CONTRACTS ON THE SEABED

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ABSTRACT

Over a million square kilometers of the non-sovereign seafloor is under mineral exploration licenses and, by some assessments, an additional four million square kilometers of seabed pertaining to sovereign Pacific Island nations are under contract for mineral exploration or exploitation. Historically, these licenses have acted as "squatters' rights" in anticipation of a distant future when the machinery to exploit oceanic mineral wealth might be developed. That moment has arrived, with the first seafloor mining machines rolling off production lines in 2015-2016. What have not arrived apace with these innovations are the governance mechanisms to adequately balance the known, unknown and unknowable effects of seafloor mining. Rather, the primary targets for seafloor mining are scrambling to create the statutory, regulatory and administrative structures necessary to support seafloor mining, and buttress against the harms it may cause. In such contexts, countries must require strong contracts that approximate the terms on which local populations consent to seafloor mining activity, and which attempt to adequately protect the environment and traditional human uses of the sea.

Keywords: seabed mining, deep sea mining, DSM, Vanuatu, mining licenses, contracts, International Seabed Authority, human rights, human well-being.

INTRODUCTION

The ocean is, by all accounts, largely unknown and very poorly understood. The only way to change that, according to the experts devoted to the pursuit of oceanic knowledge, is to "get down there and do it...:"¹ map it, explore it, chart and catalogue the earth's last frontier. To this end, the United States Oceanic and Atmospheric Association is conducting research on as much of the ocean's floor as it can, as quickly as it is able, amounting to an area about the size of West Virginia per year. West Virginia, though, is small compared with the Oceans' massive area and, to date, just fifteen percent of the ocean floor has been well mapped.²

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¹ See the strange creatures NOAA found at the bottom of the sea, PBS NEWSHOUR, http://www.pbs.org/newshour/updates/coral-forests-rare-sea-stars-inhabit-unseen-ocean-floor/ (last visited Jul 3, 2015).

 $^{^{2}}$ *Id.* While the entire ocean floor has been mapped to account for features that are larger than five kilometers across or larger, only 10-15% of the ocean floor has been mapped to a resolution that

The commonly shared feature of the expeditions engaged in this effort is the novelty of what scientists are finding. A few examples of the unexpected finds include a "tar lily" found in the Gulf of Mexico in April 2014, unique creatures that make their home exclusively at the 438°F mouth of hydrothermal vents, the "Pogo squid" which uses a narwhal-like horn to hop along the ocean floor,³ a forty foot long bioluminescent pyrosome that looks like a giant aquatic tube,⁴ and a wide variety of jellies, fish, squid, bioluminescent animals and many other previously unseen creatures.⁵

In other words, it is common knowledge and widely acknowledged that we know very little about the topography, geology, ecology or zoology of the oceans. What we know, in fact, is that we are largely ignorant about the contents and the floor of the oceans. With respect to understanding what actually exists at the bottom of the ocean, or how the ecosystem operates there, "then the area that has been 'explored' is arguably even less than the 0.05% mapped so far at the highest resolution by sonar,"⁶ because seeing an area just once, by sonar, does not approximate an understanding of any given marine zone.⁷

It is in this context of a generalized and well-acknowledged dearth of information that the global interest in seabed mining is surging. This is because another intriguing discovery regarding the ocean is the highly concentrated precious metals and rare earth minerals found in three predominant configurations: manganese nodules, ferromanganese crusts, and sea-floor massive sulfides. While the existence of these mineral and rare earth deposits has been known since the 1960s, the technology and machinery to access them was so distant that accessing these valuable deposits seemed impossible. This is rapidly changing, however, and deep-sea exploration and extraction machinery is starting to roll off production floors.⁸ Indeed, Nautilus Minerals, the company running the world's first licensed seafloor mining operation, announced in January 2016 that it has taken delivery of three fully operational seafloor production tools, which are being

⁵ See, e.g., ► Aliens of the Deep & Mission to Europa - YouTube, (2009), https://www.youtube.com/watch?v=1MkyPWII1H4 (last visited Jul 4, 2015).

⁶ Just How Little Do We Know about the Ocean Floor? - Scientific American, *supra* note 2.

⁷ Even the Census of Marine Life, which describes itself as "the most comprehensive inventory of marine life ever compiled and catalogued" was the result of only 540 expeditions. Even this project resulted in a finding of over 6000 potential new species. Census of Marine Life, About the Census | Census of Marine Life, , http://www.coml.org/about-census (last visited Jul 4, 2015).

⁸ "Deep sea mining pioneer Nautilus Minerals has revealed the three mighty machines it plans to use to scrape valuable deposits from the seafloor." Nautilus Minerals unveils its titanic deep sea mining machines, MINING TECHNOLOGY, http://www.miningtechnology.com/features/featurenautilus-minerals-unveils-its-titanic-deep-sea-mining-machines-4739435/ (last visited Mar 14, 2016).

can detect features as small as 100 meters across. This leaves the ocean floor significantly less well mapped than the surface of Mars, the Moon or Venus. See, Just How Little Do We Know about the Ocean Floor? - Scientific American, , http://www.scientificamerican.com/article/just-how-little-do-we-know-about-the-ocean-floor/ (last visited Jul 3, 2015).

³ Id. (footnote 2), discussing the "tar lily", the hydrothermal vent creatures, the "Pogo squid" and other unique finds.

⁴ Giant, Tubular Creature Caught On Camera Under The Sea, IFLSCIENCE, http://www.iflscience.com/plants-and-animals/giant-tubular-creature-under-sea (last visited Jul 4, 2015).

tested in anticipation of beginning mining in the immediate future.⁹ The result is that Nautilus and other mining enterprises are currently in hot pursuit of these potentially lucrative deposits. Indeed, the first deep-sea mining project – the Solwara 1 Project in Papua New Guinea – is likely to serve as a prototype for many of its kind.¹⁰

The International Seabed Authority, which "establishes specific policies and approves applications for exploration and exploitation rights"¹¹ pertaining to the seabed that lies beyond any zone of national jurisdiction,¹² has been preparing for its role as sea bed license-grantor since it was established by the 1982 United Nations Convention on the Law of the Sea¹³ and has been increasingly active since the Law of the Sea Convention entered into force in 1994.¹⁴ Its main activities include creating regulations for each of the types of currently-known mineral deposit on the ocean floor,¹⁵ including creating a process of license applications and approvals.¹⁶ Among the important functions of the ISA is also, "to approve…applications for mining contracts or licenses submitted to in the form of plans of work for exploration or exploitation."¹⁷ The ISA is actively receiving petitions for and issuing exploration licenses to state-owned companies from Brazil, India, Russia, Singapore, the United Kingdom and others.¹⁸ The ISA has issued a large number of 15-year exploration contracts¹⁹ and, "the total area of seabed now licensed in this new gold rush

¹³ United Convention on the Law of the Sea, 1982, A/CONF. 62/122. Article 1, para 1. (1982)

⁹ Nautilus Minerals Technology - Technology - Status of Equipment, , http://www.nautilusminerals.com/irm/content/status-of-the-equipment.aspx?RID=424 (last visited Mar 19, 2016).

