order to bring the SMA further into compliance with international law.

FPIC/Human Rights Provisions

Tonga's legislation does make at least one mention of FPIC, although not directly in relation to indigenous peoples:

(l) if marine or coastal users likely to be adversely affected by the Seabed Mineral Activities are identified by the Authority or the Title Holder at any time, including through the Application and Environmental Impact Assessment processes, obtain free and prior informed consent, including by way of compensation, from those persons prior to commencing the Seabed Mineral Activities.²⁰⁹

While the inclusion of FPIC is commendable, this provision needs to be significantly expanded in accordance with indigenous rights law, and in order to lay the groundwork for its enforcement. In its current form, the SMA relies upon the Authority or company to identify those likely to be adversely affected; however, communities themselves should be able to self-identify as potentially affected users, and should be given the space to demonstrate how DSM may negatively affect them. Regardless of whether

seabed minerals are considered technically vested in the Crown, international law requires that significant consultation and FPIC with respect to indigenous people takes place in advance of any major extractive project such as DSM.²¹⁰ Section 39, "Title Holders' Duties," should also be amended to require Title Holders to seek FPIC from self-identified communities.

Environmental Law Provisions

The act begins by recognizing the Kingdom's duties to, among others:

- (a) protect and preserve the Marine Environment and rare or fragile ecosystems and habitats;
- (b) prevent, reduce and control pollution from seabed activities, or caused by ships or by dumping of waste and other matter at sea;
- (c) prevent trans-boundary harm;
- (d) conserve biodiversity;
- (e) apply the Precautionary Approach;
- (f) employ best environmental practice;
- (g) conduct prior Environmental Impact Assessment of activities likely to cause Serious Harm to the Marine Environment²¹¹

Although we applaud the central positioning of environmental protection with respect to the legislation, section 2(2)(g) regarding EIAs is modelled after the SPC-EU DSM framework, and needs to be amended to require *prior* EIAs for any large-scale project in Tonga's waters, not just those likely to cause harm, much less serious harm, to the environment. EIAs, under current legislation, are also conducted by companies themselves; there should be provisions for conducting independent EIAs, for the government to select and appropriate funding for hiring a contractor to do the EIA, or, at the

least, for independent reviews of the EIA to be conducted. Given the impacts already being reported from exploratory mining, we recommend EIAs be required for exploration as well. Similarly, Section 62(e), “Terms of License,” stating that, “the Licence may require an Environmental Impact Assessment or other studies to be conducted and reported upon by the Licensee before particular Seabed Mineral Activities can commence,” should be amended to state “the License requires.” EIAs for DSM are not optional.

Section 38, “Adherence to laws and rules,” mentions primarily domestic sources of law, and should be amended to include UNCLOS, UNDRIP, and other relevant international instruments, or at least a reference to mandatory adherence to international law in accordance with Tonga’s international legal obligations (Section 39 should make specific reference to international law as well).

Section 39(c), “Title Holders’ Duties,” states that the Title Holder shall, “if the Authority advises in writing that it considers there are threats of serious and irreversible damage to the Marine Environment or threats to human health in the Kingdom, apply the Precautionary Approach.” The Authority should not have to advise in writing that there may be a threat of harm for Title Holders to apply the precautionary approach; Title Holders should simply be required to always apply the precautionary approach in accordance with international law. Furthermore, this wording is vague—it would be helpful to flesh out exactly what Title Holders are required to do to comply with the precautionary principle—extending so far as to suspend operations indefinitely in the

case of suspected imminent or actual harm to the environment.

UNCLOS/ISA

The SMA reiterates Tonga’s international obligations under the UNCLOS in Section 3, Section 5(c) “Objects of this Act,” again in Section 8 “Jurisdiction,” and in other provisions meant to ensure conformity with UNCLOS.²¹² Similarly, the SMA recognizes the Rules of the ISA (Section 8(b)(ii-vi)) and requires Sponsored Parties to adhere to its provisions throughout the framework. More references to UNCLOS, particularly its provisions regarding preventing, reducing, and controlling pollution of the marine environment, should be included in sections recognizing the obligations of Title Holders and Prospectors. There are also numerous references to conformity with the rules of the ISA.

Consultations

Section 57, “Licence Decision-Making-Public Consultation,” provides that:

“The Authority, upon satisfactory receipt of an Application for a Mining Licence, shall ... provide -

- (a) timely and appropriately comprehensive information about that Application to the public of Tonga in adherence to prescribed procedures or in any other way the Authority sees fit, particularly any groups who may be affected by the proposed Activities contained within that Licence Application; and
- (b) an opportunity for members of the public or interest groups representing the public to provide information that will be taken into account by the Authority in taking a decision

under section 50 of this Act in relation to that Application.”

We recommend that this section be amended to include FPIC provisions for potential affected communities, as well as a designated and sufficient period of time for the public, indigenous, and other affected groups to comment upon communicated information. Both the license applicant and the government should be required to undertake consultations and seek FPIC from relevant communities. This also applies to Marine Scientific Research (MSR) where there is a risk of adverse impact or disturbance to local communities.

Transparency, Access, Public Monitoring

In general, the transparency components of the SMA could be improved. Section 15, “Information Order,” requires the Authority to obtain the consent of the mining company before disclosing information, a court order for the disclosure, and requires that the information does not relate to a variety of the company’s affairs or trade secrets—enough restrictions to pose a significant barrier to both government and public access to potentially important information regarding activities in Tonga’s waters. Section 119, “Information-handling,” similarly restricts data about DSM more than is necessary to protect companies’ interests.

The SMA also includes a section prohibiting public officials from acquiring title rights (Section 116), as well as requiring disclosures of interest (Section 117), in an attempt to alleviate conflicts of interest and assumedly avenues for corruption. Given the concerns expressed by our interviewees, it may be worth adding some additional regulations regarding transfers of

equipment and “gift” type items to government ministries and/or officials.

Section 19, “Monitoring,” is a short paragraph stating the Authority’s duties to monitor and verify mining companies’ compliance with the Act. Assumedly, this section will be fleshed out significantly in the new implementing regulations currently being drafted. Section 22(2) “Inspectors’ Powers,” states “[a]n Inspector shall take all reasonable steps to avoid expending excessive time on a Title Holders’ vessel or platform at-sea.” We recommend this provision be deleted, as the importance of monitoring and regulating DSM may require substantial amounts of time on board DSM vessels. Similarly, the language in the following provision, Section 22(3), stating “[a] Title Holder and its officers and agents shall make best endeavours to co-operate with the reasonable requests and exercise of powers by an Inspector” should be strengthened by deleting “make best endeavours to.” In general, penalties for those obstructing DSM appear disproportionate compared to those for breaches of the act by Title Holders.²¹³

EEZ DSM versus Area DSM and Related Liability Clauses

The SMA allows for prospecting and mining within the Kingdom’s EEZ or Continental Shelf by licensed individuals (Part 5, Section 40; Part 6, Section 49). Mining on the continental shelf would be close to shore and could have great impacts on local communities; the importance of FPIC in this instance would be paramount.

Requirements for sponsorship in the Area are similar but less developed compared to the

provisions for domestic DSM; the consultation provision, for instance, is simplified as follows: “The Authority may provide opportunity for members of the public or interest groups representing the public to provide information be taken into account by the Authority in taking a decision under subsection (1).”²¹⁴ There seem to be fewer environmental and human rights considerations included in the sponsorship section of the SMA. This may be something the government of Tonga should take under advisement, as activities in the Area have the potential to produce transboundary harm, and the liability provisions of the Act may not ultimately protect the State from secondary claims of responsibility, or, at the very least, reputational harm if an accident were to occur [see *Annex: International Law Discussion*]. The Act does not differentiate between types of deep sea deposits or mention anything specific to SMS, and there are no special precautions in place for the mining of sulphides.

The Act provides for the liability of the Licensee with respect to damage resulting from DSM (Section 70, “Duties and Liability of Licensee”), including a provision indemnifying the Kingdom against any liability—again, whether this provision would be fully enforceable and would fully preclude liability in the case of potential transboundary harm suffered by another state as a result of DSM in Tonga’s waters (e.g., pollution or fishery effects in nearby Samoa), remains to be seen.

Amendment Possibilities

It is possible to amend the SMA. As currently framed, the SMA does not convey a sense of the risks posed by DSM and the need to consult and obtain the consent of the people who will be

affected—in this case, indigenous Tongans, particularly coastal and outer island communities located closest to prospective mine sites. Although there are mentions of the precautionary approach and advisements to protect the environment, these will not have the effect of translating into robust protections unless the language of the framework is enhanced to highlight the foundational importance of the marine environment and the protection of indigenous and human rights. Specific mention should be made of indigenous communities, not just “the public” at large—and ideally, other vulnerable groups such as coastal communities, subsistence fishermen, women, children, and the elderly.

6.1.8 Conclusion

Tonga’s DSM legislation could benefit from stronger provisions on both FPIC and the precautionary principle. In fact, a more inclusive, precautionary approach would help to avoid future community conflict and the discontent which is arising among the Tongan public with respect to DSM. However, a greater concern with respect to Tonga is the enforceability of legislative provisions and the existing DSM regulatory regime. Government ministries already appear to be stretched for resources and functioning at maximum capacity. The ability to not only effectively oversee DSM operations, but to enforce provisions such as the submission of information, the collection of fees, or the protection of the environment is at issue in Tonga, as it is in many other small island states. The prospect of a foreign company causing an environmental disaster in Tonga’s waters and then leaving without being held accountable is well within the realm of

possibility, and something that should be weighed as part of the risks of undertaking seabed mining in a jurisdiction with limited institutional resources.

6.2 PAPUA NEW GUINEA CASE STUDY

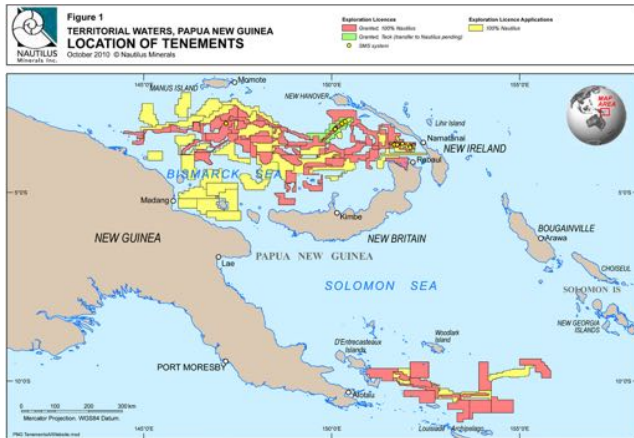


Figure 2: Nautilus’s exploration licenses and applications for exploration in 2010 in PNG

6.2.1 Overview

With more than 600 islands and a population of at least 7 million people, Papua New Guinea (PNG) is the largest country in Melanesia and the Pacific Island region. It is one of the most diverse countries in the world, with more than 800 spoken languages and 600 different tribes throughout the country.²¹⁵ In addition to the Highlands, Momase, and Southern regions, PNG has the New Guinea Islands, which consist of four main islands—Manus, New Britain, New Ireland, and Bougainville—situated in the rough shape of a ring around the Bismarck Sea in the north of PNG, along with hundreds of smaller island groups and atolls.

PNG has had a long and troubled history with extractive industries and onshore mining,

including civil unrest in Bougainville in 1989, which claimed approximately 10,000 lives—the most costly conflict in the Pacific since the Second World War, triggered by the social and environmental impacts of the Bougainville mine.²¹⁶ Despite being one of the most resource and mineral rich countries in the world, PNG has high inequality and poverty levels, ranking 146th in GDP globally,²¹⁷ 158th out of 173 countries on the 2015 Human Development Index,²¹⁸ and 139th out of 167 countries on Transparency International’s 2015 Corruption Perceptions Index.²¹⁹ An estimated 40% of the population lives on less than one dollar per day, and 75% of households depend on subsistence agriculture; despite intermittent resource booms and GDP growth, poverty levels do not appear to have changed significantly since 1996.²²⁰ As the United Nations Development Programme (UNDP) notes, “[t]he extractives sector in Papua New Guinea has created challenges that are consistent with many of the features of the so-called ‘resource curse.’”²²¹ PNG has recently been criticised by the UN Human Rights Council working group, along with numerous CSOs, for its repeated violations of the rights of its indigenous communities in relation to extractive industries.²²²

It is both troubling and perhaps unsurprising that PNG is where Nautilus gained its foothold for the first global DSM venture, with mining set to begin within the next few years. Solwara 1, located in the Bismarck Sea approximately 30 kilometres (18 miles) from the coast of New Ireland and 50 kilometres (29 miles) from the coast of East New Britain, is the first SMS mine site in the world.



Figure 3: Site of Solwara 1 deposit in the Bismarck Sea

Nautilus has been exploring PNG’s waters since 1997, and is the only company currently licensed to conduct exploratory DSM in PNG.²²³ It has conducted exploratory drilling in the Bismarck Sea since 2006, drilling hundreds of holes to depths of 18 meters or more, as well as collecting chimney samples.²²⁴ In January 2011, Nautilus was granted a 20-year mining lease by the PNG government for the development of the Solwara 1 deposit.²²⁵ There are several other Solwara sites where mining may occur in the future, depending on how Solwara 1 operations go.

Solwara 1 has engendered significant public opposition, including a petition signed by

24,000 individuals calling for the cessation of operations, delivered to the PNG government in 2012.²²⁶ Following this petition, Canadian shareholders of Nautilus reportedly pulled their investment from the project; however, they were soon replaced by Russian investors.²²⁷ The 2012 petition was followed by a 2014 petition of 1.2 million members of the Evangelical Lutheran Church in PNG, which likewise opposed DSM and called for the halt of Nautilus’s Solwara 1 operation.²²⁸ Rather than halting the project, the government of PNG opted for a 15% stake in the project (out of a potential 30%), which is not a 15% cut of revenue but an equity investment that has required the government to contribute \$118 million to this long-term first-time DSM venture,²²⁹ described by multiple commentators as a “high-risk,” “low-return,” proposition.²³⁰ The World Bank in particular has equated equity participation in DSM to “placing public funds in the riskiest of all mining ventures.”²³¹

In 2013, Nautilus took PNG to arbitration at the Australian Commercial Dispute Centre in Sydney to produce its equity share; the proceedings included an order requiring PNG to complete the purchase of the 30% interest in the Solwara 1 project and pay 30% of project expenditures incurred to date, beginning with the \$118 million (375 million kina) of the initial 15% equity stake.²³² In 2014, the PNG Equity Agreement was revised to an initial 15% interest in the Solwara 1 Project, with an option to take up to an additional 15% interest within 12 months (an option PNG has elected not to exercise).²³³ The government paid for its 15% stake with a loan from the Bank of the South Pacific, thereby further increasing its already substantial sovereign debt.²³⁴ In April 2016, the ratings agency Moody’s downgraded PNG’s

credit rating to B2, five levels below junk bond status (i.e. highly speculative).²³⁵ As one commentator put it, rather than gaining revenue from the project, it appears that PNG is “paying Nautilus’s bills.”²³⁶ Today there remains widespread opposition to Solwara 1.²³⁷

6.2.2 Status of DSM Legislation

Legislation regulating DSM in PNG is nothing if not opaque and difficult to access. To date there is no official, designated DSM regulatory framework—rather, there is an assemblage of different laws falling under different authorities, and some draft policies being discussed which are not readily available to the public. Nautilus’ original exploration licenses were approved under the 1992 PNG Mining Act, a terrestrial mining framework, which, according to one commentator, came on the heels of independence and is manifestly inadequate for the current regulatory environment.²³⁸ A consultation process to discuss amendments and to update the old Mining Act to include offshore mining and grievance mechanisms began in 2013, but neither the updated Mining Policy nor amendments to the Act have been passed or made public.²³⁹ Even some legislators and government officials do not seem to have clarity on the status of DSM legislation in PNG, or even which laws are operative.²⁴⁰ There appears to be no rush to update legislation, despite the fact that full-scale DSM may begin in less than two years.²⁴¹ As commentators noted, PNG seems to do mining first, and makes laws afterwards.²⁴² The government reportedly prefers to write and pass laws quickly—after which they are difficult to amend—and is reportedly uncomfortable with both transparency and consultation.²⁴³

6.2.3 Consultations/FPIC

At various points of the Solwara 1 project, consultations with local villagers have been carried out by the PNG government (the Department of Minerals and the Mineral Resource Authority) and Nautilus. Biennial consultation meetings are a requirement of Nautilus’s lease agreement, and have been conducted since 2008. The consultations are co-funded by Nautilus and the national government, and often focus on reassuring villagers that the marine environment and fisheries will not be affected by DSM.²⁴⁴ Villagers have noted that there is no clear separation between the government and the company during consultation meetings, leading them to question the impartiality of the government and its interests.²⁴⁵ As reported in the Tonga case study, the information presented by Nautilus and the government during these consultations tends to be highly technical and minimizes the likelihood of environmental harms; villagers report that their more pressing questions and concerns often go ignored.²⁴⁶ One commentator describes these discussions as progress updates on mining rather than actual consultation.²⁴⁷ Another commentator notes that consultations are rarely advertised and often ill-attended, and that on other occasions the government may talk only to selected ‘elders’ and consider this adequate community consultation.²⁴⁸

Nautilus claims that its survey of 1,500 households found that over 88% of respondents supported Solwara 1,²⁴⁹ however, some villagers report that they felt pressured to support the project out of fear that they would be excluded from benefits if they ticked ‘no,’ only to find out shortly after the survey was completed that they

would not be part of revenue-sharing agreements.²⁵⁰ The information with which they have been provided is neither comprehensive nor independent, and does not reach the international law standard of FPIC; neither does Nautilus's apparent attempts to manage community opposition by limited community outreach and corporate social responsibility (CSR) spending.²⁵¹

6.2.4 Regulatory Capacity, Corruption, and Accountability

Although PNG has comparatively more personnel and larger institutions with which to regulate DSM than other PI nations, many of these institutions and their operational structure are fairly new and untested, emerging only within the last decade or two of growth.²⁵² PNG's government appears to regularly encounter obstacles regulating its onshore mines,²⁵³ and is likely to face difficulties regulating DSM. As most of the rules governing DSM have yet to be formally promulgated, it is at best unclear how regulatory responsibilities break down and to what extent they will be effectively carried out. Since the early 2000s, the Mineral Resources Authority (MRA) has functioned independently from the Department of Mineral Policy and Geo-hazards Management Department, collecting revenue as a self-funded independent entity. In theory, the Department carries out government policy while the MRA, with the bulk of personnel and capacity, is in charge of managing licenses.²⁵⁴ The Department of the Environment and Conservation is responsible for overseeing the EIA process.²⁵⁵ Prior to the mid-2000s, no audits were conducted on mineral companies and the government had trouble collecting revenue and taxes from mining companies; this

is still the case for the forestry and fisheries sectors, where audits are not currently carried out.²⁵⁶ CSO and academic commentators note that all of these institutions are prone to following the lead of companies, who basically set the agenda, write their own rules, and self-monitor.²⁵⁷ Nautilus is described as writing its own policies, including those related to environmental oversight.²⁵⁸ Commentators further claim that every regulatory process is wide open to corruption, which is an endemic problem in PNG, and that opponents to mining operations, including Solwara 1 and DSM, have been paid off in the past.²⁵⁹

Commentators note that there is no coordination or integration on issues like DSM among different government departments.²⁶⁰ Within the Fisheries Ministry, there is reported concern about DSM's impact on fish stocks, but little is being said publicly.²⁶¹ The former Minister of Mines who approved Nautilus's license is the current Minister of Environment overseeing Nautilus's EIAs, and also reportedly has ties to the logging industry;²⁶² the revolving door between different government ministries, and between government and private industry, further decreases the likelihood of independent policy and/or effective oversight.²⁶³ With respect to legislators, one politician claims that opposition to DSM is widespread among MPs, but their silence on the issue has been bought by the ruling party.²⁶⁴

There is also no coherent national oceans policy.²⁶⁵ Although there is supposedly one government representative on exploration vessels, commentators note that there is no effective monitoring and that nobody really knows what is happening on the ocean or at the

Solwara 1 site.²⁶⁶ One PNG governor observes that PNG's patrol boats were gifts from the Australian government in the 1970s, which are now rusting in the harbour, with no funds to run or maintain them.²⁶⁷

Another commentator notes that the government has adopted colonial laws that do not work in the indigenous context, and that gentlemen's agreements tend to take the place of actual rule of law.²⁶⁸ She describes existing legislation as mere "sheets of A4 paper . . . not worth anything."²⁶⁹ Another notes that while some of the laws on the books are quite good, it does not matter, as they are not enforced.²⁷⁰ The process of contract negotiation is duplicitous, with different contracts being negotiated by the Office of the Solicitor General than what is ultimately signed by the relevant ministerial department—a process that often involves payments to the government official who signs off on the final contract.²⁷¹

In 2013, PNG signed up for the EITI, which allows companies to provide information voluntarily. According to the National Coordinator of the PNG Resource Governance Coalition, there is no independent verification of environmental, production, or export data in PNG; for 40 years, the government has depended upon what companies self-report regarding their production and environmental impacts.²⁷² There is reportedly no effective environmental monitoring or regulation for terrestrial mining, nor for petroleum exploration in the Gulf Province of PNG.²⁷³ The data that the EITI currently gathers focus primarily on royalties and payments and do not include any environmental or contract reporting.²⁷⁴ The EITI in PNG is considered to be a dialogue

platform, not an actual regulatory mechanism. Furthermore, only certain active production—not exploration—companies are currently participating in the EITI; Nautilus is not among these, and is not participating in the EITI at this time.²⁷⁵

PNG's regulatory regime for mining is extremely permissive, allowing activities that have been banned in other countries for decades, such as the disposal of mine tailings directly into rivers and oceans.²⁷⁶

The PNG government has also provided liability protections to industry in the form of a national law that prevents citizens from pursuing legal proceedings in foreign courts in relation to compensation claims arising from mining and petroleum projects in PNG.²⁷⁷ This effectively limits all such litigation to domestic courts. There are multiple examples of companies departing PNG or selling their mine stakes in order to escape accountability for major environmental disasters.²⁷⁸ Even in cases where groups have successfully sued companies for environmental degradation in PNG and won hefty damages (in one case, a hundred million dollars), companies have simply left the country without having ever paid the judgment.²⁷⁹

On May 28, 2010, the PNG legislature amended sections of the country's Environment Act to authorize the Secretary of the Department of Environment to exempt project developers from liability for environmental harm and damage to citizens, further limiting the ability of landowners and other interested parties to sue for compensation for environmental harm, or to obtain an injunction to prevent environmental and personal harm.²⁸⁰

Exacerbating this highly restrictive domestic legal regime, PNG's judicial system, noted to be one of its more upstanding institutions, is likewise not immune from corruption.²⁸¹ Put plainly, there appears to be little to no accountability for human rights or environmental violations, and national institutions have trouble enforcing penalties of any kind against industry.²⁸²

According to commentators, landowners, provincial government officials, and political leaders are easily influenced and often fail to protect people from predatory interests, accepting handouts and bribes from companies instead; developers know this and typically go directly to local decision-makers instead of consulting with communities.²⁸³ Running political campaigns is expensive in PNG, and some mining, fishing, and logging companies are rumoured to regularly contribute money to campaigning politicians.²⁸⁴ In the New Ireland area, the operation of several terrestrial mining, logging, and palm oil enterprises has benefited a handful of landowners and company officials, but has reportedly provided few benefits for local communities.²⁸⁵ There are examples of politicians in the areas affected by Solwara 1 who were previously opposed to the project who have since reversed their positions.²⁸⁶

6.2.5 Lack of Promised Revenue and Benefits

DSM appeals to many regional policymakers because of the promise of substantial government revenue. This has yet to materialize in PNG, and appears unlikely with Solwara 1.²⁸⁷ The profit projections for Solwara 1 may not exceed the cost of the project, especially given the high initial equity investment made by the

government.²⁸⁸ According to the PNG Resource Governance Coalition, the main value of Solwara 1 is recognized to be the experience, technology, and intellectual property rights which will come out of what is essentially a first-time experiment;²⁸⁹ however, it is questionable whether the government of PNG will actually retain any profitable rights in technology and equipment being built and developed by other companies in other countries.²⁹⁰ Even terrestrial mining has produced limited revenue in PNG, with numerous mineral mines never having turned a profit;²⁹¹ others make profit but enjoy tax holidays and government subsidies while manipulating their figures to avoid paying any corporate income tax.²⁹²

In addition, Nautilus is reportedly not providing a benefits-sharing scheme to local or impacted villagers, and Solwara 1 will likely employ only 140-180 people total, of which only a fraction will be locals.²⁹³ Villagers are concerned that, regarding employment, everything will happen on the boat and there will not even be opportunities to sell goods to DSM workers; local women in particular fear that the project will provide no economic opportunities for them.²⁹⁴ Communities in the area have in the past received royalties from logging and other enterprises, and so feel they are being cut out of any economic benefits associated with the DSM project.²⁹⁵ They feel that they will be the losers in terms of effects on their livelihood and environment, while failing to share in any projected benefits.²⁹⁶ Nautilus also hires foreign researchers to conduct studies and present findings to villagers, rather than researchers and academics at the University of PNG who are

more familiar with PNG's marine environment.²⁹⁷

6.2.6 Impacts

There have already been reports of impacts from exploratory DSM in PNG affecting indigenous peoples on the coasts of New Ireland and East New Britain. The first and most well-noted example has been the decrease in shark catch in the area—a decrease which has purportedly occurred during Nautilus's exploration period, and which indigenous islanders and fishermen attribute to exploratory drilling.²⁹⁸ They suspect that sharks and other large marine animals have been disturbed by the noise of drilling and have, at least temporarily, migrated to other waters.²⁹⁹ Shark calling, which is a traditional, sustainable fishing custom carried out by indigenous islanders in the villages of Mesi, Tembin, and Kontu, is also a tourist attraction and occurs annually as part of a shark-calling festival.³⁰⁰ Shark calling represents an important coming of age rite for young men in these societies; interference with this practice has potent psychological and cultural impacts on the villages that practice it.³⁰¹ The effect on shark populations thus represents a triple impact affecting indigenous culture, tourism, and fisheries.

Islanders in the area of Solwara 1 have historically relied on the ocean for sustenance and their quality of life, and have deep ties with marine environments on a cultural and existential level.³⁰² The indigenous people of Lavongai island, for example, worry that they will be unable to pass into the afterlife to join their ancestors because the very body of water from which they are to "pass over," per their cultural teachings, is part of an area for which

Nautilus recently received a prospecting permit from the PNG government.³⁰³ There are additional traditional beliefs involving deep sea animals, and concerns over unsettling spirits in this environment should not be minimized.³⁰⁴ In addition to effects on shark fisheries, villagers from a village north of Mesi have reported that a school of 200 dead tuna washed up on shore during prospecting in the Solwara 1 area.³⁰⁵ Women of Konogogo village who dive on the reefs for shells have reported recently being forced to dive deeper to find shells because of a large degree of dust in the sea, which they suspect is caused by some large-scale activity on the seafloor.³⁰⁶ Other villagers report that waters in the area have become murky and dirty since exploration began.³⁰⁷ There have also been numerous media and villager reports of dead and dying fish washing up on the shores near the Solwara 1 site, including flying fish, octopus, squid, eels, reef fish, and larger deep water fish such as sweetlips and red emperor fish.³⁰⁸ Villagers report that some of the animals are hot to the touch, emit a putrid smell, and are deep sea creatures never previously seen.³⁰⁹

It is true that other factors could potentially account for these phenomena; thus, establishing a causal link between Nautilus's activities in the area and these reports requires more evidence and analysis. However, the observations of New Ireland and New Britain islanders should not be discounted as possible effects related to exploratory DSM, and also caution against the indiscriminate dismissal of risks posed by DSM, or the portrayal of impacts as minimal. The fact that the PNG Mineral Resources Authority has decorated their lobby with a hydrothermal vent chimney—whose extraction by Nautilus would, under prevailing scientific understanding, have

extinguished life forms unique to that particular vent³¹⁰—is indicative of both government and industry’s attitude towards the risks of DSM in PNG.

6.2.7 Other Potential Impacts: Fisheries, Tourism, Marine Pollution, and Civil Conflict

Commercial tuna fishing in the Bismarck Sea, which contains around 18% of the world’s tuna stock,³¹¹ makes a significant contribution to PNG’s economy and constitutes between 11 to 15% of the global tuna catch.³¹² There are various initiatives to develop the national tuna industry, including exporting to new markets in Asia and Europe with high quality standards.³¹³

Moreover, the Bismarck Sea is a breeding ground and habitat for sharks, dolphins, and other large marine animals. Solwara 1 is located in the St. George Channel, a migratory route for both whales and tuna, as well as one of the biggest tuna spawning grounds.³¹⁴ The traditional and current fishing grounds of nearby communities and provinces extend across the St. George channel and include the Solwara 1 mine site, and are expanding due to pressure on fish stocks and increasing demand. Fishermen are concerned about the potential effects of DSM on fish stocks, especially the constant barrage of noise that will occur once mining begins.³¹⁵ In 2012, National Fisheries Authority (NFA) Managing Director Sylvester Pokajam recognized the area surrounding Solwara 1 as “a highly productive fishing ground for tuna” with an abundance of “other marine resources and mammals,” and called for a “ban [on] sea bed mining in [PNG’s] territorial and archipelagic waters.”³¹⁶

A professor at the University of Papua New Guinea (UPNG) notes that DSM at Solwara 1 will likely impact biodiversity; French researchers have documented unique species near hydrothermal vents in the Bismarck Sea, including those located near Solwara 1, which would likely be at risk from DSM, many of which have yet to be identified or studied.³¹⁷ Very few environmental or scientific studies have been conducted on the deep sea environment in the Bismarck Sea or near Solwara 1; scientists relate that such studies would require a minimum 10 to 20 year study design in order to produce robust findings, given the little studied, virtually unknown environment.³¹⁸ Researchers further note that DSM and the sediment processing it entails has the potential to release carbon, which could further contribute to carbon emissions and ocean warming, regardless of where the processing occurs.³¹⁹

The St. George Channel is characterized by strong upwellings and currents, as well as seismic activity, which could affect the functioning of DSM equipment, as well as the likelihood of containing plumes, tailings, or heavy metal pollution to one part of the water column.³²⁰ Two independent reviews of the Nautilus EIS found serious omissions and flaws regarding important factual components of the operating environment, including surface currents, the speed and direction of currents at different depths, and tides.³²¹ One expert concluded that the risks of pollution from spills from vessels at the surface, leakage from the riser or discharge pipes, and of upwelling dispersing metals from the mining activity or from the discharge water cannot effectively be determined.³²² Scientists indicate that it is very

unclear in this environment where plumes will end up, or how the water column will be affected, and that industry claims to the contrary are mere speculation.³²³ According to one scientist, “[o]f particular concern is whether upwelling (vertical water movement) and currents could carry pollutants up out of the deep sea or from spills and leakages into marine food chains where they may poison marine species and the humans that eat them.”³²⁴

In the case of the Ramu NiCo Nickel mine near Madang, mine operators have been depositing tailings from a land mine operation into a deep ocean basin where they argued no animal species were to be found; species have since been discovered on-site, and the solubility and loose nature of tailings has contributed to the pollution of the entire bay, which turns yellow at times.³²⁵ Despite clear environmental damage, the Supreme Court of PNG found that the company has acted legally under PNG’s Environment Act, which purportedly allows for tailings to be dumped into the deep sea.³²⁶

DSM and Solwara 1 could also have further impacts on tourism. Both New Ireland and East New Britain are developing their marine-based eco-tourism, particularly around the hubs of Kokopo and Kavieng.³²⁷ Any activity which pollutes the marine environment or drives away large animals such as dolphins, sharks, and whales will negatively impact existing eco-tourism businesses and opportunities for future development.

Finally, there is a chance that Solwara 1 and DSM will produce civil conflict among the different islanders living around the Bismarck Sea.³²⁸ Indeed, according to commentators, it

already has.³²⁹ Islanders from this region have historically held land tenure and fishing rights over extensive areas of the Bismarck Sea, including the site of Solwara 1.³³⁰ The fact that Nautilus has designated the part of the coast of New Ireland as an ‘area of benefit’ but has denied the same to parts of East New Britain has further laid the seeds for discontent and conflict among the islanders.³³¹ If fisheries are impacted by DSM, there may well be disputes on the high seas between fishermen from different communities seeking new fishing grounds, who have traditionally protected their fishing grounds from outsiders, including by threat and use of force.

6.2.8 Legislative Analysis

PNG’s Mining Act 1992 is undoubtedly outdated both in terms of its relevance to offshore mining and DSM, and in its exclusion of contemporary requirements of international environmental and indigenous rights law. Not only are there no mentions of the precautionary principle or transboundary harm, there is almost nothing about environmental or rights protections (in fact, just one mention of the environment occurs in a section on assessing an application for a mining lease).³³² There is nothing on EIAs, little about obtaining consent from landowners (indeed, PNG law allows for compulsory expropriation of land for mining projects),³³³ and, unsurprisingly, nothing resembling FPIC. There is one provision regarding consultation, which allows the Mining Minister “to consider the views of those persons whom the Minister believes will be affected by the grant of that special mining lease,” including the provincial government, landholders of the land in question, the national government, and the mining applicant—this

provision otherwise excludes local communities, indigenous peoples, CSOs and other stakeholders while leaving consultation entirely at the discretion of the Minister.³³⁴ Thus, the 80 pages of the 1992 Mining Act are almost exclusively filled with the technical and administrative details of establishing a mining regime; it is perhaps unsurprising that so much mismanagement, abuse, and social and environmental harm has occurred in PNG's mining sector given the scant protections provided by the 1992 law.

Recognizing the need to amend the 1992 law, the PNG government has undertaken several policy updates which are circulating in around six to seven separate documents, some of which have been prepared by foreign companies and law firms;³³⁵ these include draft offshore mineral policies, as well as other revisions.³³⁶ PNG's Draft Sustainable Mining Development Policy includes governance principles on human rights and indigenous peoples, including practicing FPIC and adhering to informed consultation and participation.³³⁷ There is nothing, however, specific to DSM, offshore mining, the precautionary principle, or transboundary harm.³³⁸

The 2013 Draft PNG Mining Policy aspires to conform with relevant international law, and references a 2013 Mining Act, which purportedly consists of proposed amendments that have still to be passed, as well as the Mining (Health and Safety) Act 2013. The proposed provisions comprising the 2013 amendments include requiring every mine developer to have a community engagement plan, as well as a grievance mechanism, prior to the granting of a mineral lease.³³⁹ The Revised

Mining Act expands the 1992 Mining Act consultative provision mentioned above to include other stakeholders such as "churches, women groups, youth groups, [and] other business interests,"³⁴⁰ and "gives recognition to the traditional sea users who use the area for their daily sustenance to be given the right to be heard."³⁴¹ The following have been added to the list of requirements in a mining lease application: a "Conceptual Mine Closure Plan," a "Mine Waste Management Plan," a "ML [mining lease] Area Landholders Relocation Plan," and "Social Mapping and Landowner Identification," among others.³⁴²

The periods for which mining leases can be granted seem long compared to other DSM legislations (up to 40 years, with renewal periods of up to 20 years).³⁴³ The royalty rate remains at 2%, and is not to be confused with the option to take up and hold interest in any mining project (30% as the state's right with an additional 20% to be negotiated for a total of up to 50% equity in a project), which requires the government to provide the equivalent percentage of investment funds and costs of the project, as in the case of Solwara 1.³⁴⁴ According to government documents, offshore mining is provided for in the new legislation. It "allows for marine scientific research but requires data to be provided to the State and provides for technology transfer to the State," in addition to calling for "certain areas to be declared Seabed Protection Areas in consultation with the DEC [Dept. of Environment and Conservation]" and requiring "the developer to develop a formal policy to comply with the International Marine Minerals Society Code for Environmental Management of Marine Mining."³⁴⁵ The changes also establish an Audit

Committee and penalties for breaches of these regulations.

Policy documents note that in addition to giving effect to international standards and “good practice principles,” the changes are intended to “give greater benefit and participation” to the people of PNG and “also to ensure the Government maximizes its potentials and the benefits it derives from the mining activities whilst doing the best it can to learn from past experiences and conduct the business of mining in a sustainable manner.”³⁴⁶ These are all admirable goals and much needed reforms within PNG; however, there are still areas which need to be substantially fleshed out relative to environmental, social, and human impacts. Most importantly, the concepts outlined in these documents need to become enforceable realities, not just niceties on paper.

The offshore mining policy itself includes similar sentiments, along with the first espousal of the precautionary principle.³⁴⁷ Specifically, it notes one of the purposes of the policy as follows: “To ensure minimum impact on the biodiversity, ecology and living marine resources in the coastal and marine environment and the livelihoods of the people in accordance with the precautionary principle.”³⁴⁸ This lone mention of the precautionary principle is perhaps a good example of how merely mentioning something is not enough to ensure its actual practice; given that most of PNG’s policies with respect to DSM thus far have violated the precautionary principle, concrete and specific steps outlining what the precautionary principle entails are needed.

The other environmental provisions of the policy are similarly vague, with provisions such as “[w]here appropriate, the State, through its relevant agencies shall conduct inspections on the results of environmental and safety monitoring and compliance as required under the permit conditions.”³⁴⁹ Making such matters discretionary for the State is unwise, given the status of environmental protection in PNG to date. Environmental provisions will require substantial operationalizing to assure operators and communities that the State is actually serious about providing effective environmental oversight and enforcement.

With respect to ownership, the Policy recognizes PNG’s seabed and mineral resources “as the Common Heritage of the Nation; to be managed for the benefit of all the peoples of the Nation, through the State,”³⁵⁰ further recognizing that national wealth should be shared by all, while simultaneously claiming all minerals as “the property of the State.”³⁵¹ These conflicting provisions should perhaps be reconciled by expanding the sentiment on benefit-sharing and including provisions on FPIC, incorporating the need to consult with and obtain the FPIC of affected indigenous communities in advance of offshore projects commencing. Assumedly the updated consultation provisions of the general mining act would apply to offshore mining as well; however, there should be more clarity and more specific outlining of the need for extensive consultations and FPIC procedures for affected indigenous communities, and the right of these communities to withhold their consent to DSM.

Although Section 9.1 provides that “[t]he State and the mine project developer shall recognize customary user rights to access traditional fishing grounds, and sacred sites in the marine environment which are significant to the coastal communities,” this provision is not currently being respected with regards to Solwara 1, both with regards to sacred sites significant to coastal communities, and traditional fishing grounds [see *Impacts* above]. The same applies to Sections 9.2–9.3 regarding consultation with relevant stakeholders on sea usages and ensuring that offshore mining does not interfere with various existing uses.

Despite purporting to use all mineral royalties to fund marine research and other State- approved projects along the coastal area of benefit, proposed mining fiscal provisions do not appear to establish a sovereign wealth fund.³⁵²

Although the proposed offshore mining policy brings PNG’s mining legislation closer in line with the SPC’s proposed framework, there are still substantial omissions and a level of vagueness which raise serious concerns given the prevailing governance climate in PNG. Moreover, the fact that these amendments and proposed policies have been floating around in different committees and offices for the past three years, whilst mining projects like Solwara 1 continue full-speed ahead, is added cause for concern. In short, even if passed, it could be decades before any of these regulatory provisions will be implemented and effectively enforced.

6.2.9 Conclusion

Exploratory mining began in PNG without the FPIC of the indigenous peoples impacted by the project, and without any functioning legislative

framework in place to regulate DSM. As the UN Economic and Social Council recently noted, in PNG “industry and governments have abandoned the precautionary approach and any pretence of balancing profits with conservation, human rights, scientific knowledge and sustainable development” by fast-tracking “experimental mining . . . without the benefit of adequate scientific debates or any prior public dialogue and meaningful community participation.”³⁵³ Islanders in New Ireland and East New Britain have already experienced negative impacts from exploratory mining, including reported effects on fisheries and cultural customs, with resultant impacts on tourism.

To make matters worse, the PNG government is not only unlikely to profit much from what even Nautilus admits is an experimental venture with low expected returns, but has taken out a loan and further increased its sovereign debt in order to pay the \$118 million of its 15% equity stake. With the exception of payments made to individual decision-makers along the way, it is not a reach to project that the citizens of PNG—and particularly those located nearest Solwara 1—will receive little to nothing of benefit from this project in their waters, while suffering harms caused by marine pollution and degradation. The degree of corruption, murky and unenforceable regulatory environment, and utter lack of accountability make PNG an ideal arena for unscrupulous operators and high-risk ventures. In short, the resource curse appears to be well underway with respect to DSM in PNG.

6.3 FIJI CASE STUDY



Figure 4: DSM Exploration in Fiji as of June 31, 2015

6.3.1 Overview

Fiji is a Melanesian island country in the South Pacific, consisting of more than 330 islands, of which 110 are inhabited, and more than 500 islets, amounting to a total land area of about 18,300 square kilometres (7,100 sq mi) and an EEZ of around 1,230,000 square kilometres.³⁵⁴

Fiji has one of the most developed economies in the Pacific, with heavy reliance on tourism and fisheries.³⁵⁵

Along with PNG, Tonga, and the Solomon Islands, Fiji was among the first countries in the world to issue exploration licences for companies to assess the commercial feasibility of mineral resources development in its EEZ, which contains both CRCs and SMS in the Lau and North Fiji Basin areas.³⁵⁶ This exploration occurred after the 2007 moratorium on exploration licenses—set up to prevent exploration while Fiji developed an offshore minerals policy and updated legislation based on the 2006 draft Mineral Exploration and

Exploitation Bill (MEEB)—expired.³⁵⁷ The 2006 legislation has since been reviewed by various entities but has not yet been passed, and is still under consideration.³⁵⁸ According to Fiji’s Department of Environment (DOE), a mining development technical committee including different government departments (forestry, fisheries, revenue, finance, mineral resources), landowners,³⁵⁹ the iTaukei Land Trust Board (TLTB), and other stakeholders, was formed to help oversee both land mining and DSM projects.³⁶⁰ Until passage of new laws, DSM exploration falls under existing onshore mining and environment regulatory regimes.

According to Fiji’s Mineral Resources Department (MRD), a legal amendment to extend the definition of land to include “the seabed and the deep seabed and subsoil of the area” enables the Mining Act to apply to offshore or deep-sea minerals exploration but not actual mining, which will only be granted upon development of separate Offshore Mining legislation.³⁶¹

Fiji has shown interest in sponsoring companies and participating in exploring the Area, undertaking a failed bid at the ISA in 2013 to sponsor US company Lockheed Martin (LM) with respect to DSM exploration in the CCFZ.³⁶² Evidence indicates that the Bainimarama administration worked with SPC and LM to fast track a draft decree to oversee DSM to facilitate LM’s application at the ISA – allowing only three days for community organisations to comment on the draft decree.³⁶³ In the end, LM’s application was not approved; however, elements of the 2013 decree, such as provisions extending mining areas to include the seafloor, remain operational.³⁶⁴

In 2013, the MRD granted 17 exploration licences to KIOST,³⁶⁵ Nautilus Minerals, and Australian firm Bluewater Minerals.³⁶⁶ The DSM licences were issued under the Mining Act 1978, which was amended in 2010 to include the seafloor within its scope (but which does not otherwise cover DSM).³⁶⁷

Comments from KIOST at the time indicated that KIOST planned to begin deep-sea test drilling for SMS deposits in 2016 and hoped to gain a commercial mining licence another three or so years after that.³⁶⁸ It has previously carried out exploration cruises over 25 blocks licensed for exploration located within the EEZ.³⁶⁹ KIOST has acknowledged that there could be environmental effects from deep-sea drilling and said it was planning to hold consultation meetings with stakeholders on the matter.³⁷⁰

In addition to being involved in the drafting of the 2013 International Seabed Mineral Management Decree, SPC has held stakeholder consultation workshops in Fiji and provided reviews of Fiji's draft Mineral Exploration and Exploitation Bill (MEEB) and Terms of Reference (TOR) for the establishment of a DSM Official Working Group and National Offshore Minerals Committee.³⁷¹

6.3.2 Lack of Consultations and FPIC

Despite the government's claim that the "Ministry of Lands and Mineral Resources had conducted wide consultations with key stakeholders to formulate a Draft Policy [on DSM],"³⁷² the government consultations on DSM have not included a broad cross section of Fijian civil society, the public, or indigenous and/or coastal communities.³⁷³ Fiji's Department of Environment (DOE) estimates

that only around 40% of educated people may be aware of DSM, and that coastal users and outlying communities are largely ignorant of what is happening with respect to DSM prospecting; the DOE reiterates the need for comprehensive consultations and awareness-raising.³⁷⁴ One commentator notes that the iTaukei Affairs Board, the TLTB, and the Provincial and Tikina Councils—institutions mandated by statute to deliberate and make recommendations on developmental and other issues that impact the welfare, wellbeing, and good governance of the iTaukei or the indigenous peoples of Fiji—have not been seriously consulted regarding the development of a DSM framework.³⁷⁵ With respect to the 2013 mining decree, the Ministry of Lands and Mineral Resources reportedly organized a review of the law but did not include landowners or significant CSO representation in its consultations—and would have proceeded with finalizing the law if not for an online petition protesting the lack of consultation.³⁷⁶ Other consultations organized by the MRD in the past have been called off on short notice.³⁷⁷ Staff at the MRD recognizes the need to both consult with and obtain consent from landowners and those communities located closest to potential DSM sites, but whether this will actually be done in the event of actual DSM remains to be seen.³⁷⁸

Awareness of FPIC throughout indigenous and local communities in Fiji is limited,³⁷⁹ and it appears that the government does not require FPIC from operators in its existing onshore mines.³⁸⁰ In existing cases involving terrestrial mining, there has been no FPIC, and even meaningful consultation is often lacking.³⁸¹ For instance, with respect to the mineral prospecting

that has been going on in the Namosi region for over 40 years, involving more than 15 companies, many landowners have repeatedly expressed opposition to mining, withholding their consent.³⁸² Instead of heeding these clear expressions, mining companies have approached chiefs of local villages, who are not landowners, and paid them, or in some cases directly employed them, in order to gain their consent to mining on what, essentially, is not their land.³⁸³ In the case of the Bua bauxite mine, the agreement with the community was signed and negotiated by a third party hired by the government, without any legal advice provided to the community; benefits from this mine are restricted to a small number of individual landowners, while the larger community receives nothing, a situation bound to create conflict as the whole community suffers the environmental impacts of the mine.³⁸⁴

The Tikina Namosi Landowner Committee (TNLC) notes that bribes occur at multiple stages of the process, from the local level up the ministerial chain; the putative “consent” obtained from individuals who have been paid by mining companies, in addition to being illegal under Fiji’s Constitution, does not equate to the FPIC of indigenous peoples or landowners.³⁸⁵ In some cases, government officials have advised that 100% of landowners surveyed expressed support for mining in Namosi; however, a survey conducted by the TNLC revealed that more than 90% of the community (around 984 surveyed individuals and landowners) actually opposed prospecting.³⁸⁶ Although the landowner system does necessitate more extensive consultation measures than other jurisdictions, obtaining legitimate FPIC in Fiji is challenging. In

practice, existing consultative and consent procedures still fall short of the standards of international law. There is large community opposition to the idea of even “sustainable mining,” especially among landowners; yet, despite this, prospecting continues.³⁸⁷

6.3.3 Precautionary Principle

Evidence indicates that the Fiji government may not be following the letter of the precautionary principle. While recognizing that Fiji still needs to resolve numerous legal issues—including the “delineation of jurisdictional zones (EEZ),” the “[d]evelopment of general regulations in the EEZ by the Fiji Foreign Affairs Ministry,” the consideration of “[f]ishing rights and navigational zone rights,” and the development of effective monitoring of offshore mining activity, appropriate dispute resolution mechanisms, and a different fiscal regime—the government is simultaneously promoting and hastening DSM by offering fiscal and tax incentives (e.g., duty-free status) to DSM operators.³⁸⁸ Commentators note that talk of the precautionary principle and indigenous rights is mostly for appearances’ sake, and that true governmental priorities are economic growth and potential resource revenue.³⁸⁹ It is questionable whether marine scientific research conducted during—and to further facilitate—DSM exploration is sufficiently precautionary. There appears to be a conflict of interest with having DSM companies fund such research. Indeed, this is ably demonstrated in Fiji’s Offshore Mineral Policy, which appears to call for Scheduled Marine Scientific Research to drill SMS deposits in order to ascertain their viability as economically mineable deposits.³⁹⁰ MSR undertaken as a means to further DSM

does not fulfil State obligations under the precautionary principle.

6.3.4 Insufficient Regulatory Capacity

According to the Social Education and Empowerment Programme (SEEP) and the iTaukei Land Trust Board (TLTB), government ministries are currently ill-equipped to regulate existing land-based mining, much less DSM.³⁹¹ Indeed, this may explain why the Fiji Government “promotes a self-regulatory approach to environmental monitoring.”³⁹² Unfortunately, there are substantial gaps between legislative requirements and actual reporting and monitoring.³⁹³ Licensing and exploration criteria are unclear, and if there are limits on exploration periods, they are not currently enforced in places like Namosi.³⁹⁴

It is widely recognized among commentators that Fiji’s DOE is severely understaffed and lacks the capacity to carry out its mandate with respect to EIAs, monitoring, and environmental clean-up.³⁹⁵ There are reportedly only 35 staff total at the DOE, including only three in the EIA unit.³⁹⁶ The Department itself acknowledges that it lacks the resources necessary to effectively monitor projects and oversee the EIA process, which relies on company-hired and funded EIA consultants chosen from an approved government list.³⁹⁷ The National Environmental Council, which also shares responsibility for implementing the Environment Management Act, is currently not functioning.³⁹⁸ There is a sense among CSOs that this lack of capacity at the DOE is intentional, and serves to allow industry to operate without significant regulatory interference.³⁹⁹ Commentators observe that the government is likely more concerned about

establishing a fair revenue regime than actual environmental protection, despite lip service paid toward the latter.⁴⁰⁰ Companies have strong bargaining positions in relation to the government, and sometimes directly instruct government ministries to do things like move the boundaries of established conservation areas for mining purposes.⁴⁰¹

With respect to the Bua bauxite mine, CSOs report that despite its mandate to monitor operations as well as EIAs,⁴⁰² the DOE was not actually allowed by mine operators to enter the mine and conduct surveillance.⁴⁰³ When mine operations affected local fish stocks, representatives of the Department of Fisheries were allegedly too afraid to report the damage and instead enlisted CSOs to disseminate the information.⁴⁰⁴ With respect to Namosi prospecting, the government has been unable to carry out its monitoring mandate; rather, landowners have had to organize around-the-clock monitoring patrols out of their own resources—even with these patrols, it has been difficult to effectively monitor and report all of the breaches carried out by the prospecting company (including illegal dumping of waste into rivers, extensive tree cutting and land clearing, excessive noise and air pollution, and failure to notify landowners and communities before undertaking prospecting activities).⁴⁰⁵ There is reportedly a similar failure to monitor and regulate the Vatukoula gold mine, which has caused extensive environmental, social, health, and labour problems which have yet to be remedied.⁴⁰⁶ Commentators observe that both the Department of Fisheries and DOE have little standing and are under-resourced compared to MRD and other ministries.⁴⁰⁷

Based on its failure to adequately monitor onshore mining, CSOs have concluded that the government does not currently have the capacity to monitor DSM.⁴⁰⁸ Observers further note that Fiji has existing trouble effectively enforcing and monitoring its coastal fishery and biosecurity regimes.⁴⁰⁹ The TLTB and the DOE agree that it will be very difficult to monitor DSM, and that many more vessels and trained staff will be needed; the fact that DSM operations are invisible to the general public and occur under water represents a substantial challenge to oversight.⁴¹⁰ Given the failure to monitor and regulate onshore mining, as well as the reliance on community members and landowners to monitor mining companies, mining activities occurring at the bottom of the ocean or out in the EEZ away from the observations of community members will be particularly difficult to regulate.⁴¹¹

6.3.5 Concerns about Corruption, Transparency, and Intimidation Tactics

CSOs report numerous instances where chiefs of project-affected communities were swayed by bribes or personal favours from government or industry to allow mining and/or other industrial activity in their villages—including in villages where CSO surveys reported 100% disapproval from respondents of the prospect of mining on their land.⁴¹² This has also occurred with respect to fishery agreements, where the consent of fishery owners within the village has been bypassed by obtaining the endorsement of the chief instead.⁴¹³ The courting of local leaders, chiefs, or landowners, some of whom may not even live on or near the land in question,⁴¹⁴ undoubtedly poses risks for both the execution of FPIC, and the preservation of the traditions and livelihoods of indigenous communities.