¹⁰ The Solwara 1 Project, operated by Nautilus Minerals, was a prototype at the exploration stage, as well. See, Satya N. Nandan, Offshore Mining: International, Exclusive Economic Zones and Territorial Waters – An International Perspective, Mineral Law Series, Volume 2005, No. 2 (2005) at 16E-10 (stating that the first exploration license had been granted by Papua New Guinea to Nautilus.) This is the project from which Solwara 1 has developed.

¹¹ ISA, ISA BROCHURE 2, https://www.isa.org.jm/documents/authority-brochure (last visited Mar 15, 2016).

¹² See, United Nations Convention on the Law of the Sea, 1982, A/CONF. 62/122. Article 1, para 1. (1982) and Satya N. Nandan, Offshore Mining: International, Exclusive Economic Zones and Territorial Waters – An International Perspective, Mineral Law Series, Volume 2005, No. 2 (2005) at 16E-1 (on file with the author).

¹⁴ Satya N. Nandan, Offshore Mining: International, Exclusive Economic Zones and Territorial Waters – An International Perspective, Mineral Law Series, Volume 2005, No. 2 (2005) at 16E-3.

¹⁵ The mining code | International Seabed Authority, , https://www.isa.org.jm/mining-code/Regulations (last visited Mar 14, 2016).

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¹⁷ Satya N. Nandan, Offshore Mining: International, Exclusive Economic Zones and Territorial Waters – An International Perspective, Mineral Law Series, Volume 2005, No. 2 (2005) at 16E-4, citing to the Agreement relating to the Implementation of the Part XI of the United Nations Convention on the Law of the Sea of 10 December 1982, A/RES/48/263, Annex, at Section 3, para 11(a).

¹⁸ David Shukman, DEEP SEA MINING LICENCES ISSUED BBC NEWS, http://www.bbc.com/news/science-environment-28442640 (last visited Mar 14, 2016); *Id*.

¹⁹ Overview | International Seabed Authority, https://www.isa.org.jm/deep-seabed-mineralscontractors/overview (last visited Mar 14, 2016).

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has reached an immense 1.2 million square kilometers under 26 different permits for mineral prospecting."²⁰

But the picture of seabed mining, and the role of law in this activity, goes far beyond the ISA and non-territorial waters. As one would expect, much of the territory that is viewed as most desirable, both because of mineral content and the relative ease of accessing both the resource and nearby land from which to stage operations, is found within the territorial waters or the Exclusive Economic Zones (EEZ) of a large number of countries. Individual countries exercise sovereign rights to the living and non-living resources contained in their EEZs, and jurisdiction over their marine environments.²¹





The result is that the work of the ISA, which operates to systematize and stabilize the regulatory regime relating to the exploration and exploitation of the minerals found outside any nation's jurisdiction, is largely irrelevant to a large portion of potential seabed mining and exploration activity. What prevails instead is great variability with respect to the regulatory frameworks addressing seabed exploration and mining among the world's coastal countries.

Some countries have developed regulatory structures that clearly evidence attention by scientific and legal communities. The United States, for example through its National Oceanic and

UNEP_summary.pdf,

²⁰ Shukman, *supra* note 18.

²¹ Article 56, para. 1 of LOSC.

http://gsd.spc.int/dsm/public/files/meetings/TrainingWorkshop4/UNEP_summary.pdf (last visited Mar 14, 2016).

Atmospheric Administration, has developed a regulatory framework that has thus far impeded sea based mining enterprises from establishing operations within the Unites States' territorial waters or in the United States' EEZ.²³ Australia has similarly exhibited a regulatory approach that has thus far prohibited sea based mining activity.²⁴ For large economic powers, such as Australia and the United States, which have both a high level of legal capacity and significant experience with mining and the regulation thereof, governing seabed mining, while posing novel challenges and uncertainties, has not been entirely unfamiliar.

Quite another story prevails in a large number of countries, however. Many coastal countries, particularly Pacific island nations, have neither significant prior experience with the mining sector nor the legal and technical capacity to adequately regulate this activity, which is, at once, both potentially lucrative and potentially ruinous. On the one hand, seabed mining has the potential to provide much needed economic revenue to countries whose land-based natural resources are not substantial. Natural resource extraction, if well managed, has the potential to establish revenue streams that could finance much needed health, education and infrastructure investments in these countries. However, just as in the case of land-based natural resources, these potential revenues must be both realized and well-managed if their exploitation is to assist in financing such programs. On the other hand, beyond the revenue management questions so prevalent in the literature pertaining to land-based natural resources, a bevy of novel and unknown environmental and social issues must also be considered.

In the case of countries whose natural resources have not been previously exploited on a significant scale, these environmental and social issues will be particularly poignant, mainly because the social and environmental impacts of mining have the potential to be significantly more harmful than any other activity with which these countries have first-hand experience. In the case of countries that have traditionally relied heavily on their marine territory and EEZ for economic benefits from fishing or for other aspects of well-being, such as a basic relationship to a healthy ocean, the potential impacts from seabed mining may be particularly pronounced. Unfortunately, these countries' historic inexperience with mining also means that their regulatory structure is underdeveloped. And it is underdeveloped in the context of little capacity for the technical or legal innovations and work necessary to prepare these countries to adequately regulate seabed exploration and exploitation such that the potential benefits of mining might be maximized while the potential harms are minimized.

This article will focus mainly on one such country – the Republic of Vanuatu – as an example of the situation in which a number of Pacific island nations currently find themselves. Though, of course, the claim here is not that Vanuatu is just like any other country. Indeed, like everywhere else, it is unique. As a result, as is common to case-based research, one must proceed with caution when painting common problems as well as generalizable conclusions or prescriptive proposals. The case of Vanuatu, however, is compelling for the argument contained herein. That argument is that contracts must play a vitally important role in creating a strong institutional framework for

²³ 15 CFR Part 970 - DEEP SEABED MINING REGULATIONS FOR EXPLORATION LICENSES, LII / LEGAL INFORMATION INSTITUTE, https://www.law.cornell.edu/cfr/text/15/part-970 (last visited Mar 15, 2016).

²⁴ [cite to Australia case]

seabed mining activity. This is true whether the country in which the mining will occur is relatively strongly regulated (as in the United States, New Zealand or Australia) or largely unregulated (as in the case of Vanuatu), but Vanuatu's relative lack experience with the mining sector, combined with its currently weak legal infrastructure affecting mining, and its lack of access to the financial resources necessary to rapidly buttress this legal infrastructure lay bare a wide open space into which only the contract between the government of Vanuatu and the companies applying for permission to explore for (and, later, to exploit) natural resources has the capacity to regulate the companies' activities, to establish adequate revenue-sharing, and to establish accountability and responsibility for both the anticipated and unanticipated environmental and social impacts resulting from seabed mining activity.