There is also evidence that communities and landowners are susceptible to promises made by mining companies, who then often fail to deliver (e.g., companies promising new churches and then merely repainting old ones; claiming that bauxite mining improves soil fertility; contracting to pay local workers AUD\$50/hr and then paying FJD\$50/hr instead).⁴¹⁵ Sometimes those who express opposition to mining projects change their mind as a result of promised benefits, or other more direct forms of influence.⁴¹⁶

CSOs note that communities are often pressured into saying yes to mining by government representatives in military uniform, or mine security officers who are former or current military.⁴¹⁷ Communities with low literacy levels and few university-educated members, such as those near the bauxite mine, are reportedly seen as easy targets.⁴¹⁸

Commentators note that EIA consultants are also easily corrupted.⁴¹⁹ EIAs for Namosi prospecting found that there would be no impact, despite the large number of destructive environmental, social, and economic impacts already occurring from prospecting.⁴²⁰ There is also a lack of transparency with respect to obtaining copies of EIAs, which are supposed to be public.⁴²¹ CSOs report that there is no organized database or source from which to obtain EIAs or other records of public interest, and that government representatives are hesitant to hand over such documents and treat such actions as secretive personal favours.⁴²²

6.3.6 Lack of Adequate Clean-up and Remedy Enforcement

DOE states that extractive industries in Fiji have contributed to destructive and sometimes irreversible mining impacts, including widespread deforestation, as well as air and river pollution affecting multiple connected ecosystems.⁴²³ A professor at the University of the South Pacific notes that island ecosystems are fragile and interconnected, and cannot withstand the same kind of environmental shocks as larger landmasses.⁴²⁴

Despite agreements with mining companies and legislation mandating the clean-up of environmental harms, pollution caused by Fiji's terrestrial mines has yet to be remedied. CSOs report that there has been no clean-up or remedy where runoff from bauxite stores polluted fish stocks and water, or for the leakages at the Vatukoula mine.⁴²⁵ Similarly, where companies have been "forced" by the government to rehabilitate land degraded by mining, they have engaged in superficial measures such as planting easily movable trees instead of indigenous plants, and covering polluted areas with tarpaulins.⁴²⁶ In Namosi, there have been no efforts to clean up or restore rivers, streams, and associated marine life contaminated by illegal dumping and activities of prospecting mine companies, nor to otherwise rehabilitate degraded areas or address the health impacts of pollution.⁴²⁷

Meanwhile, \$4 million worth of bauxite (around 100 tons) has sat in stockpiles for a year, unable to be exported because of global market fluctuations and its low grade.⁴²⁸ The Vatukoula mine has also encountered profitability

challenges due to the dipping price of gold, as well as the aftermath of Cyclone Winston.⁴²⁹

6.3.7 Legislative Analysis

Fiji's legislation relevant to DSM includes the Environment Management Act 2005 (EMA),⁴³⁰ the older Mining Act (1978), a draft Mineral Exploration and Exploitation Bill (MEEB 2006), and a green paper on Fiji Offshore Minerals Policy (2007), among others. The offshore minerals policy, along with amendments made to the Mining Act by the Mining Decree of 2010 to extend the definition of the land to include the seabed and its subsoil and establish a gridding and fees system, enabled the granting of exploration licenses to KIOST and Nautilus.⁴³¹ These laws supposedly permit only exploration, not mining, which will be granted upon the development of targeted offshore mining legislation.⁴³² This analysis primarily assesses the draft Mineral (Exploration and Exploitation) Bill of 2006, as well as Fiji's Offshore Mineral Policy.

The Draft Mineral (Exploration and Exploitation) Bill of 2006

The MEEB applies to both onshore and deep sea mining—and extends to precious metals, coal, and metalliferous metals, among other substances. There is no actual mention of the "seabed" or "deep sea mining" throughout the Bill. It has been in draft form since 2006 and was reviewed in 2013 by the International Legal Resource Centre of the American Bar Association (ABA), as well as by the SPC-EU DSM Project in its comments on the ABA's draft review.

FPIC, Indigenous Protections, Notice, and Consultation Provisions

Compared to other DSM legislation, Fiji's Bill is on the longer side (133 pages) and is highly technical, containing numerous detailed regulatory and administrative provisions. In contrast to most of the other legislative instruments surveyed, the MEEB is unique in its incorporation of some of Fijian customary law as concerns Fiji's domestic regime of native land rights. However, these elements do not necessarily reach the level of protections required under international law, however. For instance, Division 3, Section 8, "Reservation of minerals to the State," fails to recognize indigenous peoples' right to FPIC for the exploration and exploitation of said resources, as well as their right to benefit-sharing arrangements, as established by the UNDG Guidelines.⁴³³ In fact, the Bill as a whole is devoid of any reference to FPIC or indigenous peoples. This may be related to national sensitivities and Fiji's unique multicultural history; however, it is nevertheless recommended that some more robust form of protection specific to indigenous peoples be incorporated into the Bill.⁴³⁴

Section 124, "Protected Areas," closes off certain Fijian, Rotuman, and Banaban villages, as well as other areas, to prospecting and mining, and requires consent in some situations from land owners. However, this consent can be overruled by the Mining Tribunal. This section assumedly only applies to land-based mining; we recommend the development of a related but differentiated provision relevant to DSM, establishing protected marine and coastal areas where DSM will be restricted, including traditional fishing grounds, coral reefs,

migratory pathways, and other biodiverse and sensitive marine environments. While the draft MEEB has provisions dealing with the potential effects of onshore mineral extraction, it does not address the potential impacts of DSM, which is a significant oversight given the risks and uncertainties of DSM. Provisions addressing potential impacts should be included, along with provisions requiring the FPIC of indigenous communities likely to be impacted before the commencement of DSM activities.

Division 5, Section 11, "Notices relating to certain land and customary fisheries," requires that notice must be given to certain owners of native land or customary fisheries. For transparency purposes, notice should be given to not just owners of native land or customary fisheries but to the public at large regarding mining projects, including all DSM activities (it appears this may be covered by Section 89, regarding the advertising of mining applications in newspapers). Similarly, Section 90 requires the applicant for a mining lease to give notice to "the owners and occupiers of the land applied for," while Section 149 establishes notification procedures for the Native Trust Land Board, and Section 150 requires landowners and occupiers to be notified regarding mining leases and licenses. However, it bears emphasizing that while notice is important, it is not the same as consultation let alone consent. Neither do the notice provisions of the MEEB provide landowners with any powers to object to or stop prospective mining activities. It is FPIC, not mere notice, which is required from indigenous communities with respect to extractive industries impacting their traditional lands and territories. Framing mineral law in terms of State ownership of all mineral resources (and

mere notice provisions for all other parties) serves to relegate the interests of concerned communities and indigenous groups to a marginalized sphere, one in which giving notice is considered not only sufficient but a special consideration. This framing risks the wellbeing and human rights of these communities, and allows for the abuses which have characterized past extractive industry activity to be repeated. A document which enshrines community welfare, environmental protection, and sustainable resource management by incorporating FPIC and environmental provisions will strengthen Fiji's regulatory regime while being in greater conformity with international law.

In general, we agree with the ABA's recommendation that:

[T]he Draft Law include additional provisions or provide additional information in the following areas relating to indigenous and local populations: notification and consultation and engagement, information, participation, free, prior and informed consent, social impact assessment, relocation, remedies and a general human rights obligation, including reporting...the Fijian government should [also] seek input regarding the issues discussed herein from indigenous and local communities consistent with Fiji's obligations, specifically articles 6 and 7, under ILO Indigenous and Tribal Peoples Convention (No. 169), ratified by Fiji in 1988.⁴³⁵

We also agree with the ABA's recommendation that "land owners and traditional communities should have the right to early consultation as well as the power to dictate terms and conditions, or even reject, mining operations on their land unless the national interest is at stake";⁴³⁶ we would further expand this sentiment in line with international law to include DSM and any extractive activity impacting indigenous territory or resources [for more see *Annex: International Law Discussion*]. Although this analysis draws primarily on international environmental and indigenous rights law, the ABA further points out that such policies are also in line with emerging law on business and human rights and requirements imposed upon companies by the IFC,⁴³⁷ the Equator Principles,⁴³⁸ the United Nations Guiding Principles on Business and Human Rights, the OECD Guidelines for Multinationals,⁴³⁹ and various regional banking institutions.⁴⁴⁰

Fiji's MEEB contains a Compensation section (Part 7), which provides for monetary payments to affected owners or occupiers of land, including for land, cultural, and external disruption. It is unclear whether or how these provisions would apply to DSM. With respect to likely impacts of DSM felt on land, as well as potential effects on fisheries and marine-based activities, we recommend that they be extended accordingly. Compensation provisions should be paired with pre-emptive protections, specifically FPIC. Efforts should be made to restructure the legislation so that greater emphasis is on avoiding harm and damage; the tendency to frame damage and community harm as the cost of doing business should be avoided so as to emphasize to industry their obligations to avoid

harm, not merely to compensate it after the fact. As the ABA notes,

[T]his principle pushes a dangerous idea—that prospectors should get insurance for potential liabilities rather than avoid disruption. Further, the reality of doing business with sophisticated multinational companies is that financial resources can be easily withdrawn from a country to frustrate tort awards. The Draft Law offers to foreign businesses an easy way to escape liability.⁴⁴¹

Environmental Protections – Precautionary Principle, Transboundary Harm

Fiji's MEEB lacks references to the precautionary principle or the requirement to avoid transboundary harm. This may be due to its emphasis on terrestrial mining, and may be an argument for more discrete provisions on DSM, if not a separate regulatory instrument specific to DSM. However, such oversights are not passable under international environmental law, and the Bill should be revised to include significant, robust protections operationalizing the precautionary principle and expressing an enforceable commitment relative to transboundary harm.

With respect to the precautionary principle, such provisions would extend to avoiding mining in cases where lack of knowledge and scientific uncertainty pose a certain level of risk of harm to the environment. Provisions on the precautionary principle and other environmental protection measures should be incorporated, for instance, in Section 96, "Criteria," relating to the requirements for the approval of an

application for a mining lease. EIA requirements and other environmental protections are covered under Fiji's Environment Management Act 2005, to which the MEEB is subject—regardless, it would still be advisable to incorporate provisions on the precautionary principle and transboundary harm into the MEEB itself. In its review of Fiji's draft law, the SPC acknowledged the "potential for transboundary impacts" from DSM, and recommended that the MEEB make provisions for transboundary harm, including notification to neighbouring states.⁴⁴²

Similarly, applications related to environmental rehabilitation should be strengthened. Division 7, Section 143, "Rehabilitation of land," states that "the Director *may* direct the former holder of the right [the prospector] . . . to carry out such work to rectify actual damage to or loss of property (other than property of the holder or the principal) incurred in the course of activities carried out under or in connection with the right" (emphasis added). Rectification of damage or loss of property by mining entities should not be optional or left to the discretion of the Director—this extends to restitution of any damage resulting from DSM. Furthermore, both the ABA and the SPC recognize that the penalties for mining violations contained in the current bill fall far short of regulatory standards and should be increased accordingly.⁴⁴³

In its response to the ABA analysis, the SPC-EU DSM Project has made efforts to exclude any discussion or inclusion of the "owners and occupiers" of the land from DSM resources, arguing that these lie outside of native land and that customary rights extend only to "living marine resources within coastal waters 6 nautical

miles from the coastal baseline,” and not to “non-living marine resources (i.e., DSM) far offshore (e.g., in the EEZ).”⁴⁴⁴ Leaving aside for the moment arguments related to traditional fishing grounds under customary law, which, in PI nations, arguably extend far out into the EEZ and possibly beyond, we reiterate that international law requires FPIC from indigenous communities where there is a probability of activities *impacting* their lands, territories, and resources, regardless of where the underlying activities take place [see *Annex: International Law Discussion*].

At this stage, Fiji’s MEEB is still in draft form and substantial changes and amendments, including a separate regulatory instrument specific to DSM, should be entertained.

Fiji’s Offshore Mineral Policy (OMP)
Fiji’s OMP recognizes the need to develop a comprehensive policy that addresses offshore mining and exploration, which will eventually be developed into legislation for inclusion in the new mining legislation.⁴⁴⁵ Unfortunately, it seems that Fiji has based its Green Paper off of PNG’s draft “Green Paper on Offshore Mining Policy,” which is concerning given PNG’s track record with respect to DSM.

Being specific to marine mining, the OMP recognizes the stipulations and guidelines of UNCLOS and ISA.⁴⁴⁶ It then proceeds with the details of a licensing regime. Of note is the fact that Fiji envisions allowing pilot or trial mining as a potential *exploration* activity, to be allowed under an exploration license, along with “any drilling, dredging or excavations necessary to determine the nature and size of the mineral deposit.”⁴⁴⁷ Trial mining is not a low-impact

activity. To allow pilot mining in the exploration stage, which, in Fiji, is ongoing at the moment, seems like a direct violation of the precautionary principle, as well as a policy which at the very least would trigger FPIC. However, rather than FPIC, the OMP allows for a period of “public objection” to a mining application, which the “Government will take into consideration.”⁴⁴⁸ Needless to say, this is insufficient and barely meets the requirements of consultation, much less FPIC.

The fiscal regime for offshore mining envisions a 2% mineral royalty rate, as well as a 31% corporate income tax.⁴⁴⁹ However, various tax concessions and research and technology incentives are offered, along with other deductions for operators.⁴⁵⁰

In addition to these industry-friendly provisions, the OMP notes that the “environmental management regime will focus on self-monitoring by the operator.”⁴⁵¹ Provisions which merely encourage operators to avoid environmental damage will likely be insufficient to prevent serious harm to the environment, as they have been for terrestrial mining, and will not indemnify Fiji in the case of any liability for transboundary harm.

Fiji’s OMP does contain a section on community issues, which is primarily concerned with how DSM may impact customary fishing rights.⁴⁵² In general, however, the provisions in this section are framed as compensating for impacts, rather than obtaining the FPIC of affected communities. There is likewise no sense that affected coastal communities or even customary fishing rights owners could prevent a

DSM project from proceeding, were they to oppose it.

Fiji's policy is unique among others surveyed in this report in specifying that some individuals, namely "registered customary fishing rights owners," will have an equal share in mineral royalties from offshore mining.⁴⁵³ This is, perhaps, an improvement with respect to distributional sharing of the revenue of extractive projects by affected communities. However, there are concerns that not all members in impacted communities will receive benefits, thereby creating conflict and inequities. The Fiji government would be well advised to consider mandating FPIC procedures as well as a significantly more precautionary approach as it drafts its DSM-specific legislation.

6.3.8 Conclusion

Although DSM is not as advanced in Fiji as it is in Tonga or PNG, there remains cause for concern. Fiji's existing terrestrial mining regime is plagued with oversight and capacity problems, and has created conflict among local communities, in addition to causing serious environmental and human health impacts. Meanwhile, Fiji has issued exploration licenses to three mining companies whilst possessing no existing, discrete DSM legislation. Instead, half-developed mineral policies, decrees, and draft mining legislation purport to allow pilot or trial mining in the exploration phase, while possessing minimal provisions on consultation, if at all. With institutions such as the TLTB and an existing system of customary land ownership and fishing rights, Fiji has the potential to create a much stronger, rights-protective system to safeguard both its mineral resources from reckless exploitation, and its

people from consequent harm. FPIC should be at the centre of such legislation. Moreover, a true precautionary approach, in line with UNCLOS and international law, requires a substantial investment in capacity-building and effective monitoring. Fiji cannot rely on operators to self-monitor and self-regulate. Legislation which encourages this neither fulfils Fiji's obligations under international law, nor prevents transboundary harm claims or future liability for marine pollution.

7 | REPORT RECOMMENDATIONS

Most of the PI countries have some kind of draft legislation aimed at regulating DSM. As evident from the mapping above, in some cases these are older onshore mining frameworks with limited relevancy to DSM, while in other cases they are new frameworks based off of the SPC-EU DSM framework, or drafted independently. When undertaking the creation of a regulatory framework for a completely new industry such as DSM, the importance of ensuring the comprehensiveness and enforceability of such a framework cannot be overstated. Such processes take time. Given that DSM ventures are long-term projects, and seeing as how more time will allow scientists to complete studies on the deep seabed, we recommend that countries take at least several years, and ideally a decade or more, to allow scientific exploration and significantly more consultation regarding the development of robust regulatory frameworks in line with international law. At the very least, FPIC and other human rights safeguards should be incorporated into all legislative and regulatory

frameworks. PI nations that decide to undertake DSM at this early stage should be prepared for the challenges inherent in combating marine pollution, collecting and managing resource revenue, and overseeing large MNCs in their waters.

In our view, the rush to prospect and mine PNG's waters before the finalization of a DSM legislative or regulatory mechanism directly contravenes the precautionary principle. Instead, PI countries might elect to adopt the cautious stances of other countries (e.g., New Zealand, Australia, Namibia, and Mexico) with respect to DSM, including requiring stringent EIAs and the highest protective measures from mining companies, as well as enacting moratoria on DSM until adequate scientific research and effective, enforceable regulation can be executed.

Regulatory/Legislative Recommendations

- Incorporate provisions on meaningful consultation with project-affected communities and FPIC for indigenous peoples into all DSM administrative, legislative, and regulatory instruments
- Operationalize the precautionary principle in the body of legislative text by laying out steps for companies and governments to follow, including:
 - Establishing stronger, prior EIA provisions—for instance, EIAs should not minimize risks in order to ensure project approval (i.e. “greenwashing”); they should also be subject to strong independent review by third party experts, and the results of such reviews should be made publicly available
 - Allowing the option of bans or moratoria on mining in cases where the

precautionary principle precludes action due to lack of adequate knowledge about risks and impacts

- Develop concrete provisions enshrining the avoidance of transboundary harm in legislative and regulatory mechanisms, including strengthening environmental protections and containing potential impacts, and in cases where this may not be possible, providing appropriate remedy
- Establish an effective grievance mechanism to receive and facilitate resolution of project-affected communities' concerns and environmental and social impacts resulting from mining projects

Policy Recommendations

- Conduct public outreach and society-wide consultation on DSM, with a focus on indigenous and coastal communities, as well as women, youth, and other marginalized/vulnerable groups
- Create open dialogue forums and venues where individuals and the public can express views and engage in local and national conversations on DSM
- Allow for an independent capacity assessment to determine the government's actual enforcement and monitoring abilities
- Create plans or designate funding to improve capacity and make provisions for training where existing institutions are insufficient
- Commission an independent assessment of transparency mechanisms and the ability to manage resource revenue openly and responsibly
- Consult with scientists and marine experts regarding the seabed and allocate resources for further study and assessment of deep sea ecosystems

- Consult with conservation groups and environmental experts regarding national marine heritage sites and consider designating areas for preservation and protection from future DSM and other exploitation; provided that such protected areas, as well as the process of their creation, are harmonized with the rights of indigenous peoples

8 | CONCLUSION

This study on DSM legislation in the Pacific provides an overview of the existing regulatory instruments of the region, finding that most legislation does not sufficiently safeguard the rights of indigenous peoples or protect the environment in line with international law. Additionally, case study analyses raise concerns that many PI nations simply do not have the manpower or resources to effectively monitor DSM, and that corruption and revenue mismanagement are not only plausible but almost inevitable. We recommend that PI countries rectify existing legislative and regulatory deficiencies and carefully assess in an open, inclusive, and participatory process the prospect of DSM for their countries and peoples. Two points bear repeating here: 1) indigenous communities should have the greatest say over extractive industries' activity in their ambit and 2) even the best legislative mechanisms will fail if there is limited governmental capacity to implement them.

Rather than rush into an untested venture with eyes averted to the potentially devastating consequences, PI countries have the opportunity to establish prudent policies and best practices in this area. Pacific peoples have the right and indeed the responsibility to steward their own resources for the sustainable development of themselves and future generations. Adopting

inclusive, rights-protective legislation is a necessary step in an effort that by necessity must involve far more outreach, consultation, and scientific study before any more DSM exploration is undertaken. Only then can PI nations break the vicious cycle of experimental technology testing in their waters, and ensure the protection and wellbeing of their peoples.

9 | ANNEX: INTERNATIONAL LAW DISCUSSION

Additional Legal Authority: Indigenous Rights, FPIC, and Environmental Law

In part due to the exploitative history regarding indigenous peoples and extractive industries, and additionally as designated vulnerable members of society, indigenous peoples are afforded a special relationship with the State. They are thereby provided certain rights to ensure the protection of their distinctive cultures and their traditional lands, territories, and resources. These rights are established norms under international mechanisms such as the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP), the International Labour Organization Convention No. 169 Concerning Indigenous and Tribal Peoples in Independent Countries (ILO Convention No. 169), and various treaty bodies and case law from institutions such as the Inter-American Court of Human Rights (IACHR),⁴⁵⁴ the Human Rights Committee, the Committee on Economic, Social and Cultural Rights (CESCR), and the Committee on the Elimination of Racial Discrimination (CERD). The duty to obtain indigenous peoples' FPIC regarding development

activities that *impact* their lands, communities, and culture is expressly recognized by these international instruments and bodies. This duty is premised on indigenous peoples' right to self-determination, particularly their right to "freely determine their political status and freely pursue their economic, social and cultural development."⁴⁵⁵

Indigenous people must be specifically protected in regulatory frameworks. It cannot be assumed that they are automatically included in terms such as "citizens," "communities," "stakeholders," and "public." Under international law, special duties are owed to indigenous peoples, who must not be conflated with the general population of island nations.

The necessity of obtaining the FPIC of indigenous peoples in regard to the development, occupation, and use of their property, and in any measures that may affect their community, is explicitly provided for in Articles 10, 11, 19, 28, and 29 of the UNDRIP. Other protected rights of indigenous peoples under the UNDRIP include the rights to life,⁴⁵⁶ religion and customs,⁴⁵⁷ tradition and history,⁴⁵⁸ health,⁴⁵⁹ traditional "lands, territories, waters and coastal seas and other resources,"⁴⁶⁰ and the duty to consult and include indigenous peoples in the decision-making process in any measures affecting them.⁴⁶¹ Because DSM has already impacted and has the potential to continue to affect indigenous land, subsistence, and culture, it considerably endangers indigenous peoples' protected rights and triggers protections under the UNDRIP⁴⁶² as well as other international instruments—protections that are not "optional" under such circumstances.

The 1997 General Recommendation No. 23 on indigenous peoples issued by the Committee on

the Elimination of Racial Discrimination (CERD) applies the International Convention on the Elimination of All Forms of Racial Discrimination (ICERD) to indigenous peoples, and calls on states to recognize and protect indigenous peoples' culture, lands, and economic and social development.

Recommendation No. 23 establishes that, regarding indigenous peoples, "no decisions directly relating to their rights and interests [be] taken without their informed consent."⁴⁶³ The application of the ICERD to indigenous peoples represents a binding obligation on states that have signed and ratified the treaty, which includes many PI states.⁴⁶⁴

General Comment No. 21, the right of everyone to take part in cultural life, issued by the CESCR⁴⁶⁵ in 2009, reaffirms these duties and the need to secure indigenous peoples' rights, including the right to FPIC.⁴⁶⁶ The Comment establishes that "[i]ndigenous peoples' cultural values and rights associated with their ancestral lands and their relationship with nature should be regarded with respect and protected, in order to prevent the degradation of their particular way of life, including their means of subsistence, the loss of their natural resources and ultimately, their cultural identity."⁴⁶⁷ It also urges states parties to "take measures to recognize and protect the rights of indigenous peoples to own, develop, control and use their communal lands, territories and resources, and, where they have been otherwise inhabited or used without their free and informed consent, take steps to return these lands and territories."⁴⁶⁸

In affirming the right to FPIC, both the CERD and the CESCR have recognized legal principles established by the ILO Convention

No. 169, which instructs governments to consult with indigenous peoples “before undertaking or permitting any programmes for the exploration or exploitation of such resources pertaining to their lands.”⁴⁶⁹ Such consultation, which must be carried out in good faith through participation “at all levels of decision-making,”⁴⁷⁰ is emerging customary international law,⁴⁷¹ and the failure of the RLRf to incorporate it contravenes the same.

Various international case law also provides support for the norm of FPIC for indigenous rights. The case of *Angela Poma Poma v. Peru*, a decision adopted by the UN Human Rights Committee⁴⁷² in 2009, addresses impacts on water beneath indigenous peoples’ lands and upholds states’ duties to obtain indigenous peoples’ FPIC. The decision reiterates that indigenous peoples should be provided with “the opportunity to participate in the decision-making process,”⁴⁷³ and that participation must be “effective” and “requires not mere consultation but the free, prior and informed consent of the members of the community.”⁴⁷⁴

The Inter-American Commission on Human Rights has developed considerable jurisprudence on indigenous peoples’ right to FPIC, requiring “special measures to ensure recognition of the particular and collective interest that indigenous people have in the occupation and use of their traditional lands and resources and their right not to be deprived of this interest except with fully informed consent.”⁴⁷⁵ In 2004, the Commission stated that FPIC is generally applicable “to decisions by the State that will have an impact upon indigenous lands and their communities, such as the granting of

concessions to exploit the natural resources of indigenous territories.”⁴⁷⁶

Similarly, the IACHR has issued relevant decisions concerning indigenous peoples. In *Case of the Saramaka People v. Suriname*, the IACHR found that the “the State ha[d] a duty to actively consult” with the indigenous Saramaka people in accordance with their customs and traditions.⁴⁷⁷ According to the Court, the duty of consultation with indigenous peoples requires “the State to both accept and disseminate information, and entails constant communication between the parties.”⁴⁷⁸ Additionally, consultations “must be in good faith, through culturally appropriate procedures, and with the objective of reaching an agreement” and “must be in accordance with their own traditions, at the early stages of a development or investment plan, not only when the need arises to obtain approval from the community.”⁴⁷⁹ Consultations need to consider “traditional methods of decision-making.”⁴⁸⁰ Furthermore, the state is required to ensure that indigenous peoples are “aware of possible risks, including environmental and health risks, in order that the proposed development or investment plan is accepted knowingly and voluntarily.”⁴⁸¹ The IACHR has recently affirmed a state’s duty to consult with indigenous peoples as “an obligation that has been clearly recognized” in the *Case of the Kichwa Indigenous People of Sarayaku v. Ecuador* decision.⁴⁸² This case reinforces the *Saramaka* decision through its detailed confirmation of the requirement of prior good faith consultation with indigenous peoples through culturally appropriate procedures.⁴⁸³ Additional influential support for indigenous rights can be found in the United Nations

Development Group's Guidelines on Indigenous Peoples' Issues (UNDG Guidelines), which is said to represent the model approach to development sensitive to the rights of indigenous peoples.⁴⁸⁴ Based on the UNDRIP, the ILO Convention 169, the Convention on Biological Diversity and other relevant international instruments, the UNDG Guidelines affirm that indigenous peoples have the right to define and decide their own development priorities. Specifically, the UNDG Guidelines provide that even in the case of state-owned sub-surface resources, indigenous peoples still possess the right to FPIC for the exploration and exploitation of said resources, and have the right to any benefit-sharing arrangements concerning the same. Additionally, any government-issued permits for extraction or even prospecting of natural resources ought not be granted if the development activity hinders indigenous peoples' ability to continue to use and/or benefit from these areas, or where the FPIC of indigenous peoples concerned has not been obtained. Other elaborations of FPIC-related requirements can be found in the regulatory regimes of international institutions such as the World Bank Group, whose 2003 review on extractive industries includes recommendations to incorporate FPIC-related items in their performance standards.⁴⁸⁵ Such sources register the growing realization among non-state actors of the need to pay due regard to indigenous peoples' right to FPIC.