The novelty of marine-based mining suggests another important role for contracts, however. As the previous paragraph suggests, contracts can act as an essential stop-gap measure, shoring up the lack of statutory infrastructure in a country like Vanuatu. In the context of novel activity such as seabed mining, however, contracts bear highly desirable characteristics. In comparison to statute based governance approaches, the relative mutability, flexibility and nimbleness of contracts allow for innovative governance strategies that incorporate the evolving and deepening knowledge about the environmental value of the ocean and its contents, as well as the environmental and social costs of mining its floor. They are thus well suited to translating theoretical governance theories into applied realities governing contracting parties' behaviors and their relationships to one another. In this ways, contracts are much better equipped to create enforceable regimes around concepts like free prior informed consultation, the precautionary principle, adaptive management and an approach to commercial relations that is structured around ecological and human well-being rather than around economic growth. This Article will argue that particularly because what is most known about the ocean is that it is still unknown, these features of contracts may be especially desirable.

In order to provide some necessary background, Part I will provide additional information about seabed mining, providing a brief history of seabed exploration and mining, and discussing the locations where this activity is gaining a foothold. In doing this, it will provide some detail of the mining industry's interest in marine territory that is within the ISA's jurisdiction as well as its interest in territory that lies within the jurisdiction of particular nations. Part II will then focus on this second category – marine territory that is subject to the jurisdiction of particular nations. In doing so, it will distinguish between nations that (largely due to experience and pre-existing capacity) have taken relatively strong regulatory approaches and those that have not vet done so. Part III will provide additional detail about the Republic of Vanuatu, one country that has not yet been able to adopt a strong regulatory approach. This Part will describe Vanuatu's experience to date with the mining industry's interest in its territorial waters and EEZ. It will provide an account of how mining companies have become involved in Vanuatu, as well as the growing interest in Vanuatu's evolving approach to seabed mining activity. This account is important because it will bring into strong relief the pressing need for the additional protections for Vanuatu's government, the people and the environment, if mining activity is to move forward. Given that statutory approaches have been slow or not forthcoming, the contracts between the government and the mining companies become a governance mechanism born of necessity. Part IV will discuss the how a contract must and can serve this necessary regulatory role in such situations. It will describe particular contractual provisions that would be necessary if the contract were to serve this stopgap role. Part IV will go on to discuss the role of contracts in this context where global ignorance – both about the activity and about the environment in which it will take place – prevails. It will provide a number of examples of contractual provisions that can incorporate evolving information about the ocean and about seabed mining on the one hand, and can also incorporate novel governance approaches that may be difficult or impossible to build into statute-based regulatory approaches. The Article will then conclude by providing concrete suggestions of contractual innovations for countries contemplating seabed mining. Regardless of whether contracts must serve stopgap functions, innovating functions, or both, many countries moving forward with seabed mining will be well served by a close investigation of the contracts they issue for seabed prospecting and exploitation.

PART I. EXPERIMENTAL SEABED EXPLORATION AND MINING

BRIEF HISTORY OF SEABED EXPLORATION AND MINING

The crew of the HMS Challenger first discovered phosphorite nodules on the seabed in 1873.²⁵ During the early part of the 20th century, manganese nodules, seafloor massive sulfides and cobalt-rich ferromanganese crusts were also identified and studied by scientific voyages and, starting the second half of the 20th century, the mineral content of these geologic features, which contain copper, zing, gold, silver, manganese, cobalt, molybdenum, and rare earth elements, began to draw significant attention.²⁶ In 1978-1979, a seabed exploration company used the Hughes Glomar Explorer to extract polymetalic nodules from the seafloor.²⁷ This voyage, while successful at extracting the desired materials, was very expensive.

Thus, until recently, two factors have impeded the commercial viability of mining the seabed: sufficient accessible land based mineral deposits that have led to relatively low market prices and a lack of sufficient technology and machinery to access and mine the seabed. Both of these factors have begun to shift and for each of the past five years the Deep Sea Mining Summit has evidenced growing and intensifying global interest in mining the ocean's floor.²⁸ The description for the 2016 event states:

As we move into an era of mining the deep-ocean floor, the world's most remote environment, mining companies are working on overcoming the perceived challenges and developing island nations are watching with interest. As the demand for base metals and minerals surges ever beyond what our land is able to

²⁵ THE GEOLOGY OF CONTINENTAL MARGINS, 650 (C.A. Burk & C.L. Drake eds.,), https://books.google.com/books/about/The_Geology_of_Continental_Margins.html?id=vqLyCA AAQBAJ (last visited Mar 16, 2016).

²⁶ UNEP_summary.pdf, *supra* note 22 at 3.

 $^{^{27}}$ ENG7(2).pdf, . (on file with author)

²⁸ The Deep Sea Mining Summit 2016, , http://deepsea-mining-summit.com/ (last visited Mar 17, 2016).

provide, new technological and technical developments are helping to drive forward this new industry.²⁹

The result in that interest in mining both within sovereign marine territory and in the Area has increased. As stated above, the ISA is actively engaged in issuing prospecting licenses to enterprises from a large number of countries, and at least two companies (Nautilus Minerals³⁰ and Neptune Minerals Group³¹) are making significant investments in seabed mining within the territory of coastal nations.

The regulatory regime governing the Area or the "High Seas" differs from the regulatory regime governing the sovereign seabed of each coastal nation. Before moving on, in Part II to discussing the general development of national regulatory developments with respect to seabed mining, the following section will describe the regulatory regime governing the Area.

INTERNATIONAL WATERS

The high seas have always been the earth's great common space, covering more than seventy percent of the earth's surface. The customary law of the high seas, and the absence of regulation were the predominant paradigms until the emergence of the concept of EEZs, and the 1994 entry into force of the United Nations Convention on the Law of the Sea ("UNCLOS").³²

UNCLOS was signed in 1982 and entered into force in 1994. Part XI, and the 1994 Implementation Agreement relating to Part XI establish the legal framework for seabed mining and scientific research in the Area. The general principle that the High Seas are the common heritage of mankind, which has guided customary international law of the high seas, is imbedded in UNCLOS, including in the sections pertaining to seabed minerals. For example, it sets out explicitly that the resources in the Area pertain to mankind, all activity carried out in the Area must benefit mankind as a whole, including equitable allocation of economic gains, and may only be recovered and sold under the rules established by UNCLOS and the ISA.³³

UNCLOS, Article 145 requires the protection and conservation of the Area's natural resources and the protection of the marine environment and, in other sections, charges states party with the preservation of the marine environment, including requiring that each state party develop domestic rules regarding pollution from seabed activities.³⁴ In addition, Article 146 requires that

²⁹ Id.

³⁰ Nautilus Minerals, , http://www.nautilusminerals.com/IRM/content/default.aspx (last visited Mar 17, 2016).

³¹ Neptune Minerals - Deep Ocean Minerals Exploration and Resource Development |, , http://www.neptuneminerals.com/ (last visited Mar 17, 2016).

³² United Nations Convention on the Law of the Sea (UNCLOS), 21 I.L.M. 1261. Convention Adopted December 1982. Enterd into force November 16, 1994., .

³³ *Id.* at Arts.133–143.

³⁴ *Id.* at Arts. 145, 192, 194, 195, 208–209.

"necessary measures shall be taken to ensure the effective protection of human life" with respect to activities in the Area.

UNCLOS also establishes the rules governing payments and contributions in kind that must be made by states party, or companies sponsored by states party, with respect to revenue from the exploitation of non-living resources in the Area.³⁵ UNCLOS and its attendant documents also lend attention to disputes arising from activities in the Area and the settlement of those disputes.³⁶ The Seabed Disputes Chamber of the International Tribunal for the Law of the Sea, established under UNCLOS, Annex VI, serves as the primary body for the settlement of seabed disputes. UNCLOS, Annex VII and Annex VIII also anticipate that states parties will submit conflicts to arbitration and establishes basic rules for those proceedings.

UNCLOS, which includes 320 Articles, in addition to nine annexes, an Agreement Relating to the Implementation of Part XI (governing the Area), and a number of recommendations, a model contract and a set of standard clauses for exploration contracts, establishes at least the beginning of a regulatory framework for the exploration and exploitation of natural resources in the Area, and establishes institutions to implement these documents.

The chief regulatory body established under UNCLOS is the ISA, which was established with the entry into force of UNCLOS. All of the 167 states party to UNCLOS³⁷ are members of the ISA. Within the ISA, the Council is the ISA's executive body. "It establishes specific policies and approves applications for exploration or exploitation rights. It has the power to oversee implementation of seabed provisions of the Convention and the Implementing Agreement."³⁸

Since its establishment, the ISA has developed regulations on prospecting and exploration of polymetallic nodules, polymetallic sulphides, and cobalt-rich ferromanganese crusts. These regulations govern the applications to the ISA by states parties or companies sponsored by states parties for 15-year contracts granting exclusive rights to explore delineated areas.

PART II. NATIONAL TERRITORIES

NATIONAL TERRITORIAL WATERS, EEZS AND EXTENDED CONTINENTAL SHELF TERRITORIES

The development of Exclusive Economic Zones and the potential for coastal states to extend sovereign rights into extended continental shelf territories has greatly limited the space previously

³⁵ *Id.* at Art. 82.

³⁶ *Id.* at Part XV.

³⁷ Chronological lists of ratifications of, , http://www.un.org/depts/los/reference_files/chronological_lists_of_ratifications.htm (last visited Mar 17, 2016).

³⁸ ISA, *supra* note 11 at 2.

governed by the law of the high seas: "roughly 35 per cent of ocean space is part of the exclusive economic zones claimed by coastal States today."³⁹

Article 7 of UNCLOS establishes that the territorial sea of each continental nation extends for twelve nautical miles into the sea, measured from baselines determined according to the Convention.⁴⁰ Each coastal state is also entitled to establish an Exclusive Economic Zone that extends 200 nautical miles into the sea from those same baselines.⁴¹ Coastal nations enjoy "sovereign rights for the purpose of exploring and exploiting, conserving and managing the natural resources, whether living or non-living, of the waters superadjacent to the seabed and of the seabed and its subsoil..."⁴² Finally, coastal nations may, under Article 76(5), register a claim and exercise sovereign rights over the exploration and exploitation of natural resources over an extended continental shelf region of up to 350 nautical miles from the baselines.⁴³ The area of the ocean that does not fall into any of these three sovereign claims is defined as the Area, over which the ISA has regulatory jurisdiction, as described above.

As Figure 1 above illustrates, a large amount of the mineral and rare earth wealth on the floor of the Pacific Ocean lies within the sovereign territorial seas, EEZs and continental shelf regions of particular countries. It is well beyond the scope of this paper to survey the variety of legal and regulatory structures present in each of the world's 152 coastal nations. It is worth noting, however, that coastal nations' regulatory structures with respect to prospecting, exploration and mining vary considerably. Moreover, because domestic rules governing mineral exploration and mining, to the extent they exist, were developed to address land-based mining, they are predictably inapt to seabed mining. Few coastal countries have, until recently, developed legal or regulatory structures to address this activity.

GOVERNMENTS WITH (RELATIVELY) STRONG REGULATORY AND ADMINISTRATIVE FRAMEWORKS

The United States, which is the most economically powerful country not party to the UNCLOS is also the country with the most developed technology and machinery appropriate for seabed mining. The United States also has relatively well developed statutory and administrative capacity to address seabed mining. The Outer Continental Shelf Lands Act (OCSLA) governs seabed mining in the continental shelf and EEZ regions of the United States.⁴⁴ It also has ample federal regulations governing offshore mineral prospecting and leasing, such that lease parameters, formulae for determining royalties and methods of valuation are addressed through

³⁹ Thomas Dux, Specially Protected Marine Areas in the Exclusive Economic Zone (EEZ) 1 (2011),

https://books.google.com/books/about/Specially_Protected_Marine_Areas_in_the.html?id=G7Vo 7lTEogIC (last visited Mar 17, 2016).

⁴⁰ United Nations Convention on the Law of the Sea (UNCLOS), 21 I.L.M. 1261. Convention Adopted December 1982. Enterd into force November 16, 1994., *supra* note 32 at Arts. 2–16.

 $[\]frac{41}{42}$ *Id.* at Art. 57.

⁴² *Id.* at Art. 56.

 $^{^{43}}_{44}$ Id. at Art. 76(5).

⁴⁴ OUTER CONTINENTAL SHELF LANDS ACT (OCSLA), 43 U.S.C. 1331 .

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federal regulations.⁴⁵ Finally, with respect to mining in the High Seas, the United States filled the regulatory gap left as a result of not being a state party to the UNCLOS by passing the Deep Seabed Hard Minerals Resources Act.⁴⁶ This Act, which is implemented by the National Oceanic and Atmospheric Administration, sets forth rules governing mining development in the High Seas. NOAA also administers the Deep Seabed Mining Regulations for Exploration Licenses⁴⁷ and the Deep Sea Mining Regulations for Commercial Recovery Permits.⁴⁸

Taken together, these federal statutes and regulations constitute a U.S. regulatory structure that is very well developed when compared to the legal and regulatory structure present or available to many coastal nations. Despite relatively comprehensive language requiring baseline environmental reports and environmental impact statements required under NOAA regulations, these regulations are not always satisfactorily applied. In May 2015, the Center for Biological Diversity filed a claim for declaratory relief against the Secretary of Commerce and NOAA regarding NOAA's "decision to grant two exploratory licenses for mining in the deep ocean without analyzing the environmental effects of doing so."49 The complaint, which objects to NOAA's decision to grant two license extensions to Lockheed Martin Corporation for exploration in the Clarion Clipperton Zone, asserts that NOAA failed to perform environmental analysis in granting the license extensions, despite the statute's requirements, including a provision that "mandates that before the Administrator may approve a license for exploration, he must find in writing that the proposed exploration 'cannot reasonably be expected to result in a significant adverse effect on the quality of the environment."⁵⁰ The complaint further asserts that NOAA approved the "license extensions' amended exploration plan without complying with the statute's requirement to conduct environmental analysis."51

The complaint states that NOAA has acknowledged its receipt and failure to consider the comments submitted by the Plaintiff, the Center for Biological Diversity.⁵² This failure, and the existence of a complaint, some might argue, can be seen as a governance failure. If the allegations in the complaint are true, and the comments submitted by the Plaintiff were sufficient to cause a denial of the license renewals, NOAA did not adequately implement the statute and regulations it

⁴⁸ *Id*.