In addition to international instruments, there are numerous domestic legal instruments and case law underlining the importance of, and demonstrating compliance with, FPIC. For example, in Australia, consent must be obtained

in connection with mining through statutorily created indigenous-controlled Land Councils,⁴⁸⁶ while New Zealand law recognizes Maori landowners' right to consent for activities that may affect their land.⁴⁸⁷ The influential Colombian Constitutional Court has held that "the information or notification that is given to the indigenous community in connection with a project of exploration or exploitation of natural resources does not have the same value as consultation."⁴⁸⁸ Rather, "formulas for concerted action or agreement with the community" should be presented so that the indigenous community "declares, through their authorized representatives, either their consent or their dissatisfaction in relation with the project, and the way in which their ethnic, cultural, social, and economic identity is affected."⁴⁸⁹ The Canadian Supreme Court has also upheld on a number of occasions the duty to consult with and obtain consent from indigenous peoples, even in the case of predicted minor impacts on traditional lands and resources.⁴⁹⁰ In 2003, the South African Constitutional Court recognized and confirmed indigenous peoples' ownership of subsoil and other resources, obviating any right of the state to issue concessions on indigenous lands, and recognizing the need for indigenous peoples' FPIC.⁴⁹¹

These decisions, combined with the aforementioned existing international mechanisms and jurisprudence, are evidence of a strong presumption against the legality of any proposed framework or regulation which purports to undertake development activities without any provisions for the protection and consultation of indigenous peoples. Considering the traditional and historic importance of all ocean resources for PI indigenous peoples and

the impact any disturbance in the marine environment will have on indigenous Pacific Islanders' way of life, this most certainly extends to DSM, regardless of where in a country's waters it takes place. DSM frameworks must include a comprehensive, discrete section that realistically and objectively (1) assesses potential impacts on indigenous peoples, (2) provides ways to prevent and minimize such impacts, and (3) enacts provisions requiring indigenous peoples' FPIC in line with international law and existing best practices.

International Environmental Legal Precepts: The Precautionary Principle, the Avoidance of Transboundary Harm, and UNCLOS
The precautionary principle is a foundational tenet of international environmental law, codified in binding international treaties such as the Kyoto Protocol, and reaffirmed in various subsequent instruments, including, for instance, the Rio Declaration on Environment and Development.⁴⁹² It posits that in the absence of conclusive scientific evidence of consequent harm, states have a duty to err on the side of caution. This principle—widely recognized in national legal frameworks and considered a general principle of the law of nations⁴⁹³—commands states to adopt a precautionary stance in the face of threats of harm to human health or the environment. Toward that end, the principle commands both states and non-state actors (such as MNCs) to examine, at all times, the full range of available alternatives to the contemplated project, including that of no action.

Under the precautionary approach, there is a social responsibility to protect people and the environment, which must be pre-emptively

addressed. Given the unprecedented degree of scientific uncertainty surrounding the deep sea and the fact that little to nothing is known about the exigencies of seafloor mining technologies and the potential impacts on the natural and human environment, DSM activities require strict application of the precautionary principle. Moreover, it is in relation to the sea that the precautionary principle is singularly well-established and thus likely binding as a matter of customary international law.⁴⁹⁴

Both the precautionary approach and the principle of avoidance of transboundary harm can be considered general international due diligence obligations not to cause harm to the environment within and beyond national jurisdiction—including outside of a country's EEZ, in the Area, and on the high seas.⁴⁹⁵ The obligation not to cause transboundary harm has a long history, from the Trail Smelter case, Principle 21 of the Stockholm Declaration, the ILC Draft Articles on Prevention of Transboundary Harm from Hazardous Activities, and the decision of the International Court of Justice (ICJ) in the Pulp Mills case.⁴⁹⁶ In the influential advisory opinion of the ICJ on the Legality of the Threat or Use of Nuclear Weapons, the ICJ—referring to the transboundary harm principles of the Rio and Stockholm declarations—recognized the following:

[. . . T]he environment is not an abstraction but represents the living space, the quality of life and the very health of human beings, including generations unborn. The existence of the general obligation of States to ensure

that activities within their jurisdiction and control respect the environment of other States or of areas beyond national control is now part of the corpus of international law relating to the environment.⁴⁹⁷

Under this reasoning, activities sanctioning DSM (providing permits, assistance, receiving revenue, etc.)—even if carried out beyond the EEZ—could be recognized as falling under a state’s “control”; thus a country could be held responsible for any harm that occurs against other nations or peoples in such situations. This includes the prospect of PI nations sponsoring MNCs or foreign governments for DSM that occurs in the Area under the purview of the ISA.⁴⁹⁸ The Seabed Disputes Chamber of the International Tribunal for the Law of the Sea has additionally found that states and other parties may be entitled to claim compensation for damage to the marine environment “in light of the *erga omnes* character of the obligations relating to preservation of the environment of the high seas and in the Area.”⁴⁹⁹

Combined with specific regional protection instruments such as the Convention for the Protection of Natural Resources and the Environment of the South Pacific Region (the Noumea Convention), the precautionary principle and that of transboundary harm require a guarded, informed approach to the prospect of DSM, whether it occurs in domestic waters or further offshore.

Additionally, UNCLOS⁵⁰⁰ has numerous provisions emphasizing signatory states’ duties to protect and preserve the marine environment,⁵⁰¹ and to take all measures

“necessary to prevent, reduce and control pollution of the marine environment from any source,”⁵⁰² including provisions specific to protecting the seabed in both national jurisdictions and the Area.⁵⁰³ UNCLOS for state breaches of these provisions, including for trans-boundary harm occurring in the Area and generally, as well as damage caused by pollution of the marine environment under a state’s own jurisdiction.⁵⁰⁴ Article 194 further reiterates states’ duties “not to cause damage by pollution to other States and their environment,” as well as to ensure “that pollution arising from incidents or activities under their jurisdiction or control does not spread beyond the areas where they exercise sovereign rights.”⁵⁰⁵

Taken together with the Seabed Disputes Chamber ruling, there will be a high bar for states to demonstrate that they took effective measures, including not only enacting strong legislation but *effectively monitoring DSM and enforcing laws and regulations* in order to defend against potential liability claims.

Indemnification clauses and attempts to hold contractors solely responsible may not prevent states from being sued in cases where their participation in DSM was part of a joint venture, or where lack of government oversight contributed to damage. PI nations should be particularly apprised of these international law requirements, given the aforementioned discussion surrounding the lack of monitoring and enforcement capabilities.

Other Sources of Law: International Human Rights Law

States have other legal obligations under various international law instruments, including an extensive body of established international

human rights law. We recommend that frameworks incorporate a section recognizing states' obligations under international human rights law, and discussing possible implications and violations of these rights as a result of DSM, including, but not limited to: effects on the right to a livelihood, the right to work, the right to family, the right to a clean environment, the right to health, and the right to housing.

These rights are contained and reiterated in established declarations and treaties, including the Universal Declaration of Human Rights, the International Covenant on Economic, Social and Cultural Rights, and the International Covenant on Civil and Political Rights (collectively, the International Bill of Rights), which almost all PI countries have ratified.

¹ The SPC-EU DSM Project formerly fell under the provenance of the Pacific Islands Applied GeoScience Commission (SOPAC), originally its own inter-governmental regional organisation until 2010, when its functions were transferred to the Secretariat of the Pacific Community (SPC). Today SOPAC exists as the division of the SPC that handles DSM. For simplicity's sake, this report refers primarily to the SPC, not SOPAC.

² See, e.g., *Polynesian History and Origin*, PBS.ORG, <http://www.pbs.org/wayfinders/polynesian2.html> (last accessed Apr. 20, 2016); John Pickford, *Polynesian Navigators Revive a Skill that Was Nearly Lost*, BBC NEWS (July 22, 2013), <http://www.bbc.com/news/magazine-23359495>; Doug Herman, *How the Voyage of the Kon-Tiki Misled the World about Navigating the Pacific*, SMITHSONIAN.COM (Sept. 4, 2014), <http://www.smithsonianmag.com/smithsonian-institution/how-voyage-kon-tiki-misled-world-about-navigating-pacific-180952478/?no-ist>; Liesl Clark, *Polynesia's Genius Navigators*, NOVA (Feb. 15, 2000), <http://www.pbs.org/wgbh/nova/ancient/polynesia-genius-navigators.html>.

³ See *History of Ocean Voyaging*, PACIFIC VOYAGERS, <http://pacificvoyagers.org/history-of-ocean-voyaging/> (last accessed Apr. 20, 2016); Tevita O Ka'ili, *Taubi va: Nurturing Tongan Sociospatial Ties in Maui and Beyond*, 17 THE CONTEMPORARY PACIFIC 83-113 (2005).

⁴ Epeli Hau'ofa, *The Ocean in Us*, 10 THE CONTEMPORARY PACIFIC 391-410 (1998).

⁵ *Note by the Secretariat: Study on the Relationship Between Indigenous Peoples and the Pacific Ocean*, U.N. ECON. & SOC. COUNCIL [ECOSOC], Permanent Forum on Indigenous Issues, U.N. Doc. E/C.19/2016/3 (May 9-20, 2016), ¶ 19, available at: http://www.un.org/en/ga/search/view_doc.asp?symbol=E%2FC.19%2F2016%2F3 [hereinafter *ECOSOC Study*].

⁶ UNCLOS defines each classification as follows:

- The "Exclusive Economic Zone" is the waters extending to 200 nautical miles from a baseline constructed from points on the land territory of the State
- The "continental shelf" comprises the seabed and subsoil of the submarine areas that extend beyond a coastal state's territorial sea throughout the natural prolongation of its land territory to the outer edge of the continental margin, or to a distance of 200 nautical miles from the baselines from which the breadth of the territorial sea is measured where the outer edge of the continental margin does not extend up to that distance
- The "high seas" are all parts of the sea that are not included in the exclusive economic zone, in the territorial sea or in the internal waters of a State, or in the archipelagic waters of an archipelagic State
- "The Area" is the seabed and ocean floor and subsoil beyond national jurisdiction, and is considered the common heritage of mankind.

See United Nations Convention on the Law of the Sea arts. 1, 55, 57, 76, 86, Dec. 10, 1982, 1833 U.N.T.S. 397 [hereinafter *UNCLOS*].

⁷ Substances include nickel, copper, cobalt, manganese, zinc, gold and other rare-earth metals and minerals.

⁸ See Richard Steiner, *Deep Sea Mining a New Ocean Threat*, HUFFINGTON POST, Oct. 20, 2015, http://www.huffingtonpost.com/richard-steiner/deep-sea-mining-new-threa_b_8334428.html: "Deep sea hydrothermal vent ecosystems were first discovered in 1977 at the Galapagos Rift, and stunned the world of science, as these vent systems rely entirely on chemosynthesis rather than photosynthesis - the first ever known. Over 300 deep sea vent systems have been discovered so far, and it is estimated that perhaps only 500 - 5,000 may exist in the world ocean, making this one of rarest ecosystems in Earth's biosphere."

⁹ See *id.*

¹⁰ For example, Nautilus's Solwara 1 DSM SMS site is only ~30 km off the coast of New Ireland and ~50 km off the coast of East New Britain and respective populated towns and indigenous villages.

¹¹ UNCLOS states: “Activities in the Area shall be carried out as prescribed in paragraph 3: ... (b) in association with the Authority by States Parties, or state enterprises or natural or juridical persons which possess the nationality of States Parties or are effectively controlled by them or their nationals, when sponsored by such States, or any group of the foregoing which meets the requirements provided in this Part and in Annex III.” UNCLOS, *supra* note 6, at art. 153(b).

¹² See H. Rosenbaum, *Out of Our Depth: Mining the Ocean Floor in Papua New Guinea*, DEEP SEA MINING CAMPAIGN, MININGWATCH CANADA 6 (2011), available at: <http://www.deepseaminingoutofourdepth.org/wp-content/uploads/Out-Of-Our-Depth-low-res.pdf> [hereinafter *Out of Our Depth*].

¹³ *The Raw Materials Initiative: Meeting Our Critical Needs for Growth and Jobs in Europe*, Communication from the Commission to the European Parliament and the Council, available at: <http://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:52008DC0699&from=EN> (last accessed May 6, 2016).

¹⁴ *Id.*

¹⁵ *Id.*

¹⁶ *Id.* E.g., The European Technology Platform on Sustainable Mineral Resources/The Waterborne Technology platform.

¹⁷ The SPC-EU Deep Sea Minerals Project has 15 member Pacific Island Countries: the Cook Islands, Federated States of Micronesia, Fiji, Kiribati, Marshall Islands, Nauru, Niue, Palau, Papua New Guinea, Samoa, Solomon Islands, Timor Leste, Tonga, Tuvalu, and Vanuatu. See About the SPC- EU Deep Sea Minerals Project, Secretariat of the Pacific Community, <http://gsd.spc.int/dsm/> (last accessed Mar. 16, 2016) [hereinafter *About the SPC-EU DSM Project*]. This assessment excludes Timor Leste from review.

¹⁸ See, e.g., Memorandum of Understanding Between the French Maritime Cluster and the Deep Sea Mining Alliance on Industrial, Technological and Scientific Cooperation, available at: http://www.mhf.berlin/images/PDFs_fuer_Berichte/Memorandum_of_understanding.pdf (last accessed May 4, 2016).

¹⁹ *Deep Sea Mining at Odds with EU's Circular Economy Aspirations*, SEAS AT RISK, July 9, 2014, <http://www.seas-at-risk.org/20-blue-growth/538-deep-sea-mining-at-odds-with-eu-s-circular-economy-aspirations.html>. Raquel Quaresma de Lima, *Strategic Minerals and Security of Supply – The Case of Niobium: What Would Be the Possible Effects of Eventual Export Restrictions Applied by Brazil and How Would It Possibly Impact the Mineral Policies of Consuming Countries?*, 16 CEPMLP ANNUAL REVIEW, 5 (2013), available at: cepmlp_car16_14_254436599.pdf.

²⁰ See About the SPC- EU DSM Project, *supra* note 17. The EU provides €4.4 million in funding for the project.

²¹ See, e.g., Jemima Garrett, *SOPAC Role in Lockheed Seabed Mineral Bid Queried*, ABC NEWS, Mar. 14, 2013, <http://www.abc.net.au/news/2013-03-14/sopac-role-in-lockheed-seabed-mineral-bid-queried/4574058>; See also Arnie Saiki, *SOPAC Expedites New Seabed Mining Legislation for Lockheed Martin*, FOREIGN POLICY IN FOCUS (FPIF), Mar. 20, 2013, http://fpif.org/sopac_expedites_new_seabed_mining_legislation_for_lockheed_martin/. SPC's current Environmental Adviser served as an environmental scientist for Nautilus from 2007 - 2012.

²² See, e.g., Blue Ocean Law, *An Assessment of the SPC Regional Legislative and Regulatory Framework for Deep Sea Minerals Exploration and Exploitation*, available at <http://blueoceanlaw.com/publications> (last accessed May 31, 2016).

²³ See Annex 1, EC/EuropeAid, available at:

http://ec.europa.eu/europeaid/documents/aap/2009/af_aap_2009_pacific.pdf (last accessed Mar. 15, 2016). The EU project description states that the project will “ensure that gender perspectives and attention are catered for in all project activities including the mainstreaming of gender issues in the regional framework and national legislation and regulations and proposed actions therein. Particular attention shall be placed in the project of the effect of mining on community livelihoods, ensuring they are secured and protected from negative environmental and social impacts.... Issues pertaining to human rights will be addressed through the pursuit of active participation of all key stakeholders including local communities.”

²⁴ E.g., marine experts have concluded that it is “virtually impossible to evaluate the threat of nodule mining to biodiversity” and cautioned that “[u]ntil biodiversity levels and species ranges in the Pacific nodule province are much better understood, the impacts of nodule mining (or other large-scale anthropogenic disturbances) on deep-sea biodiversity cannot be predicted.” International Seabed Authority, *Biodiversity, Species Ranges, and Gene Flow in the Abyssal Pacific Nodule Province: Predicting and Managing the Impacts of Deep Seabed Mining* (May 2007), 4, available at <http://www.isa.org.jm/files/documents/EN/Pubs/TechStudy3.pdf>; See also, Duncan Currie and Ruby Haazen, *Legal Submissions by KASM, Greenpeace and Deep Sea Conservation Coalition*, Before the Decision-Making Committee of the New Zealand Environmental Protection Authority in the matter of the Application for Marine Consent by Chatham Rock Phosphate Ltd, October 29, 2014, §30, describing how “impacts on marine mammals are essentially unknowable” given that “[t]he necessary research just has not been done.”

²⁵ Nautilus Minerals' Annual Information Form 2015 notes: “Our operations are speculative due to the high-risk nature of business related to the exploration and acquisition of rights to potential mineable deposits of metals.” Among others, these risks include:

“*Financial resources*...Substantial expenditures are required to ... develop the mining and processing facilities and infrastructure at any site chosen for mining. There can be no assurance that the Company will be able to raise sufficient funding to facilitate this development...*Future funding requirements and risk*...there is no precedent for the Projects, so debt financing may not be available on commercially reasonable terms, or at all. ... *Exploration risk*...exists in the discovery, location, drilling and definition of the SMS deposits. ... The model for SMS deposits has never been tested by closed spaced drilling and/or production for the purpose of establishing resource tonnage. ... Commercial exploration for SMS deposits is in its infancy and techniques and equipment have yet to be developed or adapted to locate, test and drill such SMS deposits efficiently and there is a risk that such techniques or equipment may not be developed or, if developed, may not be commercially viable. ... *Mining and recovery risk* ...SMS deposits have never been mined and there is a risk that mining and sulphide material recovery methods and equipment may not be able to be developed to allow for economic development of SMS deposits. Technologies have not been fully proven in such sub-sea conditions and for this specific material and application. ... *Estimates of grades from samples*... Actual grades may vary from these estimates and consequently impact upon the estimated potential of future revenues, cash flows, royalties and development and operating expenditure. ... *No production history* As an exploration company that has no production history, the Company expects to incur losses in the future. The Company has never had mineral producing properties and cannot be certain that commercial quantities or grades of minerals will ever be recovered.” *Annual Information Form 2015*, NAUTILUS MINERALS INC., Mar. 17, 2016, <http://www.nautilusminerals.com/IRM/PDF/1735/AnnualInformationFormforfiscalyearendedDecember312015>, 51-52 [hereinafter *Nautilus Annual Information Form 2015*].

²⁶ Nautilus notes, “Depending on the price of copper, gold and other metals, and the cost of power, petroleum fuels and oil, cash flow from mining operations may not be sufficient to cover the Company’s operating costs or costs of servicing debt.” *Id.* at 59.

²⁷ See Meghan Miner, *Will Deep-sea Mining Yield an Underwater Gold Rush?*, NATIONAL GEOGRAPHIC NEWS, Feb. 3, 2013, <http://news.nationalgeographic.com/news/2013/13/130201-underwater-mining-gold-precious-metals-oceans-environment/>. Cindy Van Dover, head of Duke University’s Marine Lab (who was aboard the first manned deep-sea submersible in 1982), told National Geographic in 2013, “[w]e haven’t yet studied the ecosystem services and functions of the deep sea to understand what we’d lose. We don’t yet know what we need to know.” Furthermore, polymetallic sulfides will probably be mined from inactive vents, rather than active ones, because inactive vents would present fewer technical challenges; however, we know very little about the ecosystems around inactive vents because marine scientists usually study active ones. See TONY KOSLOW, *THE SILENT DEEP* 170–72 (2007).

²⁸ See Rachel E. Boschen, et al., *Seafloor massive sulfide deposits support unique megafaunal assemblages: Implications for seabed mining and conservation*, 115 MARINE ENVIR. RESEARCH 78-98 (2016), finding that hydrothermal vents have unique combinations of species that can vary from one vent to another. The ecological communities at active vents also differ from those at inactive vents. The study concludes that a mining operation would need a network of protected areas to ensure that the biological diversity can bounce back after mining has stopped. This is at odds with current mining proposals that have single or very few protected areas. See also *Deep Sea Mining FAQ*, BIOLOGICAL DIVERSITY: http://www.biologicaldiversity.org/campaigns/deep-sea_mining/pdfs/Deep-seaMiningFAQ.pdf (last accessed Mar. 16, 2016). The deep ocean contains fish that live more than 100 years, including the black oreo, orange roughy and sablefish, and a wide variety of snails, mussels, clams, tubeworms and other creatures that live amid coral and sponge reefs and other natural contours—these would be wiped out by mining. *Precautionary Management of Deep Sea Mining Potential in Pacific Island Countries*, WORLD BANK, Draft Report, 2016, available at: <http://pubdocs.worldbank.org/pubdocs/publicdoc/2016/4/125321460949939983/Pacific-Possible-Deep-Sea-Mining.pdf>, 19 [hereinafter *World Bank Report*]: “An example for long-term impacts relates to the destruction of the meiofauna as a result of the trawling/scraping of the seafloor for manganese nodules harvesting. Meiofauna, which lives in the first 10 cm of the substrata plays a key role in the food chain, so the impact of its destruction in the mining area would have long term effects on other elements of the ecosystem, following complex ecological processes. An example for distant impacts relates to plumes and other related physical impacts, the particles are going to be carried on currents over vast distances, so the impacts will not be observable in the vicinity of the mining, but further downfield, and sometimes over considerable distances.”

Accountability Zero: A Critique of the Nautilus Minerals Environmental and Social Benchmarking Analysis of the Solvra 1 Project, DEEP SEA MINING CAMPAIGN, http://www.deepseaminingoutofourdepth.org/wp-content/uploads/accountabilityZERO_web.pdf (last accessed May 3, 2016), 11 [hereinafter *Accountability Zero Report*]: “According to marine specialists at the Woods Hole Institute, “No two vents discharge exactly the same mixes of fluids, so no two vents are colonized by exactly the same life forms. Researchers continue to find new vent species just about every time they look for more. (...) So little is known about them that if vents are mined, we may never know what species have been lost.... these same marine experts note that not only species unique to a particular mined vent will be lost, but biodiversity critical to ecosystem resilience as a whole is at risk: “The result could be the subsea equivalent of replacing an

old-growth forest with a field of dandelions.” *WWF Policy Paper to Pacific-ACP States Regional Scientific Research Guidelines for Deep Sea Minerals*, World Wildlife Fund, 2 [hereinafter *WWF Policy Paper*]: the World Wildlife Fund notes: “[E]nvironmental impacts will not only occur on benthic habitats and species but affect the whole associated ecosystem, in particular also organisms and interactions in the benthic-pelagic layer. ... Overall, sensitivity and recoverability will be extremely difficult to determine as most species are either fully unknown, particularly the small ones, or their life history, including the description of life stages/taxonomic literature does not exist.”

²⁹ When nodules and their associated fauna are removed from an area, suspension and re-sedimentation will bury and disturb the fauna in an area several times larger. Koslow estimates that in the 20-year span of an operation, 10,000-20,000 square km will be severely impacted. The nodule fauna are likely to recover only very slowly because they are fragile, slow-growing, and have low reproductive capacity and often limited dispersal capability. See TONY KOSLOW, *THE SILENT DEEP* 169 (2007).

³⁰ Mining operations may create sediment plumes in the water column. The negative impacts of these plumes on sessile organisms are well-documented for nodule mining, but little research has been done in the context of hydrothermal vents and their unique ecosystems. Impacts may include smothering individual organisms, clogging filter feeders, increasing toxicity, and disrupting the food web. Sediments may also clog hydrothermal vents, cutting vent communities off from their food supply. See Kristi Birney et al., *Potential Deep-Sea Mining of Seafloor Massive Sulfides: A Case Study in Papua New Guinea* 39, available at: <http://www.bren.ucsb.edu/research/documents/ventsthesis.pdf> (last accessed May 3, 2016).

³¹ See Katia Moskvitch, *Health Check for Deep Sea Mining: European Project Evaluates Risks to Delicate Ecosystems*, *NATURE* (Aug. 13, 2014), available at: <http://www.nature.com/news/health-check-for-deep-sea-mining-1.15708>.

³² See Accountability Zero Report, *supra* note 28, at 10: “[T]he extent to which metals derived from Solwara 1 may poison marine species and the coastal communities that rely on them is not yet known. However the limited toxicity testing that Nautilus has conducted indicates that Solwara 1’s waste water would be toxic to shallow water species and would need to be diluted 700 times to lose toxicity to these species.” Laboratory studies on crushed nodules demonstrated that iron would double in seawater within a day. Because metals are more concentrated in the sediments and colder waters than in shallower water, mining operations will release metals into the water column, where they may enter the food chain and biomagnify, or become more concentrated in the tissues of organisms at successively higher levels of the food chain. See OFFICE OF RESOURCES AND ENVIRONMENTAL MONITORING, INTERNATIONAL SEABED AUTHORITY, *Prospects for International Collaboration in Marine Environmental Research To Enhance Understanding of the Deep Sea Environment* 124 (2006), available at: <https://www.isa.org.jm/files/documents/EN/Pubs/2002-Collab.pdf>.

³³ See Accountability Zero Report, *supra* note 28, at 5; see also World Bank Report, *supra* note 28, at 28, 90-91; *Pacific’s Great Whales Under Threat from Climate Change, Pollution and Deep Sea Mining*, Interview with The Secretariat of the Pacific Regional Environment Programme, ABC NEWS, Apr. 20, 2016, <http://www.abc.net.au/news/2016-04-20/pacific’s-great-whales-under-threat-from-climate/7340856>.

³⁴ See Richard Steiner, *Independent Review of the Environmental Impact Statement for the proposed Nautilus Minerals Solwara 1 Seabed Mining Project, Papua New Guinea*, BISMARCK-SOLOMON INDIGENOUS PEOPLES COUNCIL, Jan. 10, 2009, 5-6, available at: <http://www.deepseaminingoutofourdepth.org/wp-content/uploads/Steiner-Independent-review-DSM1.pdf> [hereinafter *Steiner EIS Review*]. Most PI nations do not have the equipment or capacity to clean up oil spills or other major marine disasters.

³⁵ Geophysicist Maurice Tivey of Woods Hole Oceanographic Institution noted that the highly acidic slurry piped out of the seabed “could acidify a whole reef” if an accident occurred. Brooke Jarvis, *Deep-Sea Mining: Bonanza or Boondoggle?*, NOVANEXT, Jun. 25, 2013, <http://www.pbs.org/wgbh/nova/next/earth/deep-sea-mining/>.

³⁶ See World Bank Report, *supra* note 28, at 28; CINDY LEE VAN DOVER, *Impacts of Anthropogenic Disturbances at Deep-Sea Hydrothermal Vent Ecosystems: A Review*, 102 *MARINE ENVIR. RESEARCH* 59, 64 (2014), available at: <http://www.ftc.gov/sites/default/files/documents/reports/consumer-fraud-united-states-second-federal-trade-commission-survey-staff-report-federal-trade/fraud.pdf> (last accessed May 3, 2016) (“Scientific drilling alone can alter local hydrothermal circulation and create new ‘artificial’ hydrothermal vents”).

³⁷ See World Bank Report, *supra* note 28, at 42. Deep sea mining will take place in areas populated by unique biological communities, some of which were not known to exist until 1979 and are still “poorly characterized.” Michael W. Lodge, *Environmental Regulation of Deep Seabed Mining*, in *INTERNATIONAL MARINE ENVIRONMENTAL LAW: INSTITUTIONS, IMPLEMENTATION, AND INNOVATIONS* 49, 50 (Andree Kirchner, ed., 2003). Analysis of these organisms is expected to lead to better understanding of the origins of life, as well as offer forensic, medical, and industrial applications. *Id.* at 51.

³⁸ Interview with Head of Tonga Fishermen’s Association, in Nuku’Alofa, Tonga (Mar. 11, 2016) [hereinafter *Tonga Fishermen Interview*].

³⁹ *Id.* Interview with Nautilus Tonga Offshore Mining Ltd., in Nuku’Alofa, Tonga (Mar. 11, 2016) [hereinafter *Nautilus Tonga Interview*].

⁴⁰ See Steiner EIS Review, *supra* note 34.

⁴¹ See, e.g., Out of Our Depth, *supra* note 12, at 24: “Jerome Tioti from Papua New Guinea’s National Fisheries Authority argues that ‘vast areas could be polluted and with tuna being a highly migratory species, contamination of the stock could have dire consequences for the entire region, far overstretching the immediate impact zone of the mine.’ Furthermore, according to Mr. Tioti, tuna fisheries of the Western and Central Pacific Ocean supply about 60% of the world’s total raw tuna with 30% of that coming from PNG waters. Thus contamination of tuna in PNG or in the western and central Pacific Ocean will create a shortfall in the tuna available for human consumption globally.”

⁴² On Mar. 6, 2012, the Northern Territory Government placed a three-year moratorium on conducting both exploration and seabed mining in the coastal waters of the Northern Territory. In June 2013, the Northern Territory Government placed a total ban on seabed mining around Groote Eylandt in the Gulf of Carpentaria. Jane Bardon, *Seabed Mining Banned in Groote Eylandt Waters*, ABC NEWS, Jun. 12, 2013, <http://www.abc.net.au/news/2013-06-12/groote-eylandt-seabed-mining-total-ban-nt-govt/4749576>; Daniel Fitzgerald, *Dispute over Seabed Mining Negotiations in East Arnhem Land as Mining Company Looks to Pull Out of the Northern Territory*, ABC NEWS, Oct. 1, 2015, <http://www.abc.net.au/news/2015-10-01/blue-mud-bay-mining-northern-manganese-nlc/6816702>; Malavika Santhebennur, *Groote Eylandt Seabed Mining Sinks*, AUSTRALIAN MINING, Jun. 13, 2013, <https://australianmining.com.au/news/groote-eylandt-seabed-mining-sinks/>.

One of Australia’s leading marine scientists who has closely studied mineral deposits associated with hydrothermal systems, remarked: “We don’t really know enough about the ocean floor to make an informed decision as to whether mining the sea bed in Australia is a good idea.” Interview by Liz Trevaskis, ABC with Dr. Chris Yeats (CSIRO, Australia) (Mar. 7, 2012), available at <http://www.abc.net.au/rural/nt/content/201203/s3448026.htm>.

⁴³ In 2015, the New Zealand Environmental Protection Agency (NZ EPA) declined two exploitation license applications on the grounds that the environmental risks outweigh the economic benefits of the proposed projects and “could not be mitigated by any set of conditions or adaptive management regime that might be reasonably imposed.” See EPA Refuses Marine Consent Application by Chatham Rock Phosphate Ltd, NZ EPA, Feb. 11, 2015, available at: <http://www.epa.govt.nz/news/epa-media-releases/Pages/EPA-refuses-marine-consent-application-by-CRP.aspx>. Specifically, in the case of the proposal to mine phosphate nodules on the Chatham Rise, the NZ EPA “concluded that mining would cause significant and permanent adverse effects on the existing benthic environment on the Chatham Rise” and was “left with a lack of certainty about the receiving environment and the adverse effects of the proposal on the environment and existing interests.” *Id.* Furthermore, the NZ EPA “found that the destructive effects of the extraction process, coupled with the potentially significant impact of the deposition of sediment on areas adjacent to the mining blocks and on the wider marine ecosystem, could not be mitigated by any set of conditions or adaptive management regime that might be reasonably imposed.” *Id.*

⁴⁴ See Chamwe Kaira, *World Bank Issues Deep Sea Mining Warning*, THE NAMIBIAN, May 3, 2016, <http://www.namibian.com.na/World-Bank-issues-deep-sea-mining-warning/40178/read>; *Namibian Govt Clarifies Moratorium on Marine Phosphate Mining*, STAR AFRICA, Jan. 19, 2016, available at: <https://ramumine.wordpress.com/2016/01/19/namibian-govt-clarifies-moratorium-on-marine-phosphate-mining/>.

⁴⁵ See Shreema Mehta, *Victory: Mexico Seabed Mining Project Scrapped*, EARTHWORKS, May 13, 2016, available at: https://www.earthworksaction.org/earthblog/detail/victory_mexico_seabed_mining_project_scrapped/04358#.Vz0ZUBJ96Az.

⁴⁶ World Bank Report, *supra* note 28, at 19.

⁴⁷ Countries with point-source wealth tend to be poorer and less democratic than more diversified economies. See CULLEN S. HENDRIX & MARCUS NOLAND, PETERSON INSTITUTE FOR INTERNATIONAL ECONOMICS, CONFRONTING THE CURSE: THE ECONOMICS AND GEOPOLITICS OF NATURAL RESOURCE GOVERNANCE 121 (2014).

⁴⁸ See generally NATURAL RESOURCE EXTRACTION AND INDIGENOUS LIVELIHOODS: DEVELOPMENT CHALLENGES IN AN ERA OF GLOBALIZATION (Emma Gilberthorpe & Gavin Hilson eds., 2014) [hereinafter *Natural Resource Extraction and Indigenous Livelihoods*].

⁴⁹ See HENDRIX & NOLAND, *supra* note 47, at 122. Hendrix and Noland explain this phenomenon by positing that resource rents decrease the importance of traditional tax revenue, weakening the accountability of government actors to citizens, leading to poor governance. Resource rents also reduce the need to develop institutions, keeping state capacity low. Resource rents may also act as magnets to attract political challengers, leading to greater political instability.

⁵⁰ See *id.* at 1 (arguing that point-source resource extraction’s “massive inflows of investment capital tend to ‘complicate macroeconomic management [in source countries] to the detriment of traditional industries,’ reverse the development of democracy, and fail to lead to “broad-based, inclusive growth.”). Cross-country comparisons show that poverty is higher in resource-dependent countries (27 per cent compared with 19 per cent in non-resource dependent countries on average in the 2000s). Overall, resource-dependent countries had a lower Human Development Index (HDI) (0.61 compared with 0.69 for non-resource-dependent countries, 2011). Evidence also suggests that resource dependence is bad for social development, and that inequality is higher in resource-dependent countries and that ‘countries dependent on natural resources tend to perform comparatively worse in several indicators of human welfare, such as life expectancy, education,

child mortality or in the human development levels.’ *Papua New Guinea, From Wealth to Wellbeing: Translating Resource Revenue into Sustainable Human Development*, UNDP 2014 National Human Development Report, 12 [hereinafter *UNDP 2014 PNG Report*].

⁵¹ Dutch Disease involves the appreciation of the local currency as a result of increased demand for a country’s resources, leading to a loss of international competitiveness in the non-resource sectors (effectively limiting economic diversification), particularly in the more labour-intensive agricultural and manufacturing areas. A related effect is the heightened vulnerability to external economic shocks. UNDP 2014 PNG Report, *supra* note 50. Natural resource products tend to have long-term declines in price, as well as “unusually volatile” prices, creating boom-bust cycles. This instability can make planning difficult for economic and political institutions. Additionally, temporary booms can undermine other segments of the economy. HENDRIX & NOLAND, *supra* note 47, at 1.

⁵² General resource curse observations compiled from the following sources: R. AUTY, SUSTAINING DEVELOPMENT IN MINERAL ECONOMIES: THE RESOURCE CURSE THESIS (1993); F. Carmignani and D. Avom, *The Social Development Effects of Primary Commodity Export Dependence*, 70 ECOLOGICAL ECONOMICS 317-330 (2010); V. Daniele, *Natural Resources and the ‘Quality’ of Economic Development*, 47 J. OF DEV. STUDIES 545-573 (2011); R. THORP ET AL. (EDS), THE DEVELOPMENTAL CHALLENGES OF MINING AND OIL: LESSONS FROM AFRICA AND LATIN AMERICA (2012); *Reverse the Curse: Maximizing the Potential of Resource-Driven Economies*, MCKINSEY GLOBAL INSTITUTE, 2013, available at:

http://www.mckinsey.com/insights/energy_resources_materials/reverse_the_curse_maximizing_the_potential_of_resource_driven_economies; *Blessing or Curse? The rise of mineral dependence among low and middle-income countries*, Oxford Policy Management (OPM), 2011, available at www.opml.co.uk; *Managing Natural Resources for Human Development in Low-Income Countries*, UNDP Africa, 2011, available at:

<http://www.africa.undp.org/content/dam/rba/docs/Working%20Papers/Natural%20Resources%20Low-Income%20Countries.pdf>; P. Collier and A. Hoyer, *Greed and Grievance in Civil War*, 56 OXFORD ECONOMIC PAPERS 563-595 (2004); J.D. Sachs and A.M. Warner, *The Curse of Natural Resources*, 45 EUR. ECON. REV. 827-838 (2001); *Gender Dimensions of the Extractive Industries: Mining for Equity, Extractive Industries and Development Series #8*, WORLD BANK, 2009, available at: http://siteresources.worldbank.org/EXTOGMC/Resources/eifd8_gender_equity.pdf.

⁵³ HENDRIX & NOLAND, *supra* note 47, at 7.

⁵⁴ Should countries aim to follow Norway’s model, it is worth noting that Norway has also been proactively supporting initiatives such as Reducing Emissions from Deforestation and Degradation, which requires respect for indigenous peoples’ rights, including the requirement to obtain their free, prior, and, informed consent.

⁵⁵ Falling oil prices in May 2015 pushed the Norwegian unemployment rate to 4.3 percent. *See* Saleha Mosin, *For Norway, Oil at \$50 Is Worse Than the Global Financial Crisis: Scandinavia’s richest nation is facing a mess*, BLOOMBERG, Aug. 10, 2015, <http://www.bloomberg.com/news/articles/2015-08-10/for-norway-oil-at-50-is-worse-than-the-global-financial-crisis>; *See also* Ballads Koranyi, *End of Oil Boom Threatens Norway’s Welfare Model*, REUTERS, May 8, 2014, <http://www.reuters.com/article/us-norway-economy-insight-idUSBREA4703Z20140508> (“Norway’s energy boom is tailing off years ahead of expectations, exposing an economy unprepared for life after oil and threatening the long-term viability of the world’s most generous welfare model. High spending within the sector has pushed up wages and other costs to unsustainable levels, not just for the oil and gas industry but for all sectors, and that is now acting as a drag on further energy investment. Norwegian firms outside oil have struggled to pick up the slack in what has been, for at least a decade, almost a single-track economy.”).

⁵⁶ *See generally* Eric Le Borgne & Paulo Medas, *Sovereign Wealth Funds in the Pacific Island Countries: Macro-Fiscal Linkages* (IMF, Working Paper No. 297, 2007).

⁵⁷ *See* List of Oceanian Countries by Population, WIKIPEDIA, May 15, 2016, available at:

https://en.wikipedia.org/wiki/List_of_Oceanian_countries_by_population (including only the 14 countries in this assessment; *see also* FN 17).

⁵⁸ The World Bank notes: “[G]iven their current capacity and resources, most PICs are not in a position to perform most of the [DSM] project-specific regulatory functions.” World Bank Report, *supra* note 28, at 71.

⁵⁹ The EITI aims to strengthen governance by improving transparency and accountability in the extractives sector through the verification and full publication of company payments and government revenues from oil, gas, and mining. *What is the EITI?*, EITI, available at: <https://eiti.org/eiti> (last accessed May 12, 2016); *See also* HENDRIX & NOLAND, *supra* note 47, at 103-104.

⁶⁰ *See, e.g.*, the example of São Tomé and Príncipe, a small island country off the west coast of Africa with a population of approximately 192,000. Since the discovery of offshore oil fields in the 1990s, the country has suffered increased political instability and exploitation by larger powers, while failing to produce a single barrel of oil. In 2008, São Tomé joined the EITI as a candidate country. But the government of São Tomé was unable to comply with the core requirements of EITI membership (i.e., full publication of company payments and government revenues from oil and gas companies), and was consequently de-listed from the initiative in April 2010. Human Rights Watch further notes:

[M]any of São Tomé's oil-rich neighbors such as Nigeria, Angola, Gabon, and Equatorial Guinea have all earned massive revenues from oil wealth, only to see their economies distorted by their dependence on oil while their governments have mismanaged or stolen that wealth. The hope has been that with help, São Tomé could learn lessons of these past failures and ensure that oil takes the country forward instead of holding it back. [However, s]ince the discovery of oil, São Tomé has been rocked by scandals involving allegations of government corruption. In 2003, São Tomé's government was briefly deposed in an abortive coup attempt that may have been triggered in part by expectations that with oil, the rewards of political office would dramatically increase.

Oil Contracts and Stalled Reform: Sao Tome e Principe, HUMAN RIGHTS WATCH, Aug. 24, 2010, available at: <https://www.hrw.org/report/2010/08/24/uncertain-future/oil-contracts-and-stalled-reform-sao-tome-e-principe>. Human Rights Watch concludes that even with the assistance of the international community to put in place relevant laws in an attempt to avoid the 'resource curse,' institutional incapacity and the lack of a meaningful multi-stakeholder consultation process has led to the all-too-familiar instability. *Id.*

⁶¹ To take but two examples: 1) The case of Vanuatu, which in October 2015 sentenced half of its cabinet to jail for corruption, see Michael Field, *Vanuatu's Tourism Stranded*, NIKKEI ASIAN REVIEW, Feb. 8, 2016, <http://asia.nikkei.com/Politics-Economy/Economy/Vanuatu-s-tourism-stranded>, and 2) PNG's rating, on Transparency International's Corruption Perceptions Index 2015, of 139th out of 167 countries. *Corruption Perceptions Index 2015*, TRANSPARENCY INTERNATIONAL, available at: <http://www.transparency.org/cpi2015>.

⁶² See Philip Shenon, *A Pacific Island Nation Is Stripped of Everything*, N.Y. TIMES, Dec. 10, 1995, <http://www.nytimes.com/1995/12/10/world/a-pacific-island-nation-is-stripped-of-everything.html>.

⁶³ Sean Dorney, *Agriculture Provides a Sustainable Future on Island Destroyed by Mining*, AUSTRALIA NETWORK NEWS, May 2, 2014, available at: <https://ramumine.wordpress.com/tag/kiribati/>.

⁶⁴ See Adam Morton, *Solomon Islands: Claims Australians Left a "\$40 million Environmental Disaster*," THE SYDNEY MORNING HERALD, Aug. 22, 2015, <http://www.smh.com.au/world/solomon-islands-claims-australians-left-a-40-million-environmental-disaster-20150820-gj4c3v.html>.

⁶⁵ Stefan Armbruster, *Major Tailings Dam Spill at Solomon Islands 'Disaster' Gold Mine*, SBS, Apr. 8, 2016, <http://www.sbs.com.au/news/article/2016/04/08/major-tailings-dam-spill-solomon-islands-disaster-gold-mine>; *Poisoning Warning in Solomons*, RADIO NZ, Apr. 13, 2016, <http://www.radionz.co.nz/international/pacific-news/301394/poisoning-warning-in-solomons>.

⁶⁶ See *SAMOJA: Proceedings of the National Aggregate Workshop - Towards a Sustainable Aggregate Industry in Samoa*, EU-SOPAC Project Report 98, July 2008, 7.

⁶⁷ See *Tonga Case Study*.

⁶⁸ See *PNG Case Study*.

⁶⁹ Much natural resource extraction occurs in developing countries or conflict areas, where regulatory and accountability mechanisms tend to be weak and oversight ineffective. Groups affected by extractive industry activity are not always indigenous, but in many cases they are marginalized or poor people particularly vulnerable to exploitation. See Natural Resource Extraction and Indigenous Livelihoods, *supra* note 48.

⁷⁰ Although there is no official definition of "indigenous" within the UN system, the following are examples of listed criteria which help determine indigeneity: self-identification as indigenous peoples at the individual level and acceptance by the community as such; historical continuity with pre-colonial and/or pre-settler societies; strong links to territories and surrounding natural resources; distinct social, economic or political systems; and a distinct language, culture and beliefs, among others. See, e.g., *Who are indigenous peoples?* UN PERMANENT FORUM ON INDIGENOUS ISSUES, available at http://www.un.org/esa/socdev/unpfii/documents/5session_factsheet1.pdf.

⁷¹ *Population and Social Statistics*, Ministry of Finance & Economic Management, GOVERNMENT OF THE COOK ISLANDS, available at: <http://www.mfem.gov.ck/population-and-social-statistics> (last accessed Mar. 21, 2016).

⁷² A View from the Cook Islands, PACIFIC ISLANDS APPLIED GEOSCIENCE COMMISSION (SPC-EU DSM PROJECT), available at: https://web.archive.org/web/20070214035426/http://www.SPC-EU_DSM_Project.org/tiki/tiki-index.php?page=Cook+Islands (last accessed Mar. 21, 2016).

⁷³ *The Cook Islands Half Year Economic and Fiscal Update For the Financial Year 2010/2011*, GOVERNMENT OF THE COOK ISLANDS, Dec. 2010, available at: <http://www.mfem.gov.ck/docs/Treasury/Budget/2010-11/BPS%20n%20HYEFU/Combined%20HYEFU%202010-11.pdf>.

⁷⁴ *Frequently Asked Questions*, COOK ISLANDS SEABED MINERALS AUTHORITY, available at: <http://www.seabedmineralsauthority.gov.ck/faqs> (last accessed Mar. 21, 2016); Rupert Neate, *Seabed Mining Could Earn Cook Islands 'Tens of Billions of Dollars'*, THE GUARDIAN, Aug. 5, 2013, <http://www.theguardian.com/business/2013/aug/05/seabed-mining-cook-islands-billions>.

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- ⁷⁵ Rashneel Kumar, *No Bids for Deep Sea Mineral Tender*, COOK ISLANDS NEWS, Feb. 19, 2016, <http://www.cookislandsnews.com/item/56633-no-bids-for-deep-sea-mineral-tender/56633-no-bids-for-deep-sea-mineral-tender>.
- ⁷⁶ World Bank Report, *supra* note 28, at 61.
- ⁷⁷ Akuila Tawake, *An Update on Deep Seabed Mineral Activities in the Pacific Islands Region: Status, Challenges and Opportunities PECC Meeting Dec. 4-5, 2012*, SPC-EU DSM PROJECT, SPC, at slide 12 [hereinafter *2012 SPC Presentation*].
- ⁷⁸ *Id.*; Radio New Zealand interview with Finance Minister Mark Brown, transcript available at: <http://www.radionz.co.nz/audio/player/201790459> (last accessed Mar. 21, 2016). Assumedly this was attributable to the depressed state of the global minerals market and the high risk, high cost nature of DSM.
- ⁷⁹ *Id.*
- ⁸⁰ *Cook Islands Seabed Minerals Authority*, available at: <http://www.seabedmineralsauthority.gov.ck/> (last accessed Mar. 21, 2016).
- ⁸¹ *Id.*
- ⁸² Seabed Minerals (Prospecting and Exploration) Regulations 2015, §§50, 21, available at: http://www.seabedmineralsauthority.gov.ck/PicsHotel/SeabedMinerals/Brochure/2015Tender/Seabed%20Minerals%20_Prospecting%20and%20Exploration_%20Regulations%202015_2.pdf.
- ⁸³ *Id.* at §37.
- ⁸⁴ 2009 Seabed Minerals Act, §91 (3)(f), available at: <http://www.seabedmineralsauthority.gov.ck/PicsHotel/SeabedMinerals/Brochure/Seabed%20Minerals%20Bill%202009.pdf>.
- ⁸⁵ The Data Team, *Drops in the Ocean: France's Marine Territories*, THE ECONOMIST, Jan. 13, 2016, <http://www.economist.com/blogs/graphicdetail/2016/01/daily-chart-10?src=scn/fb/wl/bl/dc/st/dropsintheocean>.
- ⁸⁶ *Unknown Foreign Company Expresses Interest in Seabed Mining In FSM*, OCEANIA TV NEWS, Jan. 7, 2013, <http://www.oceaniatv.net/2013/01/07/unknown-foreign-company-expresses-interest-in-seabed-mining-in-fsm/>; Peter Huck, *Mining the Deep Blue Frontier*, NZ HERALD, May 17, 2013, http://www.nzherald.co.nz/business/news/article.cfm?c_id=3&objectid=10884182.
- ⁸⁷ Resolution, FSM Congress, 2012 C.R. No. 17-175, available at: <http://www.fsmcongress.fm/pdf%20documents/17th%20Congress/Resolutions/CR%2017-175.pdf>.
- ⁸⁸ *Id.*
- ⁸⁹ *FSM Stakeholder Consultation Workshop*, SPC-EU DSM PROJECT, available at: <http://gsd.spc.int/dsm/index.php/2-uncategorised/68-federated-states-of-micronesia-fsm> (last accessed Mar. 23, 2016).
- ⁹⁰ 2012 SPC Presentation, *supra* note 77, at slide 12.
- ⁹¹ Seabed Resources Act of 2014, FSM, draft, 2015 C.B. No. 19-74, §46(d).
- ⁹² *Policy Options Paper #5: Strengthening Deep Seabed Mining Regulation*, GLOBAL OCEAN COMMISSION, Nov. 2013, available at: <http://www.globaloceancommission.org/wp-content/uploads/GOC-paper05-seabed-mining.pdf>; 2012 SPC Presentation, *supra* note 77.
- ⁹³ *Tuvalu and Kiribati Join Group to Set Seabed Mining Rules*, MINING-TECHNOLOGY.COM, Feb. 18, 2015, <http://www.mining-technology.com/news/newstuvalu-and-kiribati-join-group-to-set-seabed-mining-rules-4514539>.
- ⁹⁴ *Id.* World Bank Report, *supra* note 28, at 21.
- ⁹⁵ 2012 SPC Presentation, *supra* note 77, at slide 11.
- ⁹⁶ World Bank Report, *supra* note 28, at 62.
- ⁹⁷ *Policy Statement*, President Taneti Maamau, 2nd Mtg of the 11th Parliament, Apr. 25 - May 10, 2016.
- ⁹⁸ As early as 1989, there were 89 known deposits of cobalt-rich manganese in the RMI EEZ. See David Clark Scott, *US Firm Explores Deep-Sea Mining: Cobalt Rush?*, THE CHRISTIAN SCIENCE MONITOR, Jun. 6, 1989, <http://www.csmonitor.com/1989/0606/fsea.html>; 2012 SPC Presentation, *supra* note 77, at slide 2.
- ⁹⁹ See *Marshall Islands*, SPC-EU DSM Project, available at: <http://gsd.spc.int/dsm/index.php/2-uncategorised/70-marshall-islands> (last accessed Mar. 31, 2016).
- ¹⁰⁰ 2012 SPC Presentation, *supra* note 77, at slide 12.
- ¹⁰¹ *SPC, Marshall Islands Consults on Deep Sea Minerals*, MARIANAS VARIETY, Apr. 27 2015, <http://www.mvariety.com/regional-news/76196-marshall-islands-consults-on-deep-sea-minerals>.
- ¹⁰² *Background Note: Nauru*, U.S. STATE DEPARTMENT, Sept. 2005, available at: <http://www.state.gov/r/pa/ei/bgn/16447.htm>; *Climate Change – Response, First National Communication under the United Nations Framework Convention on Climate Change*, REPUBLIC OF NAURU, Oct. 1999, available at: <http://unfccc.int/resource/docs/natc/naunc1.pdf>.
- ¹⁰³ See Kalinga Seneviratne, *Nauru Turns to Dust*, ASIA TIMES, May 26, 1999, <http://www.atimes.com/oceania/AE26Ah01.html>.