49 Complaint for Declaratory and Injunctive Relief, 1, and Injun seabedMiningComplaint_05-12-2015.pdf (last visited Mar 18, 2016). ⁵⁰ *Id.* at 3. https://www.biologicaldiversity.org/campaigns/deep-sea mining/pdfs/Deep-

⁴⁵ 30 CFR Chapter V, Subchapter B - OFFSHORE, LII / LEGAL INFORMATION INSTITUTE Parts 559, 580-582, https://www.law.cornell.edu/cfr/text/30/chapter-V/subchapter-B (last visited Mar 17, 2016).

⁴⁶ 30 U.S. Code Chapter 26 - DEEP SEABED HARD MINERAL RESOURCES, LII / LEGAL INFORMATION INSTITUTE, https://www.law.cornell.edu/uscode/text/30/chapter-26 (last visited Mar 18, 2016). U.S.C. §1401.

⁴⁷ 15 CFR Part 970 - DEEP SEABED MINING REGULATIONS FOR EXPLORATION LICENSES, *supra* note 23.

Deep-seabedMiningComplaint 05-12-2015.pdf, https://www.biologicaldiversity.org/campaigns/deep-sea mining/pdfs/DeepseabedMiningComplaint 05-12-2015.pdf (last visited Mar 18, 2016).

⁵² Complaint for Declaratory and Injunctive Relief, *supra* note 49 at 15.

is meant to administer. When one considers the role of the courts in a well-developed legal system, however, the complaint might be viewed as cause for comfort. In the event of agency failure, or disagreement between the public and the agency about the agency's responsibilities, the availability of a well-developed court system to hear and adjudicate the dispute serves as a necessary buttress on the legal infrastructure designed to regulate seabed mining and the enforcement of environmental protections embedded in that infrastructure. The result of the complaint in this case was a clarification from NOAA that under the current license extensions, Lockheed Martin will not engage in at sea-exploration activities. Rather, Lockheed Martin is in what it calls "Phase I," "a preparatory stage which includes activities for which no license would be required."⁵³ The NOAA response also states: "when and if Lockheed Martin decides to seek authorization to commence Phase II activities, such authorization will trigger appropriate review of the environmental impacts associated with the proposed at sea activities."

Australia, a coastal state with a well-developed mining code and a stance that is generally recognized as being open for business, came under fire in 2012 when the Northern Territory's government revoked 11 offshore mining licenses held by BHP Billiton, Northern Manganese, and Yukida Resources. All three companies are in talks with the government and Northern Manganese has threatened suit, claiming more than \$1 billion in compensation would be necessary to compensate the company for its losses.⁵⁵

[further develop discussion re the formal statutory/regulatory basis for the NT's decision and the current state of the moratorium on mining in order to establish the importance of a strong administrative structure when balancing mining and environmental/conservation interests]

In February 2015, New Zealand's Environmental Protection Agency denied an application by Chatham Rock Phosphate Limited for a license to mine at least 30 square kilometers of seabed per year to recover 1.5 million tons of phosphate nodules from the Chatham Rise east of Christchurch.⁵⁶ This was the third application for marine mining received by New Zealand's EPA. One of those applications was granted, the other was denied.⁵⁷ The Chatham Rock Phosphate decision was notable because, in connection with its refusal to grant a license, the EPA issued strong statements about its role in protecting the marine environment from potentially degrading mining activity: "the DMC [Decision Making Committee] found that the destructive effects of the extraction process, coupled with the potentially significant impact of the deposition

⁵³ Department of Commerce, NOAA, Extension of Deep Seabed Exploration Licenses, Response to Comments, 1–3, https://www.gpo.gov/fdsys/pkg/FR-2015-12-30/pdf/2015-32889.pdf (last visited Mar 18, 2016).

 $^{^{54}}$ *Id.* at 3.

⁵⁵ Andrew Burrell, COURT CLASH LOOMS ON BHP SEABED BAN THEAUSTRALIAN (2013), http://www.theaustralian.com.au/business/mining-energy/court-clash-looms-on-bhp-seabed-ban/story-e6frg9df-1226715505546 (last visited Mar 18, 2016).

⁵⁶ EPA refuses marine consent application by Chatham Rock Phosphate Ltd, ENVIRONMENT RISK MANAGEMENT AUTHORITY NEW ZEALAND WEBSITE (2015), http://www.epa.govt.nz/news/epa-media-releases/Pages/EPA-refuses-marine-consent-application-by-CRP.aspx (last visited Mar 18, 2016).

⁵⁷ *Id.* Trans-Tasman Resources Ltd. initially appealed the decision but later desisted from their complaint against the EPA.

of sediment on areas adjacent to the mining blocks and on the wider marine ecosystem, could not be mitigated by any set of conditions of adaptive management regime that might reasonably be imposed."⁵⁸

New Zealand is yet another example of a country whose regulatory regime with respect to mining activity within its EEZ and Continental Shelf is relatively well developed. [cite to the Exclusive Economic Zone and Continental Shelf Act of 2012] In addition, as in the United States and Australia, it has experienced agencies charged with implementing those regulations and balancing the commercial and environmental interests implicated in marine mining in furtherance of the Act's goal: promoting the sustainable management of the area's natural resources.⁵⁹ In addition, in the event these legal and administrative structures fail, New Zealand's court system is well positioned to handle complaints. [add discussion here of Tran-Tasman's most recent strategy to prospect within the near territorial waters, rather than in the EEZ to avoid EPA review⁶⁰].

GOVERNMENTS WITH (RELATIVELY) LESS-DEVELOPED REGULATORY AND ADMINISTRATIVE STRUCTURES

A number of countries with less developed legal structures have come under intensifying pressure to provide exploration and/or exploitation licenses for seabed minerals under their sovereign control. Island nations in the South Pacific are attracting particularly intense attention, and the result is that more than "300 exploration licenses have been granted in Pacific Islands countries like Solomon Islands, Vanuatu, and Tonga."⁶¹ To alleviate the problems caused by insufficient or non-existent legal and regulatory structures in a number of Pacific Island nations, the European Union, together with the Secretariat of the Pacific Community (SPC) initiated the SPC-EU EDF 10 Deep Sea Minerals Project (SPC-DSM Project). The main goal of the project is:

...to assist PICs [Pacific Island Countries], who wish to engage in deep sea mineral activities, by supporting informed and careful governance in accordance with international law, with particular attention to the protection of the marine environment and securing equitable financing arrangements for Pacific Island countries and their people. The Project is also working to encourage and support participatory decision-making in the governance and management of national deep sea mineral resources.