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- ¹⁰⁴ *Deep Seabed Minerals Licence for Nauru*, SPC-EU DSM PROJECT, Feb. 14, 2012, available at: <http://gsd.spc.int/media-releases/1-latest-news/378-deep-seabed-minerals-licence-for-nauru>. Nauru is sponsoring Nauru Ocean Resources Incorporated (NORI), a subsidiary of Nautilus, for exploration in the Area.
- ¹⁰⁵ See Robert Makgill and Ana Linhares, *Deep Seabed Mining Regulation in the Pacific*, July 16, 2015, <https://www.lawsociety.org.nz/lawtalk/lawtalk-archives/lawtalk-869/deep-seabed-mining-regulation-in-the-pacific>.
- ¹⁰⁶ *SPC Welcomes Nauru's New Legislation to Govern Seabed Mining Activities*, SPC, Nov. 20, 2015, available at: <http://gsd.spc.int/dsm/index.php/news/91-spc-welcomes-nauru-s-new-legislation-to-govern-seabed-mining-activities>.
- ¹⁰⁷ *Id.* SPC also held a stakeholder consultation workshop in Nauru on October 5, 2011.
- ¹⁰⁸ International Seabed Minerals Act 2015, Republic of Nauru, No. 26 of 2015, §30 (d) (e).
- ¹⁰⁹ *Id.* at §29 (2).
- ¹¹⁰ 2012 SPC Presentation, *supra* note 77, at slide 2.
- ¹¹¹ *Id.*
- ¹¹² See Hannah Lily, Akuila Tawake, & Deve Talag, *SPC-EU EDF10 Deep Sea Minerals Project Proceedings of the Niue National Deep Sea Minerals Stakeholder Consultation Workshop*, SPC-EU DSM PROJECT, Apr. 3, 2012, 15-16, available at: http://gsd.spc.int/dsm/public/files/reports/country/PR144_Niue%20National%20Workshop.pdf.
- ¹¹³ *Id.* The legislation includes The Territorial Seas and EEZ Act 1996, The Continental Shelf Act 1974, The Mining Act 1977, The Marine Pollution Act 1974, and The Environment Act 2003.
- ¹¹⁴ *Id.* at 23.
- ¹¹⁵ *Id.* at 24. The SPC further notes: “The Department of Environment has limited capacity. No baseline studies have been conducted to date, against which effects of activities could be measured.”
- ¹¹⁶ Niue Amendment Act 1970, No. 15, Date of assent 19 August 1970.
- ¹¹⁷ World Bank Report, *supra* note 28, at 63.
- ¹¹⁸ Stuart Rintoul, *Palau in 2013*, ENCYCLOPAEDIA BRITANNICA, <http://www.britannica.com/place/Palau-Year-In-Review-2013> (last accessed May 19, 2016).
- ¹¹⁹ Vira Atalifo & Akuila Tawake, *Proceedings of the Palau National Deep Sea Minerals Stakeholder Consultation Workshop*, SPC-EU DSM PROJECT, July 2012, 16, 7, 13, available at: <http://www.SPC-EU DSM Project.org/dsm/public/files/reports/country/PR205%20final.pdf>.
- ¹²⁰ *Id.*
- ¹²¹ *Id.* at 8.
- ¹²² The Palau National Marine Sanctuary Act, RPPL 9-49, at §149.
- ¹²³ *Id.* at §102.
- ¹²⁴ *Deep Sea Minerals (DSM) Technical Issues For Samoa, Ministry of Natural Resources & Environment Meteorology Division*, available at: http://gsd.spc.int/dsm/public/files/reports/DEEP_SEA_MINERALS_DSM_Lameko_SM.pdf (last accessed Mar. 21, 2016).
- ¹²⁵ See *Samoa: Proceedings of the National Aggregate Workshop – Towards a Sustainable Aggregate Industry in Samoa*, SPC-EU DSM PROJECT, July 2008, available at: <http://ict.SPC-EU DSM Project.org/VirLib/ER0098.pdf>.
- ¹²⁶ *Solomon Islands*, CIA WORLD FACTBOOK, available at: <https://www.cia.gov/library/publications/the-world-factbook/geos/bp.html> (last accessed May 12, 2016); *Solomon Islands Country Profile*, SPC, Oct. 2008, available at: <http://www.spc.int/sppu/images/COUNTRYPROFILES/solomon%20islands%20country%20profile%20final.pdf>.
- ¹²⁷ 2012 SPC Presentation, *supra* note 77, at slides 3-4.
- ¹²⁸ *Id.*; World Bank Report, *supra* note 28, at 22.
- ¹²⁹ See Solomon Islands, SPC-EU DSM Project, available at: <http://www.SPC-EU DSM Project.org/dsm/index.php/2-uncategorised/76-solomon-islands> (last accessed Mar. 31, 2016).
- ¹³⁰ Solomon Islands National Deep Seabed Minerals (DSM) Policy, Draft.
- ¹³¹ *Id.* at §4.1.
- ¹³² *Id.* at §5.1.
- ¹³³ World Bank Report, *supra* note 28, at 22.
- ¹³⁴ 2012 SPC Presentation, *supra* note 77, at slides 2-3.
- ¹³⁵ *Id.* at slide 11. SPC also did a literature review of existing laws in Tuvalu in preparation for DSM policy and legislation development.
- ¹³⁶ Tuvalu Seabed Minerals Act 2014, §30.
- ¹³⁷ *Vanuatu Seeks People's Views on Deep Sea Mining*, SPC, MARIANAS VARIETY, Oct. 15, 2014, <http://www.mvariety.com/regional-news/70117-vanuatu-seeks-people-s-views-on-deep-sea-mining> [hereinafter *Vanuatu Seeks People's Views on Deep Sea Mining*].
- ¹³⁸ *Vanuatu Issues 145 Licenses for Offshore Mining Exploration*, ISLANDS BUSINESS, Jun. 10, 2013, available at: <https://ramumine.wordpress.com/2013/06/10/vanuatu-issues-145-licences-for-offshore-mining-exploration/>; Jonas

Cullwick, *Deep Sea Mining Potential in Vanuatu*, Feb. 1, 2015, VANUATU DAILY POST, http://dailypost.vu/news/deep-sea-mining-potential-in-vanuatu/article_3f3aa5fb-c2f2-51ae-bfea-34918d6845c4.html.

¹³⁹ See *Vanuatu Chiefs Hesitant to Approve Deep Sea Mining*, RADIO NZ, Oct. 27, 2014,

<http://www.radionz.co.nz/international/pacific-news/257845/vanuatu-chiefs-hesitant-to-approve-deep-sea-mining>;

Vanuatu long way off from deep sea mining: Regenvanu, RADIO AUSTRALIA, Feb. 18, 2015,

<http://www.radioaustralia.net.au/international/radio/program/pacific-beat/vanuatu-long-way-off-from-deep-sea-mining-regenvanu/1416257>;

Pacific Conference of Churches Congratulates Vanuatu MP for Mining Stand, PACNEWS, Jun. 19, 2013,

<http://www.deepseaminingoutofourdepth.org/pacific-conference-of-churches-congratulates-vanuatu-mp-for-mining-stand/>.

¹⁴⁰ Vanuatu Seeks People's Views on Deep Sea Mining, *supra* note 139. The draft Policy is not considered legislation, of which there is none to date specifically addressing seabed minerals, and none covering Vanuatu's role as a sponsoring State in the Area.

¹⁴¹ *Id.*

¹⁴² *Deep Sea Mining – Starting a Dialogue*, PACIFIC INSTITUTE OF PUBLIC POLICY, available at:

<http://pacificpolicy.org/2015/02/deep-sea-mining-report/> (last accessed Mar. 23, 2016).

¹⁴³ Vanuatu Deep Sea Minerals policy draft, National Consultation, Oct. 1, 2014, at §7.3 (“Public Participation and Social Impacts”).

¹⁴⁴ Teena Brown Pulu, *Deep Sea Tension: The Kingdom of Tonga and Deep Sea Minerals*, 6 TE KAHAROA 50, 71 (2013), available at: <http://tekaharua.com/index.php/tekaharua/article/view/145/103>.

¹⁴⁵ *Tonga*, CIA WORLD FACTBOOK, available at: <https://www.cia.gov/library/publications/the-world-factbook/geos/tn.html> (last accessed May 2, 2016).

¹⁴⁶ Interview with Geology Department, Ministry of Lands & Natural Resources, in Nuku'Alofa, Tonga (Mar. 10, 2016) [hereinafter *Tonga Geology Department Interview*].

¹⁴⁷ Nautilus Tonga Interview, *supra* note 39.

¹⁴⁸ Tonga Geology Department Interview, *supra* note 146.

¹⁴⁹ *Id.*

¹⁵⁰ Nautilus Tonga Interview, *supra* note 39.

¹⁵¹ *Id.*

¹⁵² *Id.*; NAUTILUS MINERALS, *Tonga*, available at: <http://www.nautilusminerals.com/irm/content/tonga.aspx?RID=259> (last accessed May 2, 2016).

¹⁵³ *Id.*

¹⁵⁴ Nautilus Tonga Interview, *supra* note 39; Interview with Department of Environment, Ministry of Environment, Energy, Climate Change, Disaster Management, Meteorology, Information and Communication, in Nuku'Alofa, Tonga (Mar. 11, 2016) [hereinafter *Tonga DOE Interview*].

¹⁵⁵ Nautilus Tonga Interview, *supra* note 39.

¹⁵⁶ *Id.*

¹⁵⁷ *Id.*; Interview with Civil Society Forum of Tonga, in Nuku'Alofa, Tonga (Mar. 10, 2016) [hereinafter *Civil Society Forum Interview*].

¹⁵⁸ Nautilus Tonga Interview, *supra* note 39.

¹⁵⁹ Tonga Geology Department Interview, *supra* note 146.

¹⁶⁰ Brown Pulu, *supra* note 144, at 50, 53.

¹⁶¹ Interview with Tonga Crown Law Department, in Nuku'Alofa, Tonga (Mar. 8, 2016) [hereinafter *Crown Interview*].

¹⁶² *Id.*; Interview with Tupou Tertiary Initiative (TTI), in Nuku'Alofa, Tonga (Mar. 8, 2016) [hereinafter *TTI Interview*].

According to interviewees, the EU has only been involved through the SPC-EU DSM Project and is not otherwise on the ground in Tonga.

¹⁶³ Crown Interview, *supra* note 161. However, some provisions on consultation remain in the final legislation.

¹⁶⁴ Interview with Matangi Tonga Online, in Nuku'Alofa, Tonga (Mar. 11, 2016) [hereinafter *Matangi Interview*].

¹⁶⁵ TTI Interview, *supra* note 162; Interview with National Forum of Church Leaders, in Nuku'Alofa, Tonga (Mar. 9, 2016) [hereinafter *NFCL Interview*]; Interview with Tonga Leitis Association, in Nuku'Alofa, Tonga (Mar. 9, 2016) [hereinafter *Leitis Interview*]; Crown Interview, *supra* note 161.

¹⁶⁶ *Deep Sea Mining Survey Result*, TUPOU TERTIARY INSTITUTE, 2015. The survey further found that most Tongans were unaware how many companies were licensed to mine the seabed in Tonga, the names of DSM companies with offices in Tonga, and whether there was legislation on DSM.

¹⁶⁷ *Id.*

¹⁶⁸ Civil Society Forum Interview, *supra* note 157; TTI Interview, *supra* note 162.

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- ¹⁶⁹ Interview with the Ministry of Lands, Surveys, and Natural Resources, in Nuku’Alofa, Tonga (Mar. 8, 2016) [hereinafter *Lands Interview*]; Tonga Geology Department Interview, *supra* note 146. The funding for the public television and radio outreach programs was provided by SPC.
- ¹⁷⁰ Matangi Interview, *supra* note 164.
- ¹⁷¹ Leitis Interview, *supra* note 165.
- ¹⁷² TTI Interview, *supra* note 162; Leitis Interview, *supra* note 165; Matangi Interview, *supra* note 164.
- ¹⁷³ TTI Interview, *supra* note 162; Leitis Interview, *supra* note 165; Tonga Geology Department Interview, *supra* note 146; Tonga Fishermen Interview, *supra* note 38.
- ¹⁷⁴ TTI Interview, *supra* note 162; Leitis Interview, *supra* note 165.
- ¹⁷⁵ TTI Interview, *supra* note 162.
- ¹⁷⁶ Civil Society Forum Interview, *supra* note 157.
- ¹⁷⁷ *Id.*
- ¹⁷⁸ Tonga Fishermen Interview, *supra* note 38.
- ¹⁷⁹ TTI Interview, *supra* note 162.
- ¹⁸⁰ Matangi Interview, *supra* note 164. *Tongan Islet Disappears Beneath the Sea*, MATANGI TONGA ONLINE, Oct. 9, 2014, <http://matangitonga.to/2014/10/09/tongan-islet-disappears-beneath-sea>; *Sand Mining Drowned Monuafe Island*, MATANGI TONGA ONLINE, Nov. 14, 2012, <http://matangitonga.to/2012/11/14/sand-mining-drowned-monuafe-island>.
- ¹⁸¹ *Id.* Tonga Fishermen Interview, *supra* note 38.
- ¹⁸² TTI Interview, *supra* note 162.
- ¹⁸³ Civil Society Forum Interview, *supra* note 157.
- ¹⁸⁴ Crown Interview, *supra* note 161. Tonga Income Tax (Amendment) Act 2015, Division 2, §§67B (1), 67D(3), available at: http://www.paclii.org/to/legis/num_act/ita2015196/.
- ¹⁸⁵ Lands Interview, *supra* note 169.
- ¹⁸⁶ Crown Interview, *supra* note 161; Tonga Geology Department Interview, *supra* note 146.
- ¹⁸⁷ Tonga DOE Interview, *supra* note 154.
- ¹⁸⁸ “Major Project” is defined in the Environment Act; under the 2014 SMA, DSM qualifies as a major project.
- ¹⁸⁹ Tonga DOE Interview, *supra* note 154.
- ¹⁹⁰ *Id.*
- ¹⁹¹ *Id.*
- ¹⁹² *Id.*
- ¹⁹³ Matangi Interview, *supra* note 164.
- ¹⁹⁴ *Id.*
- ¹⁹⁵ Tonga Geology Department Interview, *supra* note 146.
- ¹⁹⁶ TTI Interview, *supra* note 162.
- ¹⁹⁷ Matangi Interview, *supra* note 164.
- ¹⁹⁸ Civil Society Forum Interview, *supra* note 157. *See, e.g., Disaster and Gender Statistics*, Fact Sheet, IUCN, available at: http://cmsdata.iucn.org/downloads/disaster_and_gender_statistics.pdf (last accessed May 2, 2016); *Children’s Vulnerability to Climate Change and Disaster Impacts in East Asia and the Pacific*, UNICEF, 2011, available at: http://www.unicef.org/environment/files/Climate_Change_Regional_Report_14_Nov_final.pdf.
- ¹⁹⁹ Tonga Fishermen Interview, *supra* note 38.
- ²⁰⁰ *Id.*; NFCL Interview, *supra* note 165.
- ²⁰¹ Tonga Fishermen Interview, *supra* note 38.
- ²⁰² *Id.* *See, e.g., Kingdom of Tonga, Fisheries Data*, FOOD AND AGRICULTURE ORGANISATION OF THE UNITED NATIONS (FAO), Apr. 2002, available at: <http://www.fao.org/fi/oldsite/FCP/en/ton/profile.htm>: “Deep-water snappers . . . is [SIC] a major export of the country. Fish are caught by a fleet of about 16 vessels which range in size from 28 to 40 feet. Two species of deep water snapper, the longtailed red snapper (*Etelis coruscans*) and the pink snapper (*Pristopomoides filamentosus*) are especially valuable and are exported to Hawaii and Japan”; *see also* Fishery and Aquaculture Country Profiles: The Kingdom of Tonga, FAO, 2016, available at <http://www.fao.org/fishery/facp/TON/en>: “In the deepwater bottom fishery, the major resources are numerous species of snappers, groupers, and other demersal fish”; *see also* Deepwater Snapper Fishery Management Plan, Draft SPC Report to Tongan Ministry of Fisheries, SPC, Mar. 16, 2000, available at http://www.spc.int/coastfish/countries/Tonga/Deepwater_Snapper_Fishery_Management_Plan.pdf: “Exports of deepwater snapper in 1998 from Tonga were approximately 266 tonnes, with a further amount . . . sold on the local market.”
- ²⁰³ Ross Shotton, *Deepwater Fisheries*, FAO, Marine Resources Services, available at: <http://www.fao.org/docrep/009/y5852e/y5852e09.htm> (last accessed May 12, 2016); *Fishing in the Dark*, WORLD OCEAN REVIEW, available at: <http://worldoceanreview.com/en/wor-2/fisheries/deep-sea-fishing/> (last accessed May 12, 2016).

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- ²⁰⁴ Tonga Fishermen Interview, *supra* note 38.
- ²⁰⁵ *Id.*
- ²⁰⁶ Leitis Interview, *supra* note 165.
- ²⁰⁷ SMA, §12 “Functions of the Authority.”
- ²⁰⁸ Tonga Geology Department Interview, *supra* note 146; Lands Interview, *supra* note 169.
- ²⁰⁹ SMA, §§39(1)(l), 28.
- ²¹⁰ *See* Annex: International Law Discussion.
- ²¹¹ SMA, §2 Interpretation.
- ²¹² *E.g.*, §§109 (1), 122.
- ²¹³ *E.g.*, \$10,000/day for breach by company (§27(2)(d)), versus \$250,000 for interfering with seabed mineral activities (§114).
- ²¹⁴ SMA, §77(4).
- ²¹⁵ WELCOME TO PAPUA NEW GUINEA, PNG TOURISM AUTHORITY, available at: <http://www.papuanewguinea.travel/> (last accessed Apr 28, 2016).
- ²¹⁶ UNDP 2014 PNG Report, *supra* note 50, at 2.
- ²¹⁷ *Papua New Guinea*, THE CIA WORLD FACTBOOK, <https://www.cia.gov/library/publications/the-world-factbook/geos/pp.html> (last accessed Apr. 20, 2016).
- ²¹⁸ *Human Development Report 2015*, UNDP, available at: http://hdr.undp.org/sites/default/files/2015_human_development_report.pdf.
- ²¹⁹ *Corruption Perceptions Index 2015*, TRANSPARENCY INTERNATIONAL, available at: <http://www.transparency.org/cpi2015>.
- ²²⁰ *Extractive Industries and Sustainable Human Development*, UNDP, available at: http://www.pg.undp.org/content/papua_new_guinea/en/home/operations/projects/democratic_governance/extractive-industries-and-sustainable-human-development.html (last accessed April 26, 2016); UNDP 2014 PNG report, *supra* note 50, at 3.
- ²²¹ UNDP 2014 PNG Report, *supra* note 50, at 3. The UNDP further notes: “There has been limited diversification away from mineral dependence since Independence, and literature suggests that a high dependence on resources often contributes to reducing government capacity, rising corruption, increased conflict, inequality and structural poverty, all of which have occurred in Papua New Guinea.” *Id.*
- ²²² *See PNG Government Must Act on International Criticism over Human Rights Abuses against its Indigenous Peoples*, GLOBAL WITNESS, May 12, 2016, available at: <https://www.globalwitness.org/en-gb/press-releases/png-government-must-act-international-criticism-over-human-rights-abuses-against-its-indigenous-peoples/>.
- ²²³ Out of Our Depth, *supra* note 12, at 3.
- ²²⁴ Nautilus Annual Information Form 2015, *supra* note 25, at 41-43. Nautilus’s exploration around Solwara 1 has included resource definition drilling, sampling, and metallurgical and production development studies, among others. NAUTILUS MINERALS, PNG, available at: <http://www.nautilusminerals.com/irm/content/png.aspx?RID=258> (last accessed May 2, 2016).
- ²²⁵ *Id.*
- ²²⁶ *24,000 Petitioned against Sea Bed Mining*, DEEP SEA MINING CAMPAIGN, Oct. 23, 2012, available at: <http://www.deepseaminingoutofourdepth.org/video-24000-petitioned-against-sea-bed-mining/>; *PNG Government Petitioned to Stop Seabed Mining*, RADIO NZ, Oct. 24, 2012, <http://www.radionz.co.nz/international/pacific-news/208045/png-government-petitioned-to-stop-seabed-mining>.
- ²²⁷ Interview with Rosa Koian, environmental and indigenous rights advocate and researcher, in Port Moresby, PNG (Apr. 15, 2016) [hereinafter *Koian Interview*]; *see also* Jon Copley, *Who Are Some of the Investors & Contractors Involved in Developing the World’s 1st Deep-Sea Vent Mine?*, U. OF S. HAMPTON, Oct. 5, 2015, available at: http://moocs.southampton.ac.uk/oceans/2015/10/05/ventmining_shareholders_contractors/; *Major Shareholders*, NAUTILUS MINERALS, Apr. 8, 2016, available at: <http://www.nautilusminerals.com/irm/content/major-shareholders.aspx?RID=273>.
- ²²⁸ Rachel Shisei, *Nation’s Lutherans Await PM’s Response on ‘Experimental’ Seabed Mining*, PNG LOOP, May 4, 2015, available at: <https://ramumine.wordpress.com/tag/lutheran-church/>.
- ²²⁹ *PNG Government To Pay \$118 Million To Nautilus Minerals*, PACIFIC ISLANDS REPORT, 2013, available at: <http://pidp.eastwestcenter.org/pireport/2013/October/10-08-19.htm>; *Nautilus Minerals Awarded Favourable Arbitration Decision*, Press Release 2013 - 22, NAUTILUS MINERALS, Oct. 3, 2013, available at: <http://www.nautilusminerals.com/IRM/PDF/1136/NautilusMineralsAwardedFavourableArbitrationDecision>
- ²³⁰ Interview with Director of the PNG Centre for Climate Change & Sustainable Development and associated professors, School of Natural & Physical Sciences, University of Papua New Guinea, in Port Moresby, PNG (Apr. 15, 2016)

[hereinafter *UPNG Interview*]; Koian Interview, *supra* note 227. Nautilus's own materials recognize the high-risk nature of the Solwara 1 venture, stating "[t]he Company is subject to many of the risks common to early stage enterprises, including personnel limitations, financial risks, metals prices, permitting and other regulatory approvals, the need to raise capital, resource shortages, lack of revenues, equipment failures and potential disputes with, or delays or other failures caused by third party contractors or joint venture partners. . . . There can be no assurance that the Company will be able to raise sufficient financing to facilitate this development." NAUTILUS MINERALS, *Management's Discussion and Analysis of Financial Condition and Results of Operations*, available at: <http://www.nautilusminerals.com/IRM/PDF/1653/Q22015MDA> (last accessed May 3, 2016), 6 [hereinafter *Nautilus Management Discussion*].

²³¹ World Bank Report, *supra* note 28, at 59. The World Bank further notes: "Governments could be better off limiting or eliminating downside risks, while retaining an opportunity to participate in any upside through a resource rent tax."

²³² Nautilus Annual Information Form 2015, *supra* note 25, at 13.

²³³ *Id.* at 15, 20.

²³⁴ Eric Tlozek, *Papua New Guinea Government Announces Huge Drop in Revenue, Major Funding Cuts in Budget*, ABC NEWS, Nov. 3, 2015, <http://www.abc.net.au/news/2015-11-03/png-government-announces-huge-drop-in-revenue/6909078>; Rowan Callick, *PNG in Bid to Raise \$1.3bn in Bond Markets*, THE AUSTRALIAN, Nov. 26, 2015, <http://www.theaustralian.com.au/business/png-in-bid-to-raise-13bn-in-bond-markets/news-story/aba728ebd421984057e089d84cd580>; *PNG's Staggering Debt Level Worries Polye*, PNG TODAY, Dec. 14, 2015, <http://news.pngfacts.com/2015/12/pngs-staggering-debt-level-worries-polye.html>; Mike Seccombe, *The Failed State of PNG*, THE SATURDAY PAPER, <https://www.thesaturdaypaper.com.au/news/immigration/2016/04/30/the-failed-state-png/14619384003181>; Charles Yapumi, *PNG Owes 20 Banks Worldwide*, LOOP PNG, Mar. 29, 2016, <http://www.looppng.com/content/png-owes-20-banks-worldwide-o%E2%80%99neill>.

²³⁵ Seccombe, *supra* note 234.

²³⁶ Interview with National Coordinator of the PNG Resource Governance Coalition, in Port Moresby, PNG (Apr. 18, 2016) [hereinafter *PNG RGC Interview*].

²³⁷ See Helen Rosenbaum & Rosa Koian, *Sea Bed Mining in Papua New Guinea*, Apr. 2016, draft report, forthcoming, 54; Koian Interview, *supra* note 227.

²³⁸ Interview with Dulciana Somare-Brash, Deputy Executive Director at the Pacific Institute for Public Policy, in Port Moresby, PNG (Apr. 16, 2016) [hereinafter *Somare-Brash Interview*].

²³⁹ PNG RGC Interview, *supra* note 236.

²⁴⁰ Somare-Brash Interview, *supra* note 240; Koian Interview, *supra* note 227.

²⁴¹ PNG RGC Interview, *supra* note 238.

²⁴² Koian Interview, *supra* note 227; UPNG Interview, *supra* note 230.

²⁴³ UPNG Interview, *supra* note 230.

²⁴⁴ Rosenbaum & Koian, *supra* note 237, at 10.

²⁴⁵ Somare-Brash Interview, *supra* note 238; Koian Interview, *supra* note 227.

²⁴⁶ *Id.*

²⁴⁷ Koian Interview, *supra* note 227.

²⁴⁸ Interview with the Governor of Oro Province, Gary Juffa, in Suva, Fiji (Apr. 24, 2016) [hereinafter *Gov. Juffa Interview*].

²⁴⁹ Rosenbaum & Koian, *supra* note 237, at 9.

²⁵⁰ *Id.*

²⁵¹ *Id.* at 38: Rosenbaum & Koian note: "Nautilus calculates the 'CSR spend' to be \$491/person/year. The disparity of this small amount in contrast to [what] the company will make was summed up by a NIP villager who said, 'They take our minerals and give us latrines.'"

²⁵² Somare-Brash Interview, *supra* note 238: "...growth which has not translated into gains for indigenous peoples or in health or education."

²⁵³ See HUMAN RIGHTS WATCH, *GOLD'S COSTLY DIVIDEND: HUMAN RIGHTS IMPACTS OF PAPUA NEW GUINEA'S PORGERA GOLD MINE*, Feb. 1, 2011, <https://www.hrw.org/report/2011/02/01/golds-costly-dividend/human-rights-impacts-papua-new-guineas-porgera-gold-mine>: "There is one essential component of adequate management of the situation at Porgera that is still completely lacking: responsible government regulation. The Papua New Guinea government exercises no meaningful day-to-day oversight over the Porgera mine's private security force, and it is not clear that it has the capacity to do so. In fact, the government has often appeared more interested in quashing community objections to lucrative extractive projects than regulating those projects effectively."

²⁵⁴ Interview with Sam Akoitai, former Mining Minister, in Port Moresby, PNG (Apr. 15, 2016) [hereinafter *Akoitai Interview*].