⁵⁸ Id.

⁵⁹ Id.

⁶⁰ Laura Mills, "*Cunning*" *bid to prospect and mine West Coast seabed*, NEW ZEALAND HERALD, June 16, 2015, http://www.nzherald.co.nz/nz/news/article.cfm?c_id=1&objectid=11466184 (last visited Mar 19, 2016).

⁶¹ Vanuatu Prepares for Deep Sea Mining, (2014), http://www.maritimeexecutive.com/article/Vanuatu-Prepares-for-Deep-Sea-Mining-2014-10-23 (last visited Mar 19, 2016).

To this end, the SPC has been working in 15 countries⁶² to develop regional legislative and regulatory frameworks, as well as to formulate national policy, legislation and regulation for seabed mining in each of its countries of operation.⁶³

The Secretariat of the Pacific Community, in coordination with the European Union, has identified fifteen such island countries in the South Pacific, in order to develop a legal and regulatory framework on seabed mining within each of those countries.⁶⁴ Working with SPC, these countries are in the process of adopting domestic frameworks to address seabed mining. The SPC points to the novelty of these institutional innovations:

Very few countries in the world have taken these vital legal steps. The Pacific ACP states are leading the way. It is anticipated that this Regional Legislative and Regulatory Framework (RLRF)... will prove to be an invaluable roadmap for Pacific Island states in tackling this new and complex area. The RLRF seeks to give policy-makers, lawyers and technical agencies the best information currently available to enable informed decision-making for the long-term benefit of Pacific Island communities and future generations.⁶⁵

In addition to these activities, the SPC-DSM Project also aims to build national capacity toward facilitating seabed mining for each country in which it operates. Indeed, much of its work is geared toward generating interest among investors, governments and citizens in seabed mining. This can be seen by taking stock of the contents of its informational reports and brochures, which primarily contain information about mineral deposits and mining, and far less information about regulatory structure and protective legislation.⁶⁶

[chart of national implementation of national legislation and regulation in each of the 15 countries since 2011 when the SPC-DSM Project launched]

The seabed mining facilitation and capacitation approach of the SPC-DSM Project has recently come under fire by local and regional NGOs and civil society organizations. A recent collaboration between two of the more active organizations on the issue of seabed mining provides a legal analysis of the SPC-DSM Project and, more specifically, its Regional Legislative and Regulatory Framework. Its summary, which is worth quoting at some length states:

⁶² The countries in which the SPC-DSM Project is working are: 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.

⁶³ EPA refuses marine consent application by Chatham Rock Phosphate Ltd, *supra* note 56.

⁶⁴ SPC DSM Regional Legislative and Regulatory Framework, 57, http://gsd.spc.int/dsm/public/files/2014/RLRF2014.pdf (last visited Mar 18, 2016). The countries included in the SPC project include: Cook Islands, Federated States of Micronesia, Fiji, Kiribati, Nauru, Niue, Palau, Papua New Guinea, Republic of Marshall Islands, Samoa, Solomon Islands, Timor Leste, Tonga, Tuvalu, and Vanuatu.

⁶⁵ *Id.* at iii.

⁶⁶ SPC-EU Deep Sea Minerals Project - Brochures, , http://gsd.spc.int/dsm/index.php/resources (last visited Mar 15, 2016).

Overall, the RLRF paints a positive picture of DSM – one that arguably prioritizes creating a climate favorable to industry and DSM operators over the economic and cultural rights of indigenous peoples. It advises States to incentivize investors by providing an environment that fosters investment, recommending that states provide predictable and stable governance, reasonable taxation, and legislation that takes into account corporate risks and investments. It similarly emphasizes the purported benefits of DSM, while downplaying the range of adverse impacts (actual and potential) associated with DSM. By stating that any impacts are 'extremely minimal' or, alternatively, that DSM-related activities have 'almost no impact,' the Framework minimizes the importance of State adherence to the precautionary principle...

Along a similar vein, the RLRF relegates the concerns and interests of indigenous peoples to the sidelines, largely ignoring their rights to land, culture, and resources... Historically, indigenous peoples worldwide have experienced displacement, loss of land, depletion of means of subsistence, negative health impacts, and other cultural and social deprivations as a consequence of these activities. Such harms are likely to be replicated in the case of DSM, particularly if regulatory frameworks lacking comprehensive protections... are adopted.

In the next Part, this Article will focus on the experience of Vanuatu, as it has become a target of opportunity for seabed mining companies and a location of interest for the SPC-DSM Project.

PART III. VANUATU AND THE DISCOVERY OF EXPLORATION LICENSES

VANUATU'S MARINE RESOURCES AND REGULATORY STRUCTURE

The Republic of Vanuatu is one of the poorest countries in the world. Indeed, it regularly appears near the bottom of the World Bank's GDP index. It ranks 134th on the most recent Human Development Index. Nonetheless, it has performed an intensive self-study on the level of overall life satisfaction of its population and found notably high self-assessments of overall satisfaction. Among the key contributors to this phenomenon is ample access to marine resources. Forty-seven percent of Vanuatu citizens live less than fifteen minutes walking distance to the ocean, and eighty-three percent live within an hour's walk.⁶⁷ The self-study reveals a correlation between access to marine resources and happiness.⁶⁸

This self-reported correlation between well-being and access to marine resources amplifies the importance of protecting the continued existence of these resources. This is all the more true for a

⁶⁷ Alternative Indicators of Well-being for Melanesia: Vanuatu Pilot Study Report, 33, http://vanuatuculturalcentre.vu/wp-content/uploads/2013/02/Alternative-Indicators-Vanuatu.pdf (last visited Mar 19, 2016).

⁶⁸ *Id.* at 34.

population that will have very little economic resilience in the event that the marine environment is harmed.

Vanuatu's marine resources include resources that are found, harvested or hunted by people with ready access to ocean. People living close to the coasts also exchange resources with people living inland, amplifying their access to land-based resources and contributing to Vanuatu's vital non-monetary economy.⁶⁹

Vanuatu's national territorial waters, EEZ and continental shelf contain hidden riches that travel through the global monetary economy. In recent years it has become evident that Vanuatu's sovereign seabed also contains seafloor massive sulphides, which could contain "significant quantities of copper, gold, zinc, silver and other commercially viable minerals."⁷⁰ The monetary value of these deposits is highly speculative, but the nearby Cook Islands' two million square kilometer EEZ may contain between fifty million⁷¹ and ten billion⁷² tons of manganese nodules. The expected net gain from the extraction of these resources could rise into the tens of billions of dollars.⁷³ The Cook Islands enacted its first Seabed Minerals Act in 2009 and in 2012 that country established a Seabed Minerals Authority.⁷⁴

The high value placed on both the non-monetized resources on which Ni-Vanuatu people depend for their well-being and the monetizable mineral resources on its sovereign seabed suggests the need for a prolonged deliberative process over the best uses of Vanuatu's marine territory. If seabed mining is to take place in Vanuatu, it also suggests the imperative for a well-developed regulatory structure that will balance the traditionally central importance of popular access to marine resources and the likely environmental consequences of seabed mining.