²⁵⁵ *Id.*

²⁵⁶ *Id.*

²⁵⁷ Koian Interview, *supra* note 227; UPNG Interview, *supra* note 230; PNG RGC Interview, *supra* note 236.

²⁵⁸ Koian Interview, *supra* note 227; UPNG Interview, *supra* note 230.

²⁵⁹ *Id.*; Gov. Juffa Interview, *supra* note 248.

²⁶⁰ UPNG Interview, *supra* note 230; Koian Interview, *supra* note 227.

²⁶¹ Koian Interview, *supra* note 227.

²⁶² Gov. Juffa Interview, *supra* note 248.

²⁶³ Koian Interview, *supra* note 227; PNG RGC Interview, *supra* note 236.

²⁶⁴ Gov. Juffa Interview, *supra* note 248.

²⁶⁵ UPNG Interview, *supra* note 230; Koian Interview, *supra* note 227.

²⁶⁶ Akoitai Interview, *supra* note 254; UPNG Interview, *supra* note 230.

²⁶⁷ Gov. Juffa Interview, *supra* note 248.

²⁶⁸ Somare-Brash Interview, *supra* note 238.

²⁶⁹ *Id.* Rather than an established political culture, citizens reportedly see no MPs or politicians actually reading bills, no white papers being produced, and billion-dollar line items being signed away at the whim of individual politicians. *Id.*

²⁷⁰ PNG RGC Interview, *supra* note 236.

²⁷¹ *Id.*

²⁷² *Id.*

²⁷³ *Id.*

²⁷⁴ *Id.*

²⁷⁵ *Id.*

²⁷⁶ See *A Case Study on Papua New Guinea's Indigenous People and the Extractive Industries*, Presented at the workshop on "Indigenous Peoples, the Extractive Industries and the World Bank," Exeter College in the University of Oxford, UK, Apr. 2003, 8, available at:

<http://www.forestpeoples.org/sites/fpp/files/publication/2010/08/eirinternatwshoppngcaseapr03eng.pdf>: "Ok Tedi discharges 80,000 tonnes per day and Tolukuma 300-400 tonnes. All these mines have been given large stretches of rivers and perimeters of ocean to pollute... Ok Tedi, Porgera and Tolukuma have taken away 200, 150 and 7 kilometers of rivers respectively for dilution of the mine waste."

²⁷⁷ PNG RGC Interview, *supra* note 236; See also the Compensation (Prohibition of Foreign Legal Proceedings) Act 1995, Preamble: "An Act to prohibit the taking or pursuing in foreign courts of legal proceedings in relation to compensation claims arising from mining projects and petroleum projects in Papua New Guinea"; *Id.* at §6: "Notwithstanding any law to the contrary, a judgement of a foreign court, in relation to compensation proceedings prohibited under §4 made after the coming into operation of this Act is not enforceable in Papua New Guinea."

²⁷⁸ PNG RGC Interview, *supra* note 236; see, e.g., Danielle Knight, *BHP Billiton Leave the Scene of the Crime*, ASIA TIMES, Jan. 5, 2002, <http://www.atimes.com/oceania/DA05Ah01.html>; Sam Lawson, *Illegal logging in Papua New Guinea*, ENERGY, ENVIRONMENT AND RESOURCES EER PP 2014/04, CHATHAM HOUSE, available at:

http://indicators.chathamhouse.org/sites/files/reports/Lawson_Papua_New_Guinea_PP_2014.pdf; Jeremy Hance, *Logging Company Fined \$100 Million for Illegal Logging in Papua New Guinea*, MONGABAY NEWS, Jun. 28, 2011, <https://news.mongabay.com/2011/06/logging-company-fined-100-million-for-illegal-logging-in-papua-new-guinea/>.

²⁷⁹ To take but one example, consider Malaysian company Concord Pacific. Concord Pacific was granted a 'road-line clearance' in 1994, which allowed the company to clearcut forests 40 meters to either end of the determined road. Instead the company went ahead and cleared 20 kilometres (12.4 miles) on either side of the road line, 500 times the amount allotted. In 2011, Concord Pacific was ordered by PNG's National Court to pay \$100 million in damages. The local company was wound up, however, and the fine was never actually paid. See Lawson, *supra* note 278, and Hance, *supra* note 278. PNG RGC Interview, *supra* note 236.

²⁸⁰ See *Support for Mining Over Democratic Principles in Papua New Guinea*, MINING WATCH CANADA, Jul. 18, 2010, available at: <http://miningwatch.ca/blog/2010/7/18/support-mining-over-democratic-principles-papua-new-guinea>: "On June 9th Prime Minister Michael Somare defended his new law by saying that the law had been passed to ensure that the project [Ramu nickel mine] achieved its targeted deadline without unnecessary delay. The chairman of Transparency International in PNG is reported as saying that the changes to the environmental laws were a 'clear sign that parliament had become a rubber stamp for vested interests and those with money'"; PNG RGC Interview, *supra* note 236.

²⁸¹ Gov. Juffa Interview, *supra* note 248; Eric Tlozek, *PNG Supreme Court Judge Bernard Sakora Charged with Judicial Corruption By Police*, RADIO AUSTRALIA, Apr. 11, 2016, <http://www.radioaustralia.net.au/international/2016-04-11/png-supreme-court-judge-bernard-sakora-with-judicial-corruption-by-police/1568198>.

²⁸² PNG RGC Interview, *supra* note 236.

²⁸³ UPNG Interview, *supra* note 230; Somare-Brash Interview, *supra* note 238.

²⁸⁴ Gov. Juffa Interview, *supra* note 248.

²⁸⁵ Koian Interview, *supra* note 227.

²⁸⁶ *Id.*

²⁸⁷ See, e.g., Out of Our Depth, *supra* note 12, at 25: “The Project will generate revenues in excess of US\$1 billion. However total tax, duties and royalty payments to the Government of PNG are estimated at only US\$40.8 million over the life of the project. This appears in large part to be due to an exemption from paying company tax on the basis of costs incurred. Similarly the community development fund to be established by Nautilus to support local health and education projects represents a very small proportion of revenues. Nautilus will contribute two kina for every tonne of ore mined, providing only around PGK5.8 million over the life of the mine.”

²⁸⁸ PNG RGC Interview, *supra* note 236; see also Accountability Zero Report, *supra* note 28, at 11: “The production output of Solwara 1 is very small at 0.7% - 6% of the output of the terrestrial mines... A CBA could well indicate that the potential benefits of Solwara 1 are outweighed by the costs of its impacts. Indeed, this is the basis of the NZ EPA’s decision last year to reject two applications to mine within NZ’s EEZ”; Nautilus Management Discussion, *supra* note 232, at 2, 6: “Nautilus’ ability to generate revenues and achieve a return on shareholders’ investment must be considered in light of the early stage nature of the Solwara 1 deposit and seafloor resource production in general”; “[t]he Company has also assumed that market fundamentals will result in sustained copper and gold demand and prices; that the proposed development of its mineral projects will be viable operationally and economically and proceed as expected; and that any additional financing needed will be available on reasonable terms”; yet Nautilus recognizes numerous risk factors, such as “the risk of failure to obtain required equity or debt funding, ... future prices of copper, gold and other metals being lower than expected; the over-arching risk that the Company will not commence production of mineralized material; possible variations in resources, grade or recovery rates.”

²⁸⁹ Nautilus states that it “has not completed and does not intend to complete a preliminary economic assessment, prefeasibility study or feasibility study before completing the construction and first deployment of the Seafloor Production System at the Solwara 1 Project. *Management considers the Company’s best interests would be served by first testing the operational viability of the Seafloor Production System at the Solwara 1 Project in order to demonstrate whether existing offshore technologies can be adapted to cut and recover high grade seafloor massive sulphides from the deep ocean. ... no independent Qualified Person has confirmed the amount of the ... costs [of Nautilus’ present production plans] or recommended that these costs be incurred. There is significant risk with this approach and no assurance can be given that the Seafloor Production System, if fully funded and completed for deployment at the Solwara 1 Project, will successfully demonstrate that seafloor resource development is commercially viable*” (emphasis added). Nautilus Annual Information Form 2015, *supra* note 25, at 52; *Nautilus Minerals revisited, Thoughts of a Private Investor*, Jun. 28, 2011, available at: <http://thoughtsofaprivateinvestor.blogspot.com/2011/06/nautilus-minerals-revisited.html>: “If Nautilus Minerals is successful in Solwara 1, there should be plenty of money to be made in the areas the company has claimed. ... The more projects they have after Solwara 1 the more profitable they will be (Solwara 1 pretty much covers all the needed investments for production system). If they fail with Solwara 1 for one reason or another, all bets are off.”

²⁹⁰ PNG RGC Interview, *supra* note 236. It appears from the Joint Venture Agreement between Nautilus and the PNG government that exercising any intellectual property rights of the project will require the consent of all parties; this may indicate that Nautilus essentially holds veto rights over any potential exercise of IP rights by PNG stemming from the Solwara venture. See Allens, *Joint Venture Agreement between Nautilus Minerals Niugini Limited*, Nautilus Minerals Pacific Pty Ltd, & Eda Kopa (Solwara) Limited, §4.4.

²⁹¹ PNG RGC Interview, *supra* note 236; see, e.g., the Hidden Valley gold mine which has struggled to turn a profit since commencing operations in 2010; Rhiannon Hoyle, *Newcrest Ponders Options for PNG’s Hidden Valley Gold Operation*, WALL STREET JOURNAL, Jan. 28, 2016, available at: <http://www.theaustralian.com.au/business/mining-energy/newcrest-ponders-options-for-pngs-hidden-valley-gold-operation/news-story/26e34562797bc4dfe347b851337bfc89>; *Newcrest Trying to Dump Hidden Valley*, THE AUSTRALIAN, Apr. 17, 2016, available at: <https://ramumine.wordpress.com/2016/04/18/newcrest-trying-to-dump-hidden-valley/>. Consider also the example of PNG’s Sinavit gold mine, which is unprofitable and has laid off large groups of local workers. *PNG’s Sinavit Gold Mine Not Making Profit*, THE NATIONAL, available at: <http://mine.onepng.com/2013/10/pngs-sinavit-gold-mine-not-making-profit.html?m=0> (last accessed May 4, 2016). Consider also the Ramu Nickel mine, which has yet to deliver any profits since construction began in 2005, despite numerous concessions and subsidies, including a 10-year tax holiday, from the PNG government. *MCC Heavyweights in PNG to Protest Lack of Profits and Seek Further Subsidies*, PNG MINE WATCH, Sept. 11, 2015, available at: <https://ramumine.wordpress.com/2015/09/11/mcc-heavyweights-in-png-to-protest-lack-of-profits-and-seek-further-subsidies/>.

²⁹² Mining companies who paid zero corporate income tax in 2013 include Barrick Gold, MCC Ramu NiCo Ltd, Newcrest and Harmony, Petromin, and Simberi Gold Co. Ltd. *Papua New Guinea Extractive Industries Transparency Initiative Report for the*

- period 1 January 2013 to 31 December 2013, PNG EITI, EITI National Secretariat, Feb. 12, 2016, available at: http://www.inapng.com/pdf_files/PNG%20EITI%20FINAL%20110216.pdf.
- ²⁹³ Rosenbaum & Koian, *supra* note 237, at 32; Steiner EIS Review, *supra* note 34, at 24; *Nautilus Looks to Increase Local Workers*, PNG VILLAGE, Jun. 3, 2014, available at: <http://actnowpng.org/content/nautilus-looks-increase-local-workers>.
- ²⁹⁴ Koian Interview, *supra* note 227.
- ²⁹⁵ *Id.*
- ²⁹⁶ *Id.*
- ²⁹⁷ UPNG Interview, *supra* note 230.
- ²⁹⁸ *New Ireland Locals Fear Nautilus Destroying Shark Calling*, PNG MINE WATCH, Oct. 18, 2012, available at: <http://www.deepseaminingoutofourdepth.org/new-ireland-locals-fear-nautilus-destroying-shark-calling/>; Jo Chandler, *Mining the Abyss*, THE GLOBAL MAIL, Dec. 2014; *Real Shark Tale Waiting to Vanish*, PNG MINE WATCH, Feb. 7, 2015, available at: <https://ramumine.wordpress.com/tag/shark-calling/>; Juliet Eilperin, *Shark Callers: The Daring Spiritual Practice of Papua New Guinea*, excerpt from DEMON FISH: TRAVELS THROUGH THE HIDDEN WORLD OF SHARKS, available at: http://www.huffingtonpost.com/2012/08/26/shark-callers-photos_n_1828134.html (last accessed May 3, 2016).
- ²⁹⁹ *Id.*
- ³⁰⁰ *Id.*; Koian Interview, *supra* note 227; *New Ireland Province*, PNG TOURISM PROMOTION AUTHORITY, 2015, <http://www.papuanewguinea.travel/newireland>.
- ³⁰¹ Koian Interview, *supra* note 227.
- ³⁰² *Id.*
- ³⁰³ *Id.*; See also Patrick Karabuspalau Kaiku and Tukul Walla Kaiku, *Indigenous Knowledge for Community Benefit: Examples from Lavongai (New Hanover) Island in the Pacific Region*, 1 CONT. PNG STUDIES (2008), available at: <http://www.thefreelibrary.com/Indigenous+knowledge+for+community+benefit+examples+from+Lavongai...-a0188424186>.
- ³⁰⁴ Somare-Brash Interview, *supra* note 238.
- ³⁰⁵ Chandler, *supra* note 298; Miner, *supra* note 27.
- ³⁰⁶ Rosa Koian, *Field Trip to New Ireland Province West Coast Communities*, BfdW, Feb. 10-17, 2016, Draft Report, forthcoming, at 6.
- ³⁰⁷ Gov. Juffa Interview, *supra* note 248; Miner, *supra* note 27; *Deep Sea Mining: The Pacific Experiment, Chain Reaction*, FRIENDS OF THE EARTH AUSTRALIA MAGAZINE, Apr. 2013, available at: <http://www.foe.org.au/sites/default/files/Chain-Reaction-117-April2013-final-4MB.pdf>.
- ³⁰⁸ Helen Rosenbaum, Field Trip to Ramuaina (Duke Of York Islands), BfdW, Feb. 15-18, 2016, Draft Report, forthcoming, at 7; Freddy Mou, *Dead Sea Creatures Causing Awful Smell in Namatanai*, LOOP PNG, Apr. 13, 2016, <http://www.looppng.com/content/dead-sea-creatures-causing-awful-smell-namatanai>.
- ³⁰⁹ Mou, *supra* note 308.
- ³¹⁰ See FN 28.
- ³¹¹ UPNG Interview, *supra* note 230.
- ³¹² Rosenbaum & Koian, *supra* note 237, at 33: “The NFA estimates the annual market value of PNG’s commercial catch at K350 to K400 million, with tuna accounting for most of this. The PNG catch of major tuna species...represents 11% of the global catch”; Ancilla Wrakuale, *NFA on Sea Laws on Seabed Mining*, POST COURIER, Sept. 14, 2012, available at: <http://www.pina.com.fj/?p=pacnews&m=read&co=1125985915029a058b6e08ed5ab872>: “PNG is one of the world’s largest producers of tuna and contribut[es] 15 percent of the world’s catch, especially skipjack and yellow fin tunas.”
- ³¹³ Koian Interview, *supra* note 227; *Papua New Guinea’s Fisheries Boom*, BUSINESS ADVANTAGE PNG, Feb. 27, 2013, <http://www.businessadvantagepng.com/papua-new-guineas-fisheries-boom/>; *Papua New Guinea pursues value-added tuna processing*, OXFORD BUSINESS GROUP, Oct. 20, 2015, <http://www.oxfordbusinessgroup.com/news/papua-new-guinea-pursues-value-added-tuna-processing>.
- ³¹⁴ PNG RGC Interview, *supra* note 236; UPNG Interview, *supra* note 230; Out of Our Depth, *supra* note 12, at 24.
- ³¹⁵ Rosenbaum & Koian, *supra* note 237, at 35.
- ³¹⁶ Wrakuale, *supra* note 314.
- ³¹⁷ Chalapan Kaluwin, *Solwara 1 Project - A Long Term Disaster For Bismarck Sea Community and PNG*, Apr. 7, 2015, paper, Environmental Science and Geography Discipline, School of Natural and Physical Science UPNG, 13: “Studies of the taxonomy and genetic relationships of macro-invertebrate species found at Solwara 1, South Su (upstream about 2 km), and Solwara 8 (downstream about 45 km) have not been completed, and thus the degree of genetic variability and endemism of organisms between sites is not yet known.”
- ³¹⁸ UPNG Interview, *supra* note 230. Professors we interviewed note that there is a need to design studies examining atmospheric effects as well.
- ³¹⁹ *Id.*
- ³²⁰ *Id.*; Rosenbaum & Koian, *supra* note 237, at 44; Koian Interview, *supra* note 227.

³²¹ See John Luick, *Physical Oceanographic Assessment of the Nautilus EIS for the Solwara 1 Project*, Nov. 2012, DEEP SEA MINING CAMPAIGN, 9-10; Steiner EIS Review, *supra* note 34, at 2, 4-5. More specifically, critics of the EIS point to insufficient treatment of damage to highly valuable endemic benthic fauna, some of which is yet to be discovered; impact on pelagic (water column) fauna; risks of leakage from the riser or discharge pipes and of spills from the Mining Support Vessel, shuttle barges to Rabaul or ore freighters from Rabaul; vertical and horizontal currents transporting sediment plumes and pollutants shorewards and into contact with marine food chains; impact on fisheries and other livelihoods; and cumulative impacts. *Id.*

³²² Luick, *supra* note 321, at 9-10.

³²³ UPNG Interview, *supra* note 230.

³²⁴ Luick, *supra* note 321, at 6.

³²⁵ PNG RGC Interview, *supra* note 238; *A Brief History of the Ramu Nickel Mine and the Submarine Tailings Disposal Issue*, ACTNOW, available at:

<http://actnowpng.org/sites/default/files/A%20brief%20history%20of%20the%20Ramu%20nickel%20mine.pdf> (last accessed May 3, 2016); Mohamed Hassan, *PNG's Ramu Nico Mine: An Environmental Time Bomb?*, ASIA-PACIFIC JOURNALISM, PACIFIC MEDIA CENTRE, Nov. 8, 2012, <http://www.pmc.aut.ac.nz/articles/pngs-ramu-nico-mine-environmental-time-bomb>; *Ramu Mine Tailings Threaten Bay*, THE NATIONAL AKA THE LOGGERS TIMES, May 13, 2014, <https://ramumine.wordpress.com/2014/05/13/ramu-mine-tailings-threaten-bay/>.

³²⁶ *Id.*; See *Medaing v. Ramu Nico Management (MCC) Ltd* [2011] PGSC 40; SC1144 (Dec. 22, 2011), available at: <http://www.paclii.org/pg/cases/PGSC/2011/40.html>.

³²⁷ See *Papua New Guinea Tourism Receives Some Attention*, BUSINESS ADVANTAGE PNG, Feb. 12, 2014, <http://www.businessadvantagepng.com/papua-new-guinea-tourism-receives-attention/>.

³²⁸ Gov. Juffa Interview, *supra* note 248.

³²⁹ UPNG Interview, *supra* note 230; Koian Interview, *supra* note 227; Gov. Juffa Interview, *supra* note 248.

³³⁰ UPNG Interview, *supra* note 230; Gov. Juffa Interview, *supra* note 248.

³³¹ *Id.*

³³² See PNG 1992 Mining Act §43:

Section 43. APPROVED PROPOSALS FOR A MINING LEASE.

(1) In assessing an application for a mining lease, the Board shall consider whether-

(a) the proposals submitted by the applicant ...

(ii) provide adequately for the protection of the environment, in which case evidence that the applicant has complied with the requirements of the Department responsible for environmental matters will be conclusive of adequate protection under this section.

³³³ See *Draft Papua New Guinea Involuntary Resettlement Policy*, ADAM SMITH INTERNATIONAL, Jul. 12, 2013, 10.

³³⁴ PNG 1992 Mining Act §3 "Consultation."

³³⁵ Among these are Adam Smith International, an international development consultancy promoting economic liberalization and marketization, and McIlwraith Lawyers.

³³⁶ Other updates include a document on mining safety regulations, a draft involuntary resettlement policy, a mine closure policy, and a policy on sustainable mining development, among others. Where relevant, these policies also apply to DSM (*see e.g.* David McIlwraith, *PNG Draft Mine Closure Policy*, MCLWRAITH LAWYERS, July 29, 2013, 9).

³³⁷ Specifically, Governance Principle 3 includes: "8.2.7 PS 7: Indigenous Peoples:

» Ensure development fosters respect of human rights, dignity, aspiration, culture and natural resources of indigenous peoples;

» Anticipate, avoid and minimize adverse impacts;

» Provide sustainable development opportunities in a culturally appropriate manner;

» Adhere to Informed Consultation and Participation (ICP);

» Practice Free, Prior Informed Consent (FPIC) with indigenous people; and

» Respect and preserve the culture, knowledge and practices of indigenous peoples." PNG Draft Sustainable Mining Development Policy, July 2013.

³³⁸ *Id.*

³³⁹ *Revised Mining Act, Regional Forum Presentation write-up*, Min. Policy & Legisl. Div., DEPT. OF MINERAL POLICY & GEOHAZARDS MANAGEMENT, Aug. 2013, PNG.

³⁴⁰ *Id.* at 2-3.

³⁴¹ *Id.* at 3.

³⁴² *Id.* at 4.

³⁴³ *Id.* at 6.

³⁴⁴ *Id.* at 7.

³⁴⁵ *Id.* at 8.

³⁴⁶ *Id.* at 11.

³⁴⁷ The Papua New Guinea Draft Offshore Mining Policy, Aug. 30, 2013, §2.3 “Purpose.”

³⁴⁸ *Id.*

³⁴⁹ *Id.* at §13.6.

³⁵⁰ *Id.* at §8.1.

³⁵¹ *Id.*

³⁵² *Id.* at §10.2.

³⁵³ ECOSOC Study, *supra* note 5, at ¶ 36.

³⁵⁴ 2.4 *Fiji*, SPC, available at: <https://www.spc.int/climate-change/fisheries/assessment/chapters/summary/5-fiji.pdf> (last accessed Apr. 12, 2016).

³⁵⁵ *Fiji*, CIA WORLD FACTBOOK, available at: <https://www.cia.gov/library/publications/the-world-factbook/geos/fj.html> (last accessed Apr. 12, 2016). Fiji’s billion dollar tourism industry accounts for 25% of the country’s GDP. WWF Policy Paper, *supra* note 28, at 5.

³⁵⁶ Cristelle Maurin, *Pacific Islands: Leading the Way in Deep Sea Minerals Legislation*, EAST ASIA FORUM, May 11, 2013, <http://www.eastasiaforum.org/2013/05/11/pacific-islands-leading-the-way-in-deep-sea-minerals-legislation/>; 2012 SPC Presentation, *supra* note 77, at slide 2; SPC-EU EDF10 Deep Sea Minerals Project Proceedings of the Fiji National Deep Sea Minerals Stakeholder Consultation Workshop, Suva, Fiji, Mar. 28, 2012, 12, available at: http://gsd.spc.int/dsm/public/files/reports/country/PR104_Fiji%20National%20Workshop.pdf [hereinafter *SPC Fiji Consultation Workshop*].

³⁵⁷ Malakai Finau, *Fiji – Status of Policy And Legislation Development*, FIJI MINERAL RESOURCES DEPARTMENT, SPC-EU EDF10 DSM National Stakeholder Consultation, 28 March 2012, at slides 5 & 6, available at: http://gsd.spc.int/dsm/public/files/reports/FIJI-STATUS_OF_POLICY_AND_LEGISLATION_DEVELOPMENT_DSM_28Mar2012.pptx [hereinafter *MRD Presentation*].

³⁵⁸ Interview with Fiji Department of Environment, in Suva, Fiji (Apr. 22, 2016) [hereinafter *Fiji DOE Interview*]. The Environment Management Act 2005 is also currently under review.

³⁵⁹ Land in Fiji is divided into 3 types, Native Land: 83% of all land in Fiji; Crown Land: 9%; and Freehold Land: 8%. *Fiji’s Mineral Policy*, FIJI MINERAL RESOURCES DEPARTMENT, Summary, 4 [hereinafter *Fiji’s Mineral Policy*].

³⁶⁰ Fiji DOE Interview, *supra* note 358. Although it is notable that the committee is adopting an integrative approach among different sectors and actors, it bears mentioning that the director of the MRD will still have the final say as to whether a mining project proceeds.

³⁶¹ MRD Presentation, *supra* note 357, at slide 6; Interview with Fiji Mineral Resources Department, in Suva, Fiji (May 10, 2016) [hereinafter *Fiji MRD Interview*].

³⁶² Fiji has been involved with the ISA from the beginning, with the ISA’s first Secretary General (Satya Nandan) being a Fijian national, along with a Fijian President of the Council and two Fijian Presidents of the Assembly in 2006 and 2011. Fiji is currently a member of the Council, and a Fijian nominee holds the Chair of the Legal and Technical Commission. *See Information Brochure 15: The International Seabed Authority*, SPC-EU EDF10 DSM PROJECT, available at: http://gsd.spc.int/dsm/images/pdf_files/dsm_brochures/DSM_Brochure15_ISA (last accessed Apr. 12, 2016).

³⁶³ *See, e.g.*, Jemima Garrett, *SOPAC Role in Lockheed Seabed Mineral Bid Queried*, PACIFIC BEAT, ABC NEWS, Mar. 14, 2013, <http://www.abc.net.au/news/2013-03-14/sopac-role-in-lockheed-seabed-mineral-bid-queried/4574058>; Arnie Saiki, *SOPAC Expedites New Seabed Mining Legislation for Lockheed Martin*, FOREIGN POLICY IN FOCUS, Mar. 20, 2013, http://fpif.org/sopac_expedites_new_seabed_mining_legislation_for_lockheed_martin/; International Seabed Mineral Management Decree 2013 (Decree No. 21 Of 2013), 14 GOVERNMENT OF FIJI GAZETTE, July 12, 2013, available at: <http://www.fiji.gov.fj/getattachment/3da99aca-66ad-4c6e-8447-774e12e70f0b/Decree-No-21---International-Seabed-Mineral-Manage.aspx>.

³⁶⁴ Fiji MRD Interview, *supra* note 361.

³⁶⁵ KIOST is predominantly funded by the Korean Government, but has become joint venture partners with large international companies such as Samsung ship-builders, Daewoo Ship-building Marine Engineering, LS-Nikko Copper, SK Networks and a steel manufacturer in Korea. SPC Fiji Consultation Workshop, *supra* note 356, at 14.

³⁶⁶ Beverly Tse, *Three Mining Companies Granted Mining Exploration Licences in Fiji*, RADIO NZ, May 30, 2013, <http://www.radionz.co.nz/international/pacific-news/212546/three-mining-companies-granted-mining-exploration-licences-in-fiji>; *Deep Sea Mining Tests Planned*, FIJI BROADCASTING CORPORATION, May 23, 2013, <http://www.fbc.com.fj/fiji/10492/deep-sea-mining-tests-planned#sthash.xqPCu9aW.dpuf> [hereinafter *FBC Article*].

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- ³⁶⁷ World Bank Report, *supra* note 28, at 61-62.
- ³⁶⁸ *Id.*
- ³⁶⁹ SPC Fiji Consultation Workshop, *supra* note 356, at 14.
- ³⁷⁰ Tse, *supra* note 368; FBC Article, *supra* note 368.
- ³⁷¹ 2012 SPC Presentation, *supra* note 77, at slide 12.
- ³⁷² MRD Presentation, *supra* note 357, at slide 5.
- ³⁷³ Interview with Pacific Youth Council (PYC), in Suva, Fiji (Mar. 31, 2016) [hereinafter *PYC Interview*]; Interview with Itaukei Land Trust Board (TLTB), in Suva, Fiji (Apr. 26, 2016) [hereinafter *TLTB Interview*].
- ³⁷⁴ Fiji DOE Interview, *supra* note 358.
- ³⁷⁵ Former TLTB Staff, email interview (May 15, 2016) [hereinafter *Former TLTB Staff Interview*].
- ³⁷⁶ Interview with Bua Urban Youth, in Suva, Fiji (Apr. 11, 2016) [hereinafter *Bua Urban Youth Interview*].
- ³⁷⁷ PYC Interview, *supra* note 373.
- ³⁷⁸ Fiji MRD Interview, *supra* note 361.
- ³⁷⁹ However, the Pacific Youth Council notes that awareness of FPIC and anti-corruption measures is growing among young people, including indigenous youth. PYC Interview, *supra* note 375.
- ³⁸⁰ Bua Urban Youth Interview, *supra* note 376; Fiji's Mineral Policy, *supra* note 361, at 4-5: "Prior to mine construction, mining companies must obtain formal agreement with the area residents, through the appropriate channels, regarding compensation payable for loss of tenure and damage to surface improvements. . . . Where land is required for a mine, and cannot be acquired through a voluntary agreement with land owners, an established procedure for compulsory acquisition exists." This does not constitute FPIC under international law.
- ³⁸¹ Bua Urban Youth Interview, *supra* note 376.
- ³⁸² Interview with Tikina Namosi Landowners Committee (TNLC), in Suva, Fiji (Apr. 21, 2016) [hereinafter *TNLC Interview*].
- ³⁸³ *Id.*
- ³⁸⁴ Interview with Professor at the Oceania Centre of the University of the South Pacific (USP), in Suva, Fiji (Apr. 28, 2016) [hereinafter *USP Interview*].
- ³⁸⁵ TNLC Interview, *supra* note 382.
- ³⁸⁶ *Id.*
- ³⁸⁷ *Id.*
- ³⁸⁸ MRD Presentation, *supra* note 357, at slide 11.
- ³⁸⁹ Interview with Social Education & Empowerment Programme (SEEP), in Suva, Fiji (Apr. 13, 2016) [hereinafter *SEEP Interview*]. SEEP raises awareness among local communities about mining and its impacts.
- ³⁹⁰ Fiji's Mineral Policy, *supra* note 359, at 4.
- ³⁹¹ SEEP Interview, *supra* note 389; TLTB Interview, *supra* note 373; Former TLTB Staff Interview, *supra* note 375 (who also notes: "Government is struggling and stressed to the limit in its current role to monitor the implementation and effects of developments under the environment protection and management legislation and regime. Government will need to partner with indigenous resource owners, civil society and international partners to effectively monitor DSM activities and its effects.").
- ³⁹² Fiji's Mineral Policy, *supra* note 359, at 4.
- ³⁹³ SEEP Interview, *supra* note 389. For instance, SEEP claims that some MRD representatives are ignorant of various legislative mining reporting requirements. *Id.*
- ³⁹⁴ *Id.*
- ³⁹⁵ Bua Urban Youth Interview, *supra* note 376; Interview with Fiji Environmental Law Association (FELA), in Suva, Fiji (Apr. 12, 2016) [hereinafter *FELA Interview*]; TLTB Interview, *supra* note 373.
- ³⁹⁶ FELA Interview, *supra* note 395; SEEP Interview, *supra* note 391; *Department of Environment*, document provided by former Fiji DOE volunteer, accessed May 19, 2016, in Suva, Fiji.
- ³⁹⁷ Fiji DOE Interview, *supra* note 358.
- ³⁹⁸ FELA Interview, *supra* note 395.
- ³⁹⁹ SEEP Interview, *supra* note 389; TNLC Interview, *supra* note 382.
- ⁴⁰⁰ SEEP Interview, *supra* note 389.
- ⁴⁰¹ *Id.*
- ⁴⁰² *See, e.g.*, §20 Powers of inspectors to enter and inspect, Fiji Environment Management Act 2005.
- ⁴⁰³ Bua Urban Youth Interview, *supra* note 376; USP Interview, *supra* note 384.
- ⁴⁰⁴ Bua Urban Youth Interview, *supra* note 376.
- ⁴⁰⁵ TNLC Interview, *supra* note 382.

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- ⁴⁰⁶ *Id.*; TLTB Interview, *supra* note 375; *see also Plea for Justice for Fiji's Mining Communities*, PACIFIC ECOLOGIST, <http://pacificecologist.org/archive/fijimining.html> (last accessed Apr. 21, 2016).
- ⁴⁰⁷ Bua Urban Youth Interview, *supra* note 376.
- ⁴⁰⁸ SEEP Interview, *supra* note 389; former TLTB Staff Interview, *supra* note 375.
- ⁴⁰⁹ TLTB Interview, *supra* note 373; Bua Urban Youth Interview, *supra* note 376; Annabelle Minter, *Compliance and Enforcement for Coastal Fisheries Management in Fiji*, IUCN, 2008, available at: https://cmsdata.iucn.org/downloads/fisheries_compliance_and_enforcement_081117.pdf; WWF Policy Paper, *supra* note 28, at 6.
- ⁴¹⁰ Fiji DOE Interview, *supra* note 358.
- ⁴¹¹ TNLC Interview, *supra* note 382.
- ⁴¹² Bua Urban Youth Interview, *supra* note 376; SEEP Interview, *supra* note 389; TNLC Interview, *supra* note 382.
- ⁴¹³ Bua Urban Youth Interview, *supra* note 376.
- ⁴¹⁴ TNLC Interview, *supra* note 382.
- ⁴¹⁵ Bua Urban Youth Interview, *supra* note 376.
- ⁴¹⁶ TLTB Interview, *supra* note 373.
- ⁴¹⁷ Bua Urban Youth Interview, *supra* note 376.
- ⁴¹⁸ *Id.*
- ⁴¹⁹ SEEP Interview, *supra* note 389.
- ⁴²⁰ TNLC Interview, *supra* note 382.
- ⁴²¹ SEEP Interview, *supra* note 389.
- ⁴²² Bua Urban Youth Interview, *supra* note 376; SEEP Interview, *supra* note 389.
- ⁴²³ Fiji DOE Interview, *supra* note 358.
- ⁴²⁴ USP Interview, *supra* note 384.
- ⁴²⁵ Bua Urban Youth Interview, *supra* note 376; TLTB Interview, *supra* note 373.
- ⁴²⁶ SEEP Interview, *supra* note 389.
- ⁴²⁷ TNLC Interview, *supra* note 382; TLTB Interview, *supra* note 373.
- ⁴²⁸ Serafina Silaitoga, *\$4M STOCKPILE: Exports from Bua Stagnant*, FIJI TIMES, May 6, 2016, <http://www.fijitimes.com/story.aspx?id=352553>.
- ⁴²⁹ Waisea Naisokia, *VGML Reports \$6.2M Loss From Winston*, FIJI SUN, Mar. 14, 2016, <http://fijisun.com.fj/2016/03/14/vgml-reports-6-2m-loss-from-winston/>.
- ⁴³⁰ The EMA 2005 establishes the environmental oversight and EIA process which would apply to DSM in the absence of other specific regulatory frameworks.
- ⁴³¹ SPC Fiji Consultation Workshop, *supra* note 356, at 18.
- ⁴³² *Id.*
- ⁴³³ Fiji Draft Bill 2006, Division 3, §8. *See, e.g.*, United Nations Development Group Guidelines on Indigenous Peoples Issues, February 2008, available at <http://www2.ohchr.org/english/issues/indigenous/docs/guidelines.pdf> [hereinafter *UNDG Guidelines*].
- ⁴³⁴ A Former TLTB staff notes that Fiji government's supposed "ownership" of minerals is a legacy of British colonial law and runs contrary to customary Fijian practices, as well as more progressive and inclusive legal and policy frameworks in this area. *See* Former TLTB Staff Interview, *supra* note 375.
- ⁴³⁵ *Draft Review of Fiji Mineral Bill*, International Legal Resource Centre, American Bar Association, Dec. 22, 2013, 12 [hereinafter *ABA Draft Review*].
- ⁴³⁶ *Id.* at 15.
- ⁴³⁷ *See Performance Standard 1: Assessment and Management of Environmental and Social Risks and Impacts*, INTERNATIONAL FINANCE CORPORATION, Jan. 1, 2012, ¶ 32, available at: http://www.ifc.org/wps/wcm/connect/3be1a68049a78dc8b7e4f7a8c6a8312a/PS1_English_2012.pdf?MOD=AJPERES.
- ⁴³⁸ *Equator Principles*, Jun. 2013, 7-8, available at: <http://www.equator-principles.com/index.php/about-ep>.
- ⁴³⁹ *OECD Guidelines for Multinational Enterprises, I. Concepts and Principles*, OECD, 2011, §14, available at: <http://www.oecd.org/corporate/mne/48004323.pdf>.
- ⁴⁴⁰ ABA Draft Review, *supra* note 435, at 11-12, 16.
- ⁴⁴¹ *Id.* at 20.
- ⁴⁴² Comments on the 28 January 2014 American Bar Association/UNDP Draft Review of Fiji's Minerals (Exploration and Exploitation) Bill 2006, SPC-EU EDF10 DSM Project, Feb. 2013, §§39, 10 [hereinafter *SPC-EU DSM Comments*].
- ⁴⁴³ SPC notes: "The maximum pecuniary penalty that may be imposed for a breach of the Act or licence for exploration or development is F\$10,000 (s.52(3) and s.76(3)). This seems rather a small amount for DSM companies (who, by comparison may be spending ten times this in one day on exploration activities). Consider raising the maximum penalty for such large-

scale operations, or giving the Tribunal power to impose a daily fine for continuing breaches, to dis-incentivise non-compliance.” SPC-EU DSM Comments, *supra* note 444, at §§70, 16. The ABA further notes: “penalties in the Draft Law are quite low. For example, Section 27(3) of the Draft Law sets a cap of \$500 as the maximum penalty. For an alternative model on penalties, experts point to U.S. environmental laws (e.g., Clean Water Act, Oil Pollution Act, etc.), where the penalties are often set at a recurring rate. Thus, each day the violation continues (e.g., discharge of a pollutant) is counted as one penalty. In addition, these penalties are generally revised upward over time as necessary. Currently, civil penalties under the Clean Water Act are authorized up to \$37,500 per day for each violation or up to \$1,100 per barrel of oil discharged. These penalty amounts can increase in circumstances of gross negligence or willful misconduct (e.g., \$140,000 minimum and maximum of \$4,300 per barrel discharged).” ABA Draft Review, *supra* note 435, at 26.

⁴⁴⁴ SPC-EU DSM Comments, *supra* note 442, at §§10, 22, 36, 103.

⁴⁴⁵ *Green Paper: Fiji Offshore Minerals Policy*, 2nd Draft, FIJI MINERAL RESOURCES DEPARTMENT, Feb. 2007, ¶ 3.

⁴⁴⁶ *Id.* at ¶¶ 29, 74.

⁴⁴⁷ *Id.* at ¶ 39: “Pilot or trial mining is available as a special subset of the exploration permit for offshore mineral exploration. This is offered in recognition of the unique environment and unknowns with respect to technology performance and mining of mineral deposits offshore. Pilot testing is for the development and testing of systems for commercial recovery.” Fiji will, according to the OMP, require a prior EIA before approving any pilot mining. *Id.* at ¶¶ 77-78.

⁴⁴⁸ *Id.* at ¶ 53.

⁴⁴⁹ *Id.* at ¶¶ 54-67.

⁴⁵⁰ *Id.*

⁴⁵¹ *Id.* at ¶ 68.

⁴⁵² *Id.* at ¶¶ 88-95.

⁴⁵³ *Id.* at ¶¶ 99-101.

⁴⁵⁴ The Inter-American Court of Human Rights is the regional court system of the Organization of American States.

⁴⁵⁵ United Nations Declaration on the Rights of Indigenous Peoples, G.A. Res. 61/295, U.N. Doc. A/RES/61/295 (Sept. 13, 2007), 46 I.L.M. 1013 (2007), art. 3 [hereinafter *UNDRIP*]. *See also* International Labour Organization, Convention Concerning Indigenous and Tribal Peoples in Independent Countries (1989); Committee on the Elimination of Racial Discrimination, General Recommendation 23, Rights of indigenous peoples (Fifty-first session, 1997), U.N. Doc. A/52/18, annex V at 122 (1997); Committee on Economic, Social and Cultural Rights (CESCR), General Comment No. 21, Right of Everyone to Take Part in Cultural Life (Forty-third session, 2009), U.N. Doc. E/C.12/GC/21, (2009).

⁴⁵⁶ *UNDRIP*, *supra* note 455, at art. 7.

⁴⁵⁷ *Id.* at art. 12.

⁴⁵⁸ *Id.* at art. 13.

⁴⁵⁹ *Id.* at art. 24(2).

⁴⁶⁰ *Id.* at art. 25, 26.

⁴⁶¹ *Id.* at art. 32.

⁴⁶² The *UNDRIP* was adopted by an affirmative majority of 143 countries. *See* Declaration on the Rights of Indigenous Peoples, United Nations Office of the High Commissioner for Human Rights, available at <http://www.ohchr.org/EN/Issues/IPeoples/Pages/Declaration.aspx> (last accessed Aug. 19, 2015).

⁴⁶³ Committee on the Elimination of Racial Discrimination, General Recommendation 23, Rights of indigenous peoples (Fifty-first session, 1997), U.N. Doc. A/52/18, annex V at 122 (1997), at 4(d). In the post-2007 *UNDRIP* era, more than thirty percent (30%) of all cases addressed by the CERD, in the context of its Early Warning and Urgent Action procedure, have involved contests related to the failure of state parties to obtain indigenous peoples’ FPIC in relation to extractive industries.

⁴⁶⁴ Members of the SPC who have signed or ratified the ICERD include the following: Fiji (ratified), Nauru (signatory), Palau (signatory), Papua New Guinea (ratified), Solomon Islands (ratified), Australia (ratified), France and its territories (New Caledonia, French Polynesia, Wallis and Futuna) (ratified), New Zealand (ratified; administers Cook Islands), and the United States and its territories (Guam, Northern Marianas Islands, American Samoa). The United Kingdom, while not a member of the SPC, has ratified the ICERD, and extended its ratification to bind the Pitcairn Islands. *See* Status of Ratification, International Convention on the Elimination of All Forms of Racial Discrimination, Office of the High Commissioner for Human Rights, available at <http://indicators.ohchr.org/> (last accessed Aug. 19, 2015).

⁴⁶⁵ The Committee on Economic, Social and Cultural Rights is the body tasked with oversight of the International Covenant on Economic, Social and Cultural Rights.

⁴⁶⁶ Committee on Economic, Social and Cultural Rights (CESCR), General Comment No. 21, Right of everyone to take part in cultural life (Forty-third session, 2009), U.N. Doc. E/C.12/GC/21, (2009), at §37.

⁴⁶⁷ *Id.* at §36.

⁴⁶⁸ *Id.*

⁴⁶⁹ *Id.* at art. 15.2.

⁴⁷⁰ *Id.* at art. 6.1(b).

⁴⁷¹ See International Law Association Interim Report on a Commentary on the Declaration of the Rights of Indigenous Peoples 13 (2012), Victoria U. of Wellington Legal Research Paper No. 50/2012, available at <http://ssrn.com/abstract=2175897>; See also Tara Ward, *The Right to Free, Prior, and Informed Consent: Indigenous Peoples' Participation Rights Within International Law*, 10 NW. J. INT'L HUM. RTS. 54, 54-55 (2011). (“[T]here is a clear consensus within international human rights jurisprudence that at a minimum States must engage in good faith consultations with indigenous peoples prior to the exploration or exploitation of resources within their lands or actions that would impact their traditionally used resources.”).

⁴⁷² The UN Human Rights Committee is tasked with oversight regarding compliance with the International Covenant on Civil and Political Rights.

⁴⁷³ UN Human Rights Committee, *Poma Poma v. Peru*, Comm. 1457/2006, §7.6, U.N. Doc. CCPR/C/95/D/1457/2006 (HRC 2009), available at http://www.worldcourts.com/hrc/eng/decisions/2009.03.27_Poma_Poma_v_Peru.htm.

⁴⁷⁴ *Id.*

⁴⁷⁵ IACHR, Report No. 75/02, Case No. 11.140, *Mary and Carrie Dann (United States)*, Dec. 27, 2002, §131.

⁴⁷⁶ IACHR, Report No. 40/04, Case No. 12.053, *Maya Indigenous Community of the Toledo District (Belize)*, Oct. 12, 2004, §142.

⁴⁷⁷ *Case of the Saramaka People v. Suriname*, Inter-Am. Ct. H.R. (ser. C) No. 172, §133 (Aug. 12, 2008).

⁴⁷⁸ *Id.*

⁴⁷⁹ *Id.*

⁴⁸⁰ *Id.*

⁴⁸¹ *Id.*

⁴⁸² *Case of the Kichwa Indigenous People of Sarayaku v. Ecuador*, Inter-Am. Ct. H.R. (ser. C) No. 245, §165 (June 27, 2012).

⁴⁸³ *Id.* at §§166-67, 177.

⁴⁸⁴ UNDG Guidelines, *supra* note 433.

⁴⁸⁵ See *Striking a Better Balance: The World Bank Group and Extractive Industries*, Final Report of the Extractive Industries Review, Vol. I, at 50 (Dec. 2003).

⁴⁸⁶ Aboriginal Lands Rights (Northern Territory) Act 1976, Pt. IV; Aboriginal Lands Rights Act 1983 (NSW), §45(5); Aboriginal Land Act 1991 (Qld), §42; Torres Strait Islander Land Act 1991 (Qld), §80; Mineral Resources Act 1989 (Qld), §54; Mineral Resources Development Act 1995 (Tas), Pt. 7; and Aboriginal Land (Jervis Bay Territory) Act 1986 (Cth), §§43, 52A(1), (2).

⁴⁸⁷ Crown Minerals Act 1991. Guyana’s policy and practice on mining also requires that consent be obtained prior to authorization of mining on indigenous lands, as do Peruvian and Philippine laws pertaining to protected areas. See Government’s Policy for Exploration and Development of Minerals and Petroleum of Guyana, Georgetown: Government of Guyana, 12 (1997); Supreme Decree 038-2001-AG (2001 amendment to 1997 Law No. 26834: Law of Natural Protected Areas; The Philippine Indigenous Peoples Rights Act; and Executive Order 263.

⁴⁸⁸ Constitutional Court, Ruling SU-039/97, as translated in R. ROLDÁN, *INDIGENOUS PEOPLES OF COLOMBIA AND THE LAW. A CRITICAL APPROACH TO THE STUDY OF PAST AND PRESENT SITUATIONS* 104 (2000).

⁴⁸⁹ *Id.*

⁴⁹⁰ *Delgamuukw v. British Columbia* (1997) 3 S.C.R. 1010; *Taku River Tlingit First Nation v. British Columbia* (2004) S.C.C. 74; *Haida Nation v. British Columbia (Minister of Forests)* (2004) S.C.C. 73.

⁴⁹¹ *Alexkor Ltd and the Republic of South Africa v. The Richtersveld Community and Others* CCT 19/03, §64 (2003). See also, *United States v. Shoshone Tribe of Indians* 304 U.S. 111 (1938) and *Delgamuukw v. British Columbia* (1997) 3 S.C.R. 1010, 1086 (recognizing indigenous ownership of the subsoil).

⁴⁹² Rio Declaration on Environment and Development, UN Doc. A/CONF.151/26 (vol. I) / 31 ILM 874 (1992), princ. 15; Protocol to the Convention of 1972 on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter, 1046 UNTS 120, (Nov. 7, 1996); The Montreal Protocol on Substances that Deplete the Ozone Layer, (Sept. 16, 1987); Kyoto Protocol to the United Nations Framework Convention on Climate Change, (Dec. 11, 1997). Article 3.3 of the UNFCCC states: “Parties should take precautionary measures to anticipate, prevent or minimize the causes of climate change and mitigate its adverse effects.” Principle 15 of the Rio Declaration on Environment and Development, signed at the United Nations Conference on Environment and Development, further states, “[w]here there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation.” Rio Declaration, at princ. 15. Article 6 of the Straddling Fish Stocks Agreement also calls for the application of the precautionary approach, stating:

“1. States shall apply the precautionary approach widely to conservation, management and exploitation of straddling fish stocks and highly migratory fish stocks in order to protect the living marine resources and preserve the marine environment.

2. States shall be more cautious when information is uncertain, unreliable or inadequate. The absence of adequate scientific information shall not be used as a reason for postponing or failing to take conservation and management measures.”

Agreement for the Implementation of the Provisions of the U.N. Convention on the Law of the Sea of December 10, 1982, Relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks, Aug. 4, 1995, U.N. Doc. A/CONF. 164/38 (Aug. 12, 1992), *reprinted in* 34 I.L.M. 1542.

⁴⁹³ The Seabed Disputes Chamber of the International Tribunal for the Law of the Sea considers the incorporation of the precautionary principle in many international treaties and instruments as evidence of making it “part of customary international law.” *Responsibilities and Obligations of States Sponsoring Persons and Entities with Respects to Activities in the Area (Request for Advisory Opinion submitted to the Seabed Disputes Chamber)*, Case No. 17, Order of Feb. 1, 2011, §135 [hereinafter *Seabed Disputes Chamber Advisory Opinion*].

⁴⁹⁴ *See id.*; *See also* Catherine J. Iorns Magallanes, *The Precautionary Principle in the New Zealand Fisheries Act: Challenges in the New Zealand Court of Appeal* (2005). Victoria U. of Wellington Legal Research Paper No. 59/2014, available at: <http://ssrn.com/abstract=2079837>; *See also id.* at 6, n.8 (“[The precautionary principle’s] explicit endorsement by a wide range of international and national bodies, by a large and growing number of international environmental and natural resource treaties, national constitutions, and legislation, as well as by courts and tribunals suggests a pattern of state practice and a breadth of application which must support a good argument that it has emerged as a principle of customary international law.”) (quoting David Freestone, “International Fisheries Law Since Rio: The Continued Rise of the Precautionary Principle” in ALAN BOYLE AND DAVID FREESTONE (EDS.), *INTERNATIONAL LAW AND SUSTAINABLE DEVELOPMENT* 137 (1999)) (internal quotation marks omitted).

⁴⁹⁵ Seabed Disputes Chamber Advisory Opinion, *supra* note 493, at §131.

⁴⁹⁶ Trail Smelter Case (U.S. v. Canada), 3 UNRIAA 1905, (1941), reprinted in 35 AJIL 684 (1941); United Nations Conference on the Human Environment, Stockholm, Swed., June 5-16, 1972, Declaration of the United Nations Conference on the Human Environment, princ. 21, U.N. Doc A/CONF.48/14/Rev.1 (June 16, 1972); International Law Commission (ILC), Draft Articles on Prevention of Transboundary Harm from Hazardous Activities [with commentary], in REPORT OF THE INTERNATIONAL LAW COMMISSION, Fifty-third Session, UN GAOR, 56th Sess., Supp. No. 10, at 370, 378, UN Doc. A/56/10 (2001): under Article 3 (entitled “Prevention”), it is provided that “[t]he State of origin shall take all appropriate measures to prevent significant transboundary harm or at any event to minimize the risk thereof”; and Pulp Mills on the River Uruguay (Arg. v. Uru.) (Provisional Measures Order of July 13, 2006), available at <http://www.icj-cij.org/docket/files/135/11235.pdf>.

⁴⁹⁷ Legality of the Threat or Use of Nuclear Weapons, Advisory Opinion, 1996 I.C.J. 226, 241-42 (July 8), emphasis added.

⁴⁹⁸ *See* UNCLOS, *supra* note 6, at Annex III, art. 4(4): “The sponsoring State or States shall, pursuant to article 139, have the responsibility to ensure, within their legal systems, that a contractor so sponsored shall carry out activities in the Area in conformity with the terms of its contract and its obligations under this Convention. A sponsoring State shall not, however, be liable for damage caused by any failure of a contractor sponsored by it to comply with its obligations *if that State Party has adopted laws and regulations and taken administrative measures which are, within the framework of its legal system, reasonably appropriate for securing compliance by persons under its jurisdiction*” (emphasis added).

⁴⁹⁹ Seabed Disputes Chamber Advisory Opinion, *supra* note 493, at §§179-180.

⁵⁰⁰ As at February 2015, 167 parties (166 states and the European Union) have ratified, acceded to or succeeded to UNCLOS. All PICs have ratified UNCLOS and have enacted legislation to make its main provisions effective (such as delimitation of maritime boundaries, marine pollution, fisheries, protection and preservation of the marine environment etc.).

⁵⁰¹ *See, e.g.*, UNCLOS, *supra* note 6, at arts. 56, 123, 192, 202, 237, 240, among others.

⁵⁰² *Id.* at arts. 194(1) - 196, 207, 210-213.

⁵⁰³ *Id.* at arts. 208-209, 214: “Coastal States shall adopt laws and regulations to prevent, reduce and control pollution of the marine environment arising from or in connection with seabed activities subject to their jurisdiction.”

⁵⁰⁴ *Id.* at arts. 139, 235.

⁵⁰⁵ *Id.* at art. 194.

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