But Vanuatu has very little experience with land-based mining and thus has a very thin regulatory structure with respect to land based mining. Even more importantly, until very recently, Vanuatu had absolutely no legal or regulatory structure with respect to seabed mining. The existing Minerals and Mining Act was drafted in 1986 and, as in the Cook Islands, the Act is in the process of being amended to attempt to address seabed prospecting and mining.⁷⁵ At the same time, the SPC EU-DSM Project had provided Vanuatu's Department of Geology and Mines with a model Deep Sea Minerals Draft Policy.⁷⁶ These documents, which were being drafted and

⁶⁹ *Id.* at 32.

⁷⁰ Vanuatu Prepares for Deep Sea Mining, *supra* note 61.

⁷¹ CooK Islands Cost Benefit Analysis of Deep Sea Mining, Summary, , http://www.seabedmineralsauthority.gov.ck/PicsHotel/SeabedMinerals/Brochure/Docs/Manganes e%20Nodules%20902404%20111015.pdf (last visited Mar 19, 2016).

⁷² Rupert Neate, *Seabed mining could earn Cook Islands "tens of billions of dollars,"* THE GUARDIAN, August 5, 2013, http://www.theguardian.com/business/2013/aug/05/seabed-mining-cook-islands-billions (last visited Mar 18, 2016).

⁷³ Id.

⁷⁴ Seabed Minerals Authority | Cook Islands, , http://www.seabedmineralsauthority.gov.ck/ (last visited Mar 19, 2016).

⁷⁵ REPUBLIC OF VANUATU, THE AMENDMENT OF MINES AND MINERALS ACT, CAP 190 NO. 06 OF 1986 (Proposed Amendment).

⁷⁶ Vanuatu Deep Sea Minerals Draft Policy, (2014). (on file with author)

amended very rapidly in Vanuatu are as novel and unfamiliar as the simultaneous pressure from seabed mining companies to extend licenses to explore and prospect Vanuatu's sovereign territory and EEZ.

PRIOR LICENSES

On June 10, 2013, during his opening address at the Regional Training Workshop on Social Impacts of Deep Sea Mining Activities and Stakeholder Participation in Port Vila, Vanuatu, the Minister for Lands and Natural Resources disclosed for the first time that he had recently discovered that, during the previous five years, his predecessor had granted "about 145 licenses for offshore mining exploration and prospecting, and another 3 for offshore oil exploration."⁷⁷ His announcement was as follows:

When I learnt that this workshop was going to happen, as the Minister responsible I decided to find out what I could about this issue. In undertaking my research, I made a very disconcerting discovery, something that in my five years as a parliamentarian and just over one year (accumulated) as a minister of state I never knew: that in the past five years, the Government of Vanuatu has issued about 145 licenses for offshore mining exploration and prospecting, and another 3 for offshore oil exploration.

By announcing this discovery of mine today, I am also making this information public in Vanuatu for the first time, and I have no doubt that this will be the first time that 99% of the population of this country is aware of this.

Needless to say, these licenses have been issued without any proper national regulatory framework for seabed mining or for scientific research, let alone any proper understanding of what the prospecting process entails and what lies on our seabed – this is, after all, the common situation all our countries find ourselves in when engaging with seabed mineral issues.

What concerns me most, however, is that the government has been proceeding down a path of action without the people it is supposed to represent agreeing to or even knowing about what we are doing.

The Vanuatu participants in this workshop know my reputation well as someone who is in politics to increase the transparency and accountability of government, which to me means being accountable and responsible to the people of this country whom we represent and who pay our salaries with their taxes.⁷⁸

⁷⁷ Vanuatu Minister calls on Pacific govts to respect people's wishes on experimental seabed mining | Deep Sea Mining: Out Of Our Depth, , http://www.deepseaminingoutofourdepth.org/vanuatu-minister-calls-on-pacific-govts-to-respect-peoples-wishes-on-experimental-seabed-mining/ (last visited Mar 19, 2016).
⁷⁸ Id.

His announcement revealed the disconnect between the purported commitment of companies like Bismarck Mining Corporation, which has stated publically that they place a high premium on the social license to operate⁷⁹ and the discovery that they had entered into a number of exploration licenses in Vanuatu without any consideration by the population, or even the nation's Parliament.⁸⁰

Only after the Minster of Lands and Natural Resources had discovered the existing licenses did the Ni-Vanuatu population come to know of the already existing licenses. In July 2014, the editor of one of Vanuatu's national newspapers revealed to this author that he was not aware of the licenses. Fieldwork at the time reinforced that only a limited number of individuals; primarily those in government or working for national NGOs had any knowledge of the exploration licenses. Among those groups that knew of the licenses, there was notable opposition. For example, the President of the Vanuatu National Council of Women stated:

As President of the Vanuatu National Council of Women (VNCW) who make up 49% of the population of this country ... our women in Vanuatu do not want to see deep sea mining to operate in and around Vanuatu islands due to environmental threats. ... The women of Vanuatu are joining in and supporting their sisters from PNG and Solomon Islands who also do not agree to be exposed to some irreversible catastrophic changes and left with a poisoned and polluted Pacific ocean without fish. Hon. Minister, we look forward to your positive intervention in this regard in ensuring a safe and sustainable environment for the future of this Nation.⁸¹

CONSULTATION PROCESS

The Minister of Lands and Natural Resources has not taken a position on the licenses, or on their renewals. Rather, he has taken the view that his responsibility as a public servant is to assure that any position he takes on the question of seabed mining is informed by the views of his constituents. To that end, in October 2014, the Minister initiated a national consultation process, which was designed to include members of Parliament, the Council of Chiefs, regional and national NGOs, civil society associations and the public at large. This consultation process was initiated during a three-day conference in the country's capital city, Port Vila, and the intention of the Minister has been to continue the consultation process on many of Vanuatu's eighty-three islands. This is consistent with his view that the only way to legitimately proceed with seabed

⁷⁹ Bismark Mining Corporation Vanuatu SOPAC Presentation, 18, http://www.sopac.org/dsm/public/files/meetings/Wednesday%2012th/Session%2011Neptune%20 Vanuatu%20SOPAC%20Presentation.pdf (last visited Mar 19, 2016).

⁸⁰ Vanuatu Minister calls on Pacific govts to respect people's wishes on experimental seabed mining | Deep Sea Mining, *supra* note 77.

⁸¹ Id.

exploration and mining, if it is to continue in Vanuatu, is with the free, prior, informed consent of the country's people.

PART IV. GOVERNANCE TOOLS IN THE ABSENCE OF STRONG REGULATORY STRUCTURE

In locations or contexts with strong constitutional, statutory, regulatory and administrative structures, private transactions are largely supported by that legal infrastructure. But what happens in the context of novel activity like seabed mining, in which the likely benefits and harms are still largely unknown? And, more importantly how can the law balance and provide structure for the competing interests of commercial gain and environmental and human wellbeing concerns on the other in locations like Vanuatu, where the experience and legal infrastructure that exists in places like the United States, Australia and New Zealand is largely absent?

In contexts such as these, it becomes critically important to appreciate the importance of the license between the government and the companies seeking to explore, prospect and exploit seabed minerals as a contract between the parties which must balance the commercial and public interest, assuring that known and unknown benefits and risks are allocated appropriately during the term of the activity, and that conflicts between the parties have a reasonable likelihood of being solved promptly and impartially.

In the mining sector, the license agreement between the government and the mining company provides the exclusive right to explore or extract minerals within a determined area of land in exchange for a set of promises and obligations, including payment of royalties and taxes, environmental assessments and remediation, social obligations, etc. In locations, like South Africa or the Canadian provinces of British Columbia and Ontario, with significant experience with mining and where the basic statutory and regulatory framework is relatively strong, companies and governments tend to rely more on this legal infrastructure and less on contracts. In locations where the mining sector is just developing, it is more common to see comprehensive contracts that attempt to fill the gaps left open by an inadequately developed legal environment.

Unfortunately, the substantive provisions of Vanuatu's current model license agreement amount to less than 450 words. In combination with the insufficiency of Vanuatu's statutory and regulatory structure, this license agreement amounts to a license to nearly absolute impunity for the mining companies that have signed these licenses. The licenses are woefully under suited to the importance of this novel activity. For this reason, the Minister of Lands and Natural Resources has looked for outside assistance in creating a new model license agreement.

[Insert figure from Mining Contracts: How to Read and Understand Them, p. 16]

CONTRACTS

A revised model license agreement between the government of Vanuatu and interested seabed mining companies will need to accomplish four objectives. First, it will need to do what any good long-term contract should do: create a stable and predictable set of rights and obligations between the parties, and establish reasonable mechanisms for objective dispute resolution. Second, it will need to fully appreciate the valuable contributions of each party to the contract. The third goal is largely dependent on the second and intimately connected with it: the contract should reflect the intentions, conditions, expectations and trepidations of local populations. In order to accomplish this, a robust process of free, prior, informed consultation (FPIC) is necessary, not just to ensure good process, but also to construct the substantive terms and conditions of the contract such that the legal rights and obligations created by that document reflect the terms on which the local population consented to mining activity. [paragraph on parole evidence and fully integrated contracts – if prior agreements between the parties are not in the final agreement, they are excluded from the legal relationship established by the contract] Finally, the contract must do what the relatively slow statutory innovation process impedes: it must capitalize on its relative nimbleness and flexibility and incorporate state of the art ecology management theory and development theory such that the contract can reflect what statutory, regulatory or administrative approaches will be slower to integrate. The contract is able to and should translate concepts like the precautionary principle, adaptive management and the well-being approach, rather than the growth-based approach to commercial activity.

[this section will elaborate on each of the four objectives outlined in the previous paragraph]

First Objective

Long-term commercial contracts regarding high-risk activity must provide a stable and predictable set of rights and obligations for each of the parties thereto. The mining companies engaged with the Pacific Islands have background in land-based mining and in sea-based oil exploration. In both of those sectors, ample history and experience means that there are useful model contracts from which useful language can provide familiar and tested provisions for the allocation of the basic rights and obligations of the parties. In addition to the International Bar Association's Model Mining Development Agreement, recent work by a number of organizations has made natural resource contracts in the petroleum and mining sector available to the public at large.⁸² This is a very useful step in an industry that has been notorious for secret company-government agreements.⁸³ The model provided by the MMDA and the examples available newly created repositories for government-company agreements in the extractive industries make it much more likely that new contracts can follow best-practices with respect to the basic elements common in mining contracts.

This is not enough, however. Seabed mining is a novel activity and existing contracts do not adequately address the known, unknown and unknowable risks associated with this activity. In order to attempt to provide the necessary protections for this activity, existing model contracts, statutes and regulations provide much needed material. The above cited statutes and regulations

⁸² ResourceContracts.org, , http://www.resourcecontracts.org/ (last visited Mar 21, 2016).

⁸³ Open Contracting Partnership Open Contracting Partnership, , http://www.opencontracting.org/ (last visited Mar 21, 2016). cite contracts confidential as well

in the United States, Australia and New Zealand provide necessary language and also very important information with respect to the cautious approach each of those countries is taking on seabed mining. Finally, the International Seabed Authority's regulations on each of the three main types of seabed mineral types, and their model exploration contract terms provide useful language that must form a baseline for allocating rights and responsibilities as well as benefits and risks.

Second Objective

Informed by observation that governments over-value the role of extraction companies and undervalue the resources in their sovereign territory [this section requires development]

Third Objective

Informed by Free Prior Informed Consent Process to build site-sensitive content: This section will make the observation that FPIC is viewed as the requisite process through which to arrive at a locally-driven decision to permit or not permit mining activity. In the most critical light, FPIC is seen even more skeptically as the process by which a local population grants mining companies the social license to operate. Whether viewed as a strong or a weak process, it is uniformly seen as process only. But this view fails to see the process as an important part of contract negotiations. The FPIC process itself is rich in content that should inform mining contracts. During the FPIC process all stakeholders are presenting their hopes, concerns, and expectations about the likely harms and benefits that will result from the mining activity. Companies make a robust set of representations about the likely economic and development benefits that will result from mining activity and also about the likelihood of environmental, social and cultural harms. Communities, on the other hand, make clear their own hopes and expectations with respect to mining activity. The objective, from the company's side, is to provide the information necessary to derive the community's consent. The community's objective is to make clear the terms on which that consent was granted.

It would be reasonable for communities that have granted their consent to seabed mining to believe that the terms the conditions and demands they established during the FPIC process would govern the behavior of the government and the company during the life of the contract. This is highly unlikely, however, unless those terms are explicitly drafted into the four corners of the contract. Under the common law contract doctrine on parol evidence, even parties in privity of contract are usually unable to present extrinsic evidence that shows ambiguities, clarifies or adds terms to the express language of the contract. In order words, the representations of the companies or the government during an FPIC process may have little to no legal value, unless those terms are expressly drafted into the express language of the license agreement.

For this reason, it is crucial that contract drafters be identified in anticipation of the FPIC process and incorporates the representations, expectations, and conditions on which the FPIC process was based into the express language of the contract. There is simply no other way to assure that community expectations will be legally enforceable.

Fourth Objective

Informed by Ecology Management Theory and Emerging Development Theory (precautionary principle, adaptive management, well-being approach – each were central to the National Consultation held in October 2014 in Port Vila and must be incorporated in the contract to reflect the intention and understanding of the parties and to assure they are legally enforceable conditions, rather than hortatory aspirations) [this section requires development]

CONCLUSION: