

Status of the Formulation of Exploitation Regulations by the International Seabed Authority, and Japan's Challenges

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1. Introduction

The United Nations Convention on the Law of the Sea (UNCLOS) entered into force on 16 November 1994, establishing the International Seabed Authority (ISA) through Article 153. This organization launched full-scale activities after the late Mr. Satya Nandan¹ (1996-2008), who approached practical work on the basis of the value of the “common heritage of mankind” declared in the famous Pardo’s Declaration² (1 November 1967), assumed office as the first Secretary-General of the ISA. Thereafter, the baton was passed to the now deceased Mr. Nii Odunton³ (2009-2016) and Mr. Michael Lodge,⁴ who is the incumbent Secretary-General. In this regard, we can say that the results of ISA’s proactive efforts are reflected in the fact that due consideration was given to the introduction of applicable standards from “Protection and Preservation of the Marine Environment” (Part XII of UNCLOS) in the formulation and adoption of the first Regulations on Prospecting and Exploration for Polymetallic Nodules in the Area (“Exploration Regulations”) concerning manganese nodules, which was adopted on 13 July 2000.

Thereafter, the Exploration Regulations concerning polymetallic sulphides were adopted on 7 May 2010; on 1 February 2011, the Seabed Disputes Chamber of the International Tribunal for the Law of the Sea (comprising 11 judges⁵) emphasized the introduction of specific measures in the domestic laws of the sponsoring states when they were addressing the indirect and direct obligations of the sponsoring states (which authorize contractors to engage in deep-seabed activities). Although this advisory opinion is not legally binding itself, it is of great significance in the sense that the related measures offer exemption from state responsibility that arises through deep-seabed activities. Furthermore, the Seabed Disputes Chamber stated that the ISA, sponsoring states, and contractors must take the precautionary approach⁶ and implement best environmental practices⁷ so as to ensure effective protection

¹ For detail backdrops, Arvid Pardo, *The Convention on the Law of the Sea: A Preliminary Appraisal*, 20 SAN DIEGO L. REV. 489, 491-492 and 499-503. The following publication was cited in the speech delivered by Ambassador Arvid Pardo (1914-1999); John Lawrence Mero (1929-2001), *THE MINERAL RESOURCES OF THE SEA* (Elsevier Publishing Company, 1965). The book has been translated into Japanese. It is a must-read book as a starting point for understanding this issue. Marine Mineral Resources, translated by the Japan Mining Association, 1972, pp. 278. In an ideological sense, the “Common Heritage of Mankind” should be translated similarly in Japanese. With regard to the question of translating it as “heritage,” “asset,” or “property,” refer to Mamoru Koga, *Kuukan no Atarashii Chitsujo: Kaiyoho ni okeru ‘Zaisan’ ken no Gainen [A new spatial order: The concept of “asset” rights in the law of the sea]*, in Yoshito SUMIYOSHI & Tokushiro OHATA eds., *NIJUSSEKI NO KOKUSAIHO [INTERNATIONAL LAW IN THE 21ST CENTURY]* (Seibundoh Publishing, 1986) 340-347. However, as it has been translated into Japanese as the “common property of mankind” in the UNITED NATIONS CONVENTION ON THE LAW OF THE SEA (OFFICIAL TRANSLATION) (Seibundoh Publishing, 1997) by the Oceanographic Society of Japan, and the Ocean Division of the Economic Affairs Bureau, Ministry of Foreign Affairs of Japan, the legal term has come to be regarded as the official translation except when used in an ideological sense. I am most grateful to Mr. Odunton (14 JUNE 1951 - 23 MAR. 2022) for his great contribution to ISA.

² Satya Nandan, *Administering the Mineral Resources of the Deep Seabed*, in David Freestone et al. eds., *THE LAW OF THE SEA: PROGRESS AND PROSPECTS* (Oxford University Press, 2009) 75-92; Michael W. Lodge, *Satya Nandan’s Legacy for the Common Heritage of Mankind*, in Michael W. Lodge & Myron H. Nordquist eds., *PEACEFUL ORDER IN THE WORLD’S OCEANS: ESSAYS IN HONOR OF SATYA N. NANDAN* (Brill Nijhoff, 2014) 282-298.

³ Jean-Pierre Levy & Nii Allotey Odunton, *Economic Impact of Sea-bed Mineral Resources Development in Light of the Convention on the Law of the Sea*, 8 NAT. RESOU. FORUM, 147-161 (1984).

⁴ Michael W. Lodge, *The Common Heritage of Mankind*, in David Freestone ed., *THE 1982 LAW OF THE SEA CONVENTION AT 30: SUCCESS, CHALLENGES AND NEW AGENDAS* (Martinus Nijhoff Publishers, 2012) 59-68.

⁵ Annex VI. Statute of the International Tribunal for the Law of the Sea (ITLOS), Article 35 (1).

⁶ Japan’s Basic Act on Ocean Policy focuses on this stance. With regard to measures to conserve the marine environment in consideration of the preservation of the earth’s environment, it stipulates that the state shall implement this from the perspective of preventing adverse impacts on the marine environment based on scientific knowledge, and shall make efforts to carry out the appropriate reviews (Paragraph 2, Article 18).

⁷ *Responsibilities and Obligations of States Sponsoring Persons and Entities with Respect to Activities in the Area (Advisory Opinion)*, Seabed Disputes Chamber of the ITLOS, Case No. 17, 1 FEB. 2011. UNCLOS Article 139, Decision of the ISA Council (ISBA/18/C/8, ISBA/18/C/8/Add.1). (1) With regard to the obligation of contractors sponsored by their country to comply with the terms of the contract and the obligations prescribed in UNCLOS as well as the relevant documents, the state has the obligation to take due caution. However, this is in line with the laws and administrative measures of their own country; (2) With regard to the direct obligations that the sponsoring State has to comply with, apart from the obligation to ensure that the contractor sponsored by the state takes certain actions, these are (i) the obligation for the sponsoring state to assist ISA (Paragraph 4, Article 153 of UNCLOS), (ii) the obligation to take a precautionary approach that is reflected in Principle 15 of the Rio Declaration, as well as in the Exploration Regulations for manganese nodules and Exploration Regulations for polymetallic sulphides (this shall be carried out corresponding to the capacity of each country, Paragraph 125), and (iii) the obligation to implement best practices for the environment as prescribed by the Exploration Regulations for polymetallic sulphides. In addition, the obligation to implement environmental impact assessment is also a general obligation based on customary law, and UNCLOS

of the marine environment.

On 22 July 2012, the year after this advisory opinion was raised, the Exploration Regulations for Cobalt-rich crusts were adopted. This completed the Exploration Regulations for three mineral resources with different constituents. Hence, alongside the first Exploration Regulations for Manganese Nodules, and in consideration of the differences in environmental impact associated with mining activities, the respective contents were standardized and adjusted, and set out as the most updated contents (25 July 2013)⁸. Here, I note that the “Mining Code” is a general term that combines the Exploration Regulations, Exploitation Regulations, and procedural regulations. Therefore, the Exploration Regulations and Exploitation Regulations constitute important parts of the Mining Code. This paper uses the terms “Exploration Regulations” and “Exploitation Regulation” based on an understanding of the aforementioned, in order to make the discussion easier to understand within the context.

Thus, a system that is subject to management by the ISA commenced operation for “resources” as defined in UNCLOS (Article 133 (a)). Specifically, ISA manages deep-seabed activities with respect to whether or not Part XI of UNCLOS, agreements concerning the implementation of Part XI (“Implementation Agreement”), UNCLOS Annex III, rules, regulations, and procedures are complied with. Unlike other treaties that establish provisions for regular meetings of the state parties with a view to reviewing or revising the treaty, UNCLOS places strict restrictions on the mission of the conference of the parties.⁹ Under such circumstances, how do the sponsoring states of contracting parties who undertake activities under ISA enact domestic laws? In reality, both Nautilus Minerals, Inc. (a Canadian limited partnership company¹⁰) and Neptune Minerals, Plc. (Head office, Australia; Country of registration, Canada), which had been active contractors, became insolvent in November 2019. Hence, in addition to the massive costs of carrying out the series of activities such as mining, ore lifting, and metallurgy, this signifies that it is also difficult to develop technology for machinery and equipment aimed at avoiding causing damage to the marine environment, including organisms that live on the deep seabed, and that there is a considerably high barrier of entry to the commercial development of deep-seabed resources. This paper provides an overview of the trends of deep-seabed activities’ regulations to date. It then reviews and evaluates the types of systems that Japan, which has striven to rank with the West, has in place for deep-seabed activities and what forms of existing legislation these are, based on regulations for deep-seabed activities.

2. Current Status of the Three Exploration Regulations and Exploitation Regulations for Manganese Nodules, Polymetallic Sulphides, and Cobalt-Rich Crusts

(1) Status of Deep-seabed Exploration Contracts

According to the aforementioned Seabed Disputes Chamber, the obligations of a sponsoring state, under the convention and the relevant regulations, can be classified as its obligation to ensure compliance by the contractor, and its direct obligations as a sponsoring state. The latter obligations are: (1) To support ISA by taking all necessary measures in order to ensure compliance with the provisions set out in Article 153, Paragraph 4 of UNCLOS; (2) To apply a precautionary approach; (3) To take the best marine environmental management measures; (4) To take

Article 206 has prescribed it as an obligation for all state parties.

⁸ The Exploration Regulations for manganese nodules were revised on July 25, 2013 and July 24, 2014, for polymetallic sulphides on 25 July 2013 and 14 July 2014, and for cobalt-rich crusts on 25 July 2013.

⁹ UNCLOS limits the mission of the conference of the parties after the enactment of the treaty to the periodic re-election of judges for the ITLOS, the approval of expenditures for the said Tribunal, and the amendment of its regulations. The mission of the ISA Assembly, which is the only other session that involves all the state parties, is limited to seabed problems. Mann Borgese, Elisabeth (translated by the Ocean Policy Research Institute of the Sasakawa Peace Foundation), *THE OCEANIC CIRCLE: GOVERNING THE SEAS AS A GLOBAL RESOU.* (Seibundoh, 2018) 165.

¹⁰ The company carried out the development of mineral resources (Solwara 1 Project) at the Bismarck Sea, approx. 50km (about 27 nautical miles) from the city of Rabaul in the East New Britain province of Papua New Guinea (PNG). The target ore deposit was seafloor massive sulphide, active and fossil at a water depth of 1,500-1,660m. With regard to mining rights, an environment permit effective for 25 years was acquired from the PNG government on 29 DEC. 2009. On 31 DEC. 2009, it commenced application for exploration rights, including rights for 45 mining areas. Yoshio AKIYAMA, KAIYO SHIGEN KAIHATSU NO JIGYO TENBO TO KEIZAI: NAUTILUS SHA, SOLWARA1 PROJECT WO REI TOSHITE [THE BUSINESS OUTLOOK AND ECONOMIC EFFICIENCY OF MARINE RESOURCE DEVELOPMENT: THE CASE OF THE SOLWARA 1 PROJECT BY NAUTILUS], Slides 3 and 9 (“The Status, Issues, and Business Outlook for the Development of Seabed Mineral Resources in Japan,” 20 OCT. 2010). Ahead of the development, the company concluded a stock option contract with the PNG government to complete the purchase of interests for 30% of the entire project cost. However, as the PNG government did not fulfill its part of the contract, the case was referred to an arbitration tribunal. On 3 DEC. 2013, Nautilus won the lawsuit, and the PNG government was ordered to fulfill its contractual obligations for the project. Nevertheless, the PNG government did not comply, so Nautilus cancelled the contract and demanded compensation for damages. Nautilus Minerals Inc: Annual Information Form 2014, at 17. Available at <https://www.sec.gov/Archives/edgar/data/1366852/000106299316007631/exhibit2-1.htm> (30 JULY 2020). On 26 APR. 2019, the company announced that it will be delisting from the Toronto Stock Exchange. To date, there are still no cases of operation, including the PNG development project. Agency for Natural Resources and Energy of the Ministry of Economy, Trade and Industry, COMPREHENSIVE EVALUATION REPORT ON SUBMARINE HYDROTHERMAL POLYMETALLIC ORE DEVELOPMENT PLANS, DEC. 2018, at 11.

measures to ensure compliance with the rules when ISA issues emergency orders to protect the marine environment; (5) To specify the measures for achieving compliance; and, (6) To assess the impact on the marine environment.¹¹ The Seabed Disputes Chamber states that, assuming there are cases in which the contractors are unable to fulfill the obligations set out by ISA, the laws of the sponsoring states should include the contractors' financial and technical capabilities, conditions for the issuance of certificates, and sanctions, as well as extend to existing regulations and the Exploration Regulations that were being formulated by the Legal and Technical Commission (LTC) at the point when advisory opinions are raised.¹²

As of September 2020, ISA published the relevant domestic laws of about 30 countries. Some examples are the Czech Republic's Act on Prospecting, Exploration for and Exploitation of Mineral Resources from the Seabed beyond the Limits of National Jurisdiction and Amendments to Related Acts (2000), Cook Islands' Seabed Minerals Act (2009), Germany's Seabed Mining Act of 6 June 1995 (the Act) amended by Article 74 of the Act (2010), Guyana's Maritime Zones Act (2010), Belgium's Law concerning the Prospection, Exploration and Exploitation of the Natural Resources of the Seabed and the Subsoil beyond National Jurisdiction (2013), Fiji's International Seabed Mineral Management Decree (2013), UK's Deep Sea Mining Act (Revised Law of the 1981 Temporary Provisions Act, 2014), Tuvalu's Seabed Minerals Act (2014), Tonga's Seabed Minerals Act (2014), Federated States of Micronesia's Seabed Resources Act (2014), Singapore's Deep Seabed Mining Act (2015), and Nauru's International Seabed Minerals Act (2015). For example, Fiji and Nauru have taken legislative measures concerning deep seabed activities beyond the limits of national jurisdiction. On the other hand, Tuvalu and Tonga have taken legislative measures to regulate marine mineral resources both within and outside of the national jurisdiction. These include provisions related to financial burden, such as application fees, payment for financial assistance, taxes, and usage fees.¹³

(2) The Three Exploration Regulations, and Recommendations and Guidance for Contractors

(i) Management of Deep-seabed Activities, including Inspections

LTC was established in accordance with Article 163 of UNCLOS (25 members customarily, but 30 members were elected for the term of 2017 to 2021 at the 22nd session held in 2016). Its mission is to review all plans of work for deep-seabed activities, and to advise the Council (Article 165, Paragraph 2 of UNCLOS). It also formulates ISA's rules, regulations and procedures related to deep-seabed activities, and submits them to the Council. Other duties include making recommendations on the protection of the marine environment, and on environmental monitoring programs. However, its most important job is to make recommendations on contingency measures, such as the suspension of operations in order to prevent causing serious damage to the marine environment. The Council has to give consideration to recommendations and advice submitted by the LTC with regard to important matters, including the adoption of rules, regulations and procedures. As for the approval of plans of work for exploration and exploitation, the Council must follow the LTC's recommendations unless a resolution is passed against them.¹⁴

State parties take all necessary measures to ensure compliance in accordance with Article 139 of UNCLOS, and provide assistance to ISA. Conditions for the basic outline investigations, exploration, and exploitation are detailed in Article 153 of UNCLOS. These include the legal and contractual conditions that are appended to the plans of work. The three Exploration Regulations were completed in July 2013, and they are more concrete and detailed than the broad and general regulations set out in Part XI, Annex III, and the Implementing Agreement.¹⁵ They incorporate mechanisms for ISA to review the implementation of plans of work for exploration every five years.¹⁶

¹¹ The ISA Assembly adopted the resolution on 25 JULY 2011 with the indication to "[t]ake note with appreciation" with regard to this recommendation (ISBA/17/A/9). Hironobu SAKAI, Koji TERAYA, Yumi NISHIMURA and Shotaro HAMAMOTO, KOKUSAI HO [INTERNATIONAL LAW] (Yuhikaku Publishing, 2011) 228.

¹² Seokwoo Lee and Hee Cheol Yang, *Efforts to Enhance Deep Seabed Activities and Korean Law on Exploration for and Exploitation of Resources in the Deep Seabed Area*, in Myron H. Nordquist et al. eds., *THE MARINE ENVIRONMENT AND UNITED NATIONS SUSTAINABLE DEVELOPMENT GOAL 14: LIFE BELOW WATER* (Brill Nijhoff, 2018) 237-238.

¹³ *Id.*, at 239.

¹⁴ Michael W Lodge, *The Deep Seabed*, in Donald R Rothwell et al. eds., *THE OXFORD HANDBOOK OF THE LAW OF THE SEA*, Chapter 11 (Oxford University Press, 2015) 235-236.

¹⁵ *Id.*, at 240-241. The first Exploration Regulations for manganese nodules was published in June 2012, followed by that for polymetallic sulphides in June 2017, for cobalt-rich crusts in JUNE 2012 and JUNE 2017, and for manganese nodules in JUNE 2017. Japanese translations (provisional translations) by the Ocean Mining Industry Promotion Roundtable (in conjunction with JOGMEC's Metals Technology Department) have been released for all of these Regulations.

¹⁶ Exploration Regulations for manganese nodules 28, Exploration Regulations for polymetallic sulphides 30, and Exploration Regulations for cobalt-rich crusts 30.

ISA also has in place inspection mechanisms that can be applied to the monitoring of compliance with contracts and the Exploration Regulations by contractors, and of the impact of exploration activities on the marine environment.¹⁷ Specifically, ISA can dispatch inspection officials to vessels and facilities conducting activities in exploration and mining areas. Inspection officials are authorized to inspect vessels or facilities, including logbooks, rigging, records, equipment, and all other records and data, as well as all relevant materials that are necessary for monitoring compliance (Section 14, Annex IV of the Exploration Regulations).

(ii) Development of Environmental Impact Assessment Guidance related to Exploration

Under the Exploration Regulations, LTC provides recommendations of a technical and administrative nature, which serve as guidelines for contractors. They are required to comply with recommendations that can be implemented in a reasonable manner as far as possible. Examples include the implementation of measures to protect the marine environment, and the collection of environmental data. The first Recommendations and Guidance that detailed guidelines for contractors addressed the environmental impact assessment arising from the exploration of manganese nodules (2001 Guidance [First Edition]). This guidance not only covered matters pertaining to the acquisition of baseline data and the activity period in exploration and mining areas that could cause serious damage to the marine environment, but also stipulated clearly the monitoring activities to be conducted after exploration. The 2001 Guidance was revised based on scientific knowledge gained later (2010 Guidance [Second Edition]); in 2013, it was updated as a comprehensive environmental guidance that also covers the aforementioned Exploration Guidelines for the three minerals (2013 Guidance¹⁸ [Third Edition]).

Annex IV of the Exploration Regulations includes the standard clauses for exploration contracts, which are automatically incorporated into contracts issued by ISA. In the 15-year period of the exploration contract, the contractors are expected to engage in exploration activities that are necessary toward preparing for exploitation. The relevant activities include the implementation of mining and ore lifting system tests, geological analysis of mineral endowments, and environmental, technical, and economic research. Under Section 3(2) of the standard clauses, the contractor may request for an extension of the plan of work for exploration every five years. As a means for ISA to monitor if the contractor is compliant with the plan of work, the contractor is required to submit a report to the Secretary-General within 90 days from the end of the target year of the activity program. LTC reviews the annual report while the session is in progress, as well as comments on it and makes recommendations. During the annual session, the chairperson of the LTC reports to the Council for the consideration of comments on the implementation of the activity program. In August 2015, LTC revised the recommendations for the guidance for contractors on the contents, format, and composition of the annual report (2015 Guidance¹⁹ [Fourth Edition]).

Thereafter, at the 25th annual session (February 2019), when discussions were held on the Draft Exploitation Regulations for commercial mining, the Council conducted extensive discussions on establishing processes for the independent review of Regional Environment Management Plans (REMPs), the implementation of inspections, precautionary approach, and environmental plans and performance assessment for these plans. These processes also include the state party representatives and observers of UNCLOS and the Implementing Agreement, international organizations, civil society, and private corporations.²⁰ The Areas of Particular Environmental Interest (APEI), a concept introduced by the LTC for deep seabed activities, had been conceived of with a focus on the exploration and exploitation of manganese nodules in the deep seabed. Hence, to engage in activities in the CCZ where there are rich endowments of manganese nodules, the Preservation Reference Areas (PRA) proposed by a group of scientists in 2007 have been materialized as a protection zone.²¹ The source can be traced back to Section 109 (f) of the Deep Seabed Hard Mineral Resources Act (1980) of the United States. The procedures of environmental impact assessments set out under the National Environmental Policy Act (enacted in 1969) were incorporated into deep-seabed activities when the United States had been actively conducting research on deep-seabed exploitation around 1975. This clause defines “Stable Reference Areas” as “an area or areas of the deep

¹⁷ Exploration Contract Standard Clause 14.

¹⁸ The translation (provisional translation) of this guideline was published in OCT. 2015 by the Ocean Mining Industry Promotion Roundtable (in conjunction with JOGMEC’s Metals Technology Department).

¹⁹ ISBA/21/LTC/15, 4 AUG. 2015.

²⁰ ISBA/25/C/11, 15 JAN. 2019.

²¹ See Michael Lodge & Gwenaëlle Le Gurun *et al.*, *Seabed mining: International Seabed Authority environmental management plan for the Clarion-Clipperton Zone: A Partnership Approach*, 49 MARINE POL’Y 66, 66-72 (2014). PRA is the same as the Preservation Reference Zones (PRZ) mentioned in Note 32. REMP, first introduced in the CCZ, was adopted by the ISA Council in 2012 based on recommendations by the LTC. REMP includes the designation of nine APEI networks. APEI is protected from the future development of deep-sea mineral resources. Available at <https://www.isa.org.jm/minerals/environmental-management-plan-clarion-clipperton-zone> (18 SEP. 2020).

seabed to be used as a reference zone or zones for purposes of resource evaluation and environmental assessment of deep seabed mining in which no mining will occur.”²²

After that, the same guidance was reviewed by the LTC at the 25th session (March 2019), and the 2020 Guidance [Fifth Edition] was proclaimed.²³ The development of the contents of this guidance incorporates, as appropriate, mechanisms for development and use based on the premise of environmental conservation, such as the Sustainable Development Goals (especially, SDG 14), the decision to establish an international legally binding instrument on Biodiversity Beyond National Jurisdiction (BBNJ) (24 December 2017, A/RES/72/249), and the resolution to establish new targets at the 15th Conference of the Parties to the Convention on Biological Diversity (COP 15) (Kunming City, China). At the same time, it appears to have entered the irreversible stage of becoming a set of multilayered, normative contents.²⁴

(3) Current Status of the Draft Exploitation Regulations, and Future Challenges

Part I, Regulation 1.3(a) of the Exploration Regulations (2013) defines exploitation as “the recovery for commercial purposes of polymetallic nodules in the Area and the extraction of minerals therefrom, including the construction and operation of mining, processing and transportation systems, for the production and marketing of metals.” Through the Implementing Agreement, the corresponding UNCLOS provisions for commercial mining activities and production permits for financial terms are no longer applicable. Moreover, Section 6 (Production Policy), Section 7 (Economic Assistance), and Section 8 (Financial Terms of Contracts) of the Annex to the Implementing Agreement set out principles on the development of commercial exploitation rules and regulations. These establish broad guidelines for the development of detailed regulations in a policy framework. For example, Section 6 establishes that the development of deep-seabed resources shall take place in accordance with “sound commercial principles,” that there shall be no subsidization of deep-seabed activities that have an adverse impact on the interests of other state parties, and that there shall be no discrimination between minerals derived from the deep seabed and from other sources (1 (a), (c) and (d)). Of particular importance is (1)(b) of Section 8. This provision sets out the regulations on the financial terms for contracts and the basic principles for the formulation of procedures. It states that “The rates of payments [to ISA] under the system shall be within the range of those prevailing in respect of land-based mining of the same or similar minerals in order to avoid giving deep seabed miners an artificial competitive advantage or imposing on them a competitive disadvantage.”

At the 17th session (2011), the ISA Council requested the Secretariat to prepare a strategic plan of work with a view toward the formulation of regulations for deep-sea mineral mining. In 2013, the LTC commenced reviews on draft regulations for the exploitation of manganese nodules. At the request of the Council, the LTC produced a revised draft framework in July 2015. At each of the sessions from 2015 to 2017, the Council requested the LTC to continue formulating the Draft Exploitation Regulations as a matter of priority. The LTC called for comments from its stakeholders and received a total of 54 comments by 20 January 2018. Many of these were concerning the roles of the Council, Secretariat, and LTC in regulating exploitation activities, the flow of work between the stages of exploration and exploitation and their relationship, how broadly the environmental policy should be incorporated into the Mining Code, and the role of sponsoring states and payment systems.²⁵

²² Available at <https://uscode.house.gov/view.xhtml?path=/prelim@title30/chapter26&edition=prelim> (21 MAY 2022). Hideo TAKABAYASHI, AMERIKA NO SHINKAITEI KAIHATSUHO: KAITEI KOBUTSU SHIGEN NI TAISURU SEISAKU [AMERICA'S DEEP SEABED DEVELOPMENT METHODS: POLICIES FOR SEABED MINERAL RESOURCES] (Kyushu University Press, DEC. 1981) 234-235. Prof. Norio TANAKA translates “Stable Reference Areas” as “Anteiteki Ryuho Kukaku.” Norio TANAKA, [Shiryō] Shinkaitei Kaihatsu ni kansuru Kokunaiho [(Material) Domestic Laws on Deep Seabed Development], Ministry of Foreign Affairs ed., NIHON NO KAIYO SEISAKU [JAPAN'S OCEAN POLICY] No. 4 (1981), Vol. 2, at 94. For details, refer to Tomohiko FUKUSHIMA, Akira TSUNE and Tomoko TAUCHI, Kaitei Kobutsu Shigen Kaihatsu ni okeru Hogo-sanshoku to Eikyo-sanshoku no Mokuteki no Hensen [Changes in the Purposes of Preservation Reference Zones and Impact Reference Zones in the Development of Seabed Mineral Resources], J. JAPAN SOCIETY OCEAN POL'Y (2019), 44-53. See also, National Oceanic and Atmospheric Adm., Commerce, Part 971: Deep Seabed Mining Regulating for Commercial Recovery Permits (Authenticated U.S. Government Information, GPO), Subpart F: Environmental Effects, 971. 605, Stable Reference Areas [Reserved], at 279 and 304; §971.603 (2), At-Sea Monitoring, An interim preservational reference area, located in a portion of a permit area tentatively determined: to be non-mineable, not to be scheduled for mining during the commercial recovery plan, or to be scheduled for mining late in the plan. Reference Areas may be selected tentatively prior to application for a commercial recovery permit, at 303.

²³ ISBA/25/LTC/6/Rev.1, 30 MAR. 2020.

²⁴ Nobuyuki OKAMOTO, Director of JOGMEC's Seafloor Mineral Resources R&D Division, Metals Technology Department (concurrently Professor and head of the Metallic Ore Evaluation Department, Kobe Ocean-bottom Exploration Center (KOBEC), Kobe University) emphasized this in his lecture at the 18th Plenary Meeting of the Ocean Mining Industry Promotion Roundtable on 14 FEB. 2018, on the status of the formulation of exploration regulations, exploitation regulations, and rules by the International Seabed Authority (ISA). OKAMOTO, who was also a member of the LTC, said at his lecture at the special research seminar of the Ocean Mining Industry Promotion Roundtable on 21 JAN. 2020, on the status of ISA's activities and latest trends of deep-seabed mineral resource development in the world, that research institutions, NGOs, and corporations actively provided feedback and opinions in the public comments in the formulation of the guidance and exploitation regulations.

²⁵ Yongsheng Cai, *Role of the International Seabed Authority in Global Ocean Governance*, in David Joseph Attard et al. eds., THE IMLI TREATISE ON

At the July 2018 session, the LTC prepared a revised working paper that was translated into six official languages, to facilitate review by the Council. This working paper stated that contractors, sponsoring states, and other relevant countries or entities shall cooperate with ISA in the monitoring of the impact of deep-seabed mining on the marine environment, and the establishment and implementation of an assessment program. It also calls for the clarification of an environmental baseline through the collection of environmental baseline data that contractors can refer to when conducting an assessment of the impact that could arise through their activity programs. The Draft Exploitation Regulations set out in detail the plans, measures, and actions for emergency situations, which contractors, the Secretary-General, the LTC, and the Council can rely on. These cover the situations arising from activities that have caused, are causing, or could cause a threat of serious damage to the marine environment, as well as the responsibilities of contractors toward damage to the marine environment.²⁶

While the abovementioned background and periods may not be in chronological order, the ISA Secretariat formulated the so-called “Environmental Regulations” on 25 January 2017. This was a discussion paper that addressed the development of regulations on the exploitation of deep-seabed mineral resources as well as the environmental matters related to the draft.²⁷ It contained the approach to be adopted, and the draft processes, including points of discussion and issues arising from in-depth reviews. With the aim of supporting ISA toward the development of a long-term environmental management strategy for deep-seabed resources, a technical study was held in Berlin in March 2017 on ISA’s environmental management strategy. During this meeting, discussions were held mainly on the comprehensive principles, REMPs, and governance issues such as adaptive management. The outcome was the first “systematized” document that would become the draft of the Environmental Regulations. This draft adopted a policy that specifically addresses the precautionary approach, adaptive management approach, environmental impact assessment processes and REMPs, serious damage to the marine environment, and standards and measures on transparency in environmental decision-making. Based on this direction, the LTC formulated the Draft Exploitation Regulations in August 2017, which incorporates regulations related to the marine environment.²⁸

Thus, the Revised Working Draft of the Exploitation Regulations (First Draft) prepared by the LTC in July 2016 (59 regulations, nine annexes), became the Draft Exploitation Regulations (Second Draft) of March 2017. Separately, the Discussion Paper on Environmental Matters (81 articles, 6 annexes), prepared in January the same year, was integrated with the abovementioned draft regulations prepared by the LTC and Berlin Technical Study (March 2017). This became the Draft Exploitation Regulations (Third Draft) of August 2017 (94 regulations, 10 annexes, and 3 appendices). After taking the numerous public comments received into consideration, it progressed to the eighth draft of the Draft Exploitation Regulations²⁹ in December 2019 (105 regulations (13 parts, 10 annexes, four appendices, and one schedule). Thereafter, the review of the draft regulations was moved from the LTC to the Council (ISBA/26/C/CRP.1³⁰).

As the Draft Exploitation Regulations that were prepared immediately before it became a Council matter (ISBA/25/C/WP.1), are considerably streamlined and concise, according to Secretary-General Lodge, only minor adjustments are expected in the future. The contents of the Draft are as follows:

GLOBAL OCEAN GOVERNANCE, Vol. 1: UN AND GLOBAL OCEAN GOVERNANCE (Oxford University Press, 2018) 59-60.

²⁶ *Id.*, at 60.

²⁷ Circulated within 19 to 24 MAR. 2017, when convened in Berlin. This paper (pp. 34) contained the draft abstract and confirmation items.

²⁸ Cai, *supra* note (25), at 62-63.

²⁹ ISBA/24/LTC/WP.1/Rev.1 (9 JULY 2018) and ISBA/25/C/WP.1 (22 MAR. 2019) .

³⁰ The Draft Exploitation Regulations 45 (Development of Environmental Standards) and 46 (Environmental Management System), published on 15 MAR. 2019, are included in ISBA/25/C/WP.1.

Preamble		
Main text		
Part I	Regulations 1-4	Introduction
Part II	Regulations 5-17	Applications for approval of Plans of Work in the form of contracts
Part III	Regulations 18-45	Rights and obligations of Contractors
Part IV	Regulations 46-54	Protection and preservation of the Marine Environment
Part V	Regulations 55-56	Review and modification of a Plan of Work
Part VI	Regulations 57-59	Closure plans
Part VII	Regulations 60-81	Financial terms of an exploitation contract
Part VIII	Regulations 82-86	Annual, administrative, and other applicable fees
Part IX	Regulations 87-90	Information-gathering and handling
Part X	Regulations 91-93	General procedures, Standards and Guidelines
Part XI	Regulations 94-103	Inspection, compliance and enforcement
Part XII	Regulation 104	Settlement of disputes
Part XIII	Regulation 105	Review of these Regulations
Annexes		
I	Application for approval of a Plan of Work to obtain an exploitation contract (based on Regulation 26)	
II	Mining Workplan	
III	Financing plan	
IV	Environmental Impact Statement (based on Regulation 17)	
V	Emergency Response and Contingency Plan	
VI	Health, Safety and Maritime Security Plan ³¹	
VII	Environmental Management and Monitoring Plan	
VIII	Closure Plan	
IX	Exploitation contract and schedules (A-F)	
X	Standard clauses for exploitation contract (based on section 20)	
Appendices		
1	Notifiable events	
2	Schedule of annual, administrative and other applicable fees (prescribed amount [US\$])	
3	Monetary penalties (prescribed amount [US\$])	
4	Determination of a royalty liability	
Schedule 1	Use of terms and scope	

Table: Draft Exploitation Regulations (8th ed.)

As we can see from the events described above, it is necessary to pay particular attention to the contents of Part IV (matters related to the environment of the latest Draft Exploitation Regulations). This is because it would not be an exaggeration to say that the trend in the formation of *opinio juris* (the conviction that an action was taken out of a sense of legal obligation) for international rules related not only to the exploitation of seabed mineral resources, but also to the marine environment—including the outcome document of Rio+20, SDG 14 and related targets, The Ocean Conference convened based on that, and the ongoing negotiations on the legally binding instrument of the BBNJ—is in a state where it is impossible to ignore its simultaneous, parallel, and irreversible development alongside the abovementioned Exploitation Regulations.³²

³¹ There are plans to add data through discussions with the IMO Secretariat, ISA, and stakeholder members. In particular, see below for the involvement of non-state actors, including scientists' organizations, in ISA. Makoto SETA, *The Legitimacy of the International Seabed Authority and the Way It Accepts the Involvement of Non-state Actors in Governing the Area*, in Patrick Chaumette ed., *TRANSFORMING THE OCEAN LAW BY REQUIREMENT OF THE MARINE ENVIRONMENT CONSERVATION*, Chapter 18 (Marcial Pons Ediciones Jurídicas y Sociales, 2019) 338-342.

³² With regard to this, James Harrison has pointed out that while the contents of the Exploitation Regulations are dependent upon the properties of the resources and the mining location and technology, fulfilling the environmental obligations of UNCLOS Article 145 will naturally be severe, also taking into consideration the potential environmental impact. In reality, the parties involved in the drafting of the Exploitation Regulations will be forced to make a decision on which precise precautionary approach to adopt. Besides, with regard to how ISA explains the precautionary approach, James finds the methods that ISA gets the applicants to implement very interesting. For example, ISA proposes that if a phased approach is adopted for exploitation, it would be desirable for the contractors to first engage in small-scale activities, and after demonstrating that these activities do not have an excessive impact,

3. Japan's Mining Act and Act on Interim Measures for Deep Seabed Mining

So far, we have looked at the backdrop of the development of international laws related to the deep seabed. Here, I would like to provide an overview on the legal aspects of deep-seabed matters in Japan. In the 1970s, there was growing recognition of the importance of deep-sea mineral resources during the period of the oil crisis. In Japan, the Research Institute of the Ministry of International Trade and Industry (renamed the Ministry of Economy, Trade and Industry in January 2001) and the Deep Ocean Minerals Association (DOMA) were established by the private sector.³³ The prospectus of establishment stated that “investigations and research on manganese nodules in Japan are *significantly lagging behind the developed countries of the West*, and that Japan must develop its capabilities to keep up with these countries, so as to acquire manganese nodules in a stable and self-sufficient manner” (provisional translation, emphasis added).³⁴

While the Research Institute of the Ministry of International Trade and Industry conducted research on the mining and lifting of manganese nodules, DOMA was engaged in research on all the processes of exploration, mining, transportation, and metallurgy. Of the development projects on deep-sea mineral resources led by DOMA, research and development concerning the mining of manganese nodules was transferred to the Technology Research Association for Mining Systems for Manganese Nodules, established in 1982.³⁵ Among DOMA's activities, one of its most important was to submit requests and feedback to the government on the enactment of the Act on Interim Measures for Deep Seabed Mining (hereafter, “Act on Interim Measures”); most of these requests and feedback were accepted.³⁶ There is a reason behind the urgent calls for this Act to take the form of legislation enacted by members of the Diet. This is because, of the Annexes I – IV of the Final Act of the Third United Nations Conference on the Law of the Sea, Resolution II, governing preparatory investment in pioneer activities relating to polymetallic nodules (also known as the “Pioneer Investment Protection (PIP) resolution”), called for the expenditure of a certain amount of prior investment before 1 January 1983, in consideration of the signing, adoption, and entering into force of UNCLOS (Preamble, 1(a)(i) and (ii), 5(d)(i)). The 11th session, which was the final session of the Third United Nations Conference on the Law of the Sea, was held three times in 1982. As these were the so-called 11th session (April), the revised 11th session (September), and the final session of signing and opening for signatures at Montego Bay (December), in light of the fact that the aforementioned Resolution I was adopted in April 1982,³⁷ the only remaining session for the adoption (and signing,

gradually expand the scale of the activities. To that end, contractors are required to put in place careful environmental impact assessment and environmental management plans. These are made objective through multiple reviews through stakeholders and ISA. Stakeholders may include organizations such as Greenpeace and World Wide Fund for Nature (WWF). While monitoring is unavoidable under UNCLOS Article 204 (Monitoring of the Risks or Effects of Pollution), monitoring methods based on the Impact Reference Zones (IRZ) and Preservation Reference Zones (PRZ) are considered to be effective. Even so, as pointed out by Secretary-General Lodge, it is impossible to be certain that PRZ, established as an exploitation area for contractors, can secure the symbolic and stable biota. Therefore, ISA needs to examine how regulations pertaining to the PRZs are actually implemented. This is why in exploitation, information on recovery after the decommissioning of a mine should also be monitored. In cases where recovery is dissatisfactory, financial sponsorship and deposits are also subject to review. Thus, risk management for the marine environment, as assessed by ISA, has no choice but to also include the suspension of exploitation activities in some cases. James' views are even excellent from the perspective that we should consider that there are also vulnerable marine ecosystems both within and outside the areas of jurisdiction of States, that is, in the seabed close to the exploitation areas. Taking this into consideration, ISA must cooperate with coastal countries and other useful and competent international organizations, and will even have to think of a way to institutionalize its cooperation with Biodiversity beyond National Jurisdiction (BBNJ). It must consider the parts that are intersecting with BBNJ. Especially See James Harrison, *SAVING THE OCEANS THROUGH LAW: THE INTERNATIONAL LEGAL FRAMEWORK FOR THE PROTECTION OF THE MARINE ENVIRONMENT* (Oxford University Press, 2017) 233-236. For an excellent study that incorporates an explanation of the ocean preservation zones related to ISA based on international law, refer to Yasuhiko KAGAMI, *KOKKA KANKATSUKEN-GAI KUIKI NO KAIYO HOGO KU* [OCEAN PRESERVATION ZONES BEYOND NATIONAL JURISDICTION], 117 J. INT'L L. & DIPL. 64-66 (2018). On 26 July 2012, ISA's environmental responsibility, with regard to the preservation of marine biodiversity and sustainable development in areas outside State jurisdiction was positioned as a part of ongoing discussions in the United Nations in 2004. With regard to BBNJ, the first intergovernmental negotiations were scheduled to start from September 4 to 17 in 2018 (four sessions planned), with the final round taking place from March to April in 2020. However, it was postponed due to the spread of COVID-19. Of course, there are also many clauses that remain unconfirmed, and many are of the view that it would be unlikely to reach the stage of adoption in the next session.

³³ The newsletter, “DOMA News,” was published from the inaugural issue (OCT. 1976) to No. 65 (JUNE 1997).

³⁴ Yoshihide SHIGA, *Shinkaitei Kobutsu Shigen Kaihatsu no Konnichi-teki Igi* [The Significance of Deep Seabed Mineral Resource Development Today].

51 RESOU. GEOL. 47-48 (2001).

³⁵ See below in particular for details on manganese nodules policy in Japan until 1984. Mamoru KOGA, *Developing A Manganese Nodule Policy for Japan*, in Robert L. Friedheim & George O. Totten III *et al.*, *JAPAN AND THE NEW OCEAN REGIME*, Chapter 7 (Westview Press, 1984) 227-275.

³⁶ SHIGA, *supra* note (34), at 48. Atsushi INOUE, *Shinkaitei no Goritekina Kaihatsu no Kakuho: Mangan Dankai wo Meguru Kokusai Chosei e no Taio no Tameni* [Securing the Rational Development of Deep Seabed: To Respond to International Coordination on Manganese Nodules], TOKI NO HOREI [LAW OF THE TIMES] No. 1170 (1982), at 5; *Shinkaitei Kogyo Zantei Sochiho* [Act on Interim Measures for Deep Seabed Mining], HOREI KAISETSU SHIRYO SORAN [OVERVIEW OF EXPLANATORY MATERIALS FOR LAWS] No. 30 (1982), at 32.

³⁷ *Selected Documents and Proceedings, The Preparatory Commission for the International Sea-Bed Authority and for the International Tribunal for the Law of the Sea*, 5 OCEAN Y.B 443, 443 (1985).

as well as opening for signatures) of UNCLOS was the September session. Under these circumstances, it is likely that Japan had rushed to justify, legally and externally, its definition of mining areas in the country. In reality, the Act on Interim Measures was passed in the House of Councilors on 9 July 1982 (96th Session of the National Diet) in order to acquire qualification as a pioneer investor, and then passed by the House of Representatives on 16 July and promulgated on the same day. This Act was to be enforced from a date stipulated by Cabinet order within one month from the date of promulgation (Supplementary Provisions 1); subsequently, the Enforcement Regulations for the Act on Interim Measures for Deep Seabed Mining (Ordinance of the Ministry of International Trade and Industry No. 34 of 1982) was enforced on 20 July alongside the Act on Interim Measures. On 16 September, Deep Ocean Resources Development Co., Ltd. (DORD) was established through public and private capital (including investments from 44 companies in the private sector), and this company submitted an exploration project application to the Ministry of International Trade and Industry on 20 September.³⁸

From the above, it is probable that Japan had taken legislative measures to match the moves of *developed countries of the West*, as set out in the aforementioned prospectus of establishment of DOMA (emphasis added). In this regard, it has been raised by the parties involved at the time that the Act on Interim Measures were temporary measures put in place until UNCLOS took effect in Japan.³⁹ DORD registered as a pioneer investor in the year after its establishment, in accordance with the PIP resolution. It acquired exclusive rights to implement activities in the pioneer mining areas,⁴⁰ and launched exploration activities for manganese nodules. On 17 December 1987, it acquired an exploration concession.⁴¹ In relation to this, I would like to refer to the fact that the Implementing Agreement entered into force in July 1996, 30 days after it was ratified by the Netherlands. Provisional State parties, that is, non-member countries of UNCLOS or countries that had not even signed the Convention, could continue to participate in the treaty system until 16 November 1998, but would no longer be provisional state parties after that.⁴²

DOMA is an aggregate corporation comprising 38 relevant corporations in areas such as trade, metallurgy of non-ferrous metals, steel, shipbuilding and heavy machinery, transportation, and electrical cables, among others. Engineers from these companies participated in the project where necessary. Companies from the same industry participated in the businesses and projects of DORD and the Technology Research Association engaged in the development of mining systems for manganese nodules. Thereafter, as explained above, DORD registered as a pioneer investor in 1987 and acquired a mining concession. In 2001, it concluded an exploration contract on the same mining concession with ISA (from 20 June 2001 to 20 June 2016). After that, in 2014, the Japan Oil, Gas and Metals National Corporation (JOGMEC) concluded a cobalt-rich crust exploration contract with ISA in the southeast of Minami-tori-shima (from 27 January 2014 to 26 January 2029). As of September 2020, these are the two exploration contracts that Japanese corporations have concluded with ISA.

³⁸ Kazuchika HAMURO, *Nichibei no Shinkaitei Kobutsu Shigen ni kansuru Torikumi no Suii: Mangan Dankai no Kaihatsu no Rekishiteki Keii no Gaikatsu* [Changes in Japan-US Initiatives on Deep Seabed Mineral Resources: Overview of the Historical Background of Manganese Nodule Development], 362 RIOE NEWS AND REPORT, 8 (2013).

³⁹ Morihiro KURUSHIMA, *Shinkaitei Kobutsu Shigen Kaihatsu wo Meguru Genjyo to Doko* [Current Situation and Trends in Deep Seabed Mineral Resource Development], Ministry of Foreign Affairs ed., KAIYOH TO KAIYO SEISAKU [LAW OF THE SEA & OCEAN POL'Y] No. 6 (1983), at 125-126.

⁴⁰ Masamichi FUJIMORI, *Evaluation of Deep Seabed Mining Technology: Past, Present, and Future*, in Tadao KURIBAYASHI and Edward L. Miles eds., *THE LAW OF THE SEA IN THE 1990'S: A FRAMEWORK FOR FURTHER INTERNATIONAL COOPERATION* (Proceedings, The Law of the Sea Institute, 24th Annual Conference, 24-27 JULY 1990, Tokyo, Japan) 293-294.

⁴¹ Available at <http://www.dord.co.jp/business/index.html> (30 JULY 2020).

⁴² 12 (a), Section 1, Annex of the Implementing Agreement.

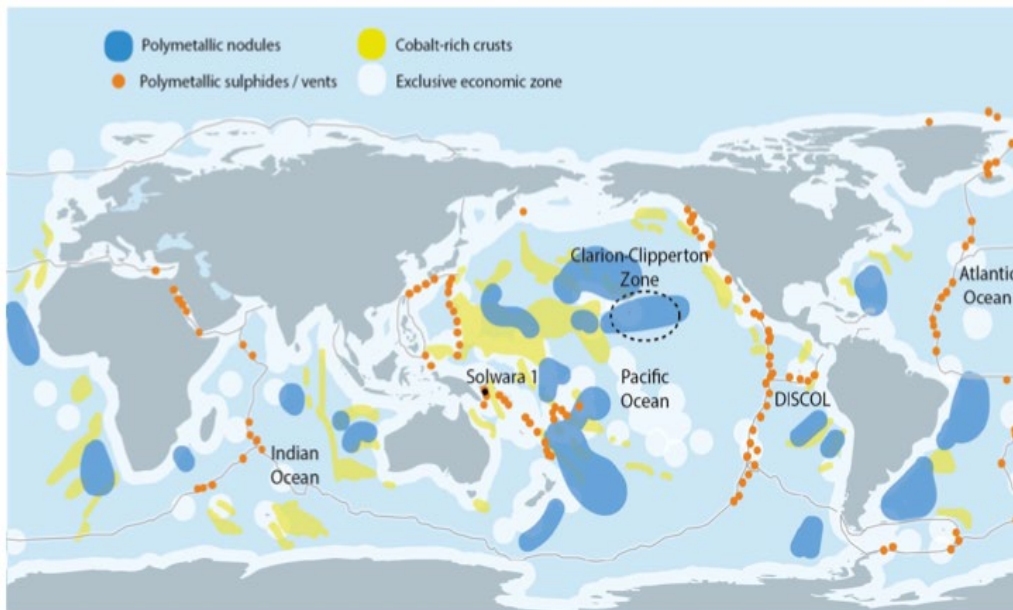


Figure 1: Map showing the distribution of mining areas for deep seabed mineral resources where ISA is engaged in the activities (Source: Peter M. Haugan & Lisa A. Levin *et al.*, Role for Ocean-Based Renewable Energy and Deep-Seabed Minerals in a Sustainable Future?, at 6⁴³.)

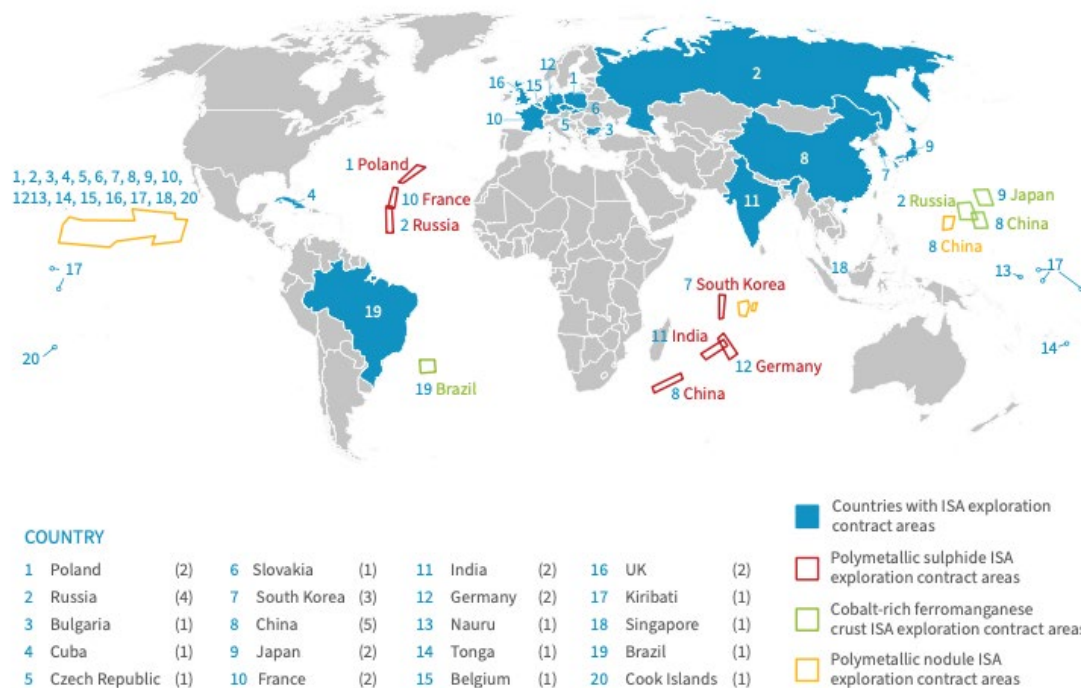


Figure 2: Countries that have concluded exploration contracts with ISA (Source: Peter M. Haugan & Lisa A. Levin *et al.*, Role for Ocean-Based Renewable Energy and Deep-Seabed Minerals in a Sustainable Future?, at 8⁴⁴.)

⁴³ Available at <https://oceanpanel.org/sites/default/files/2020-09/What%20Role%20for%20Ocean-Based%20Renewable%20Energy%20and%20Deep%20Seabed%20Minerals%20in%20a%20Sustainable%20Future.pdf> (30 JULY 2020).

⁴⁴ *Id.*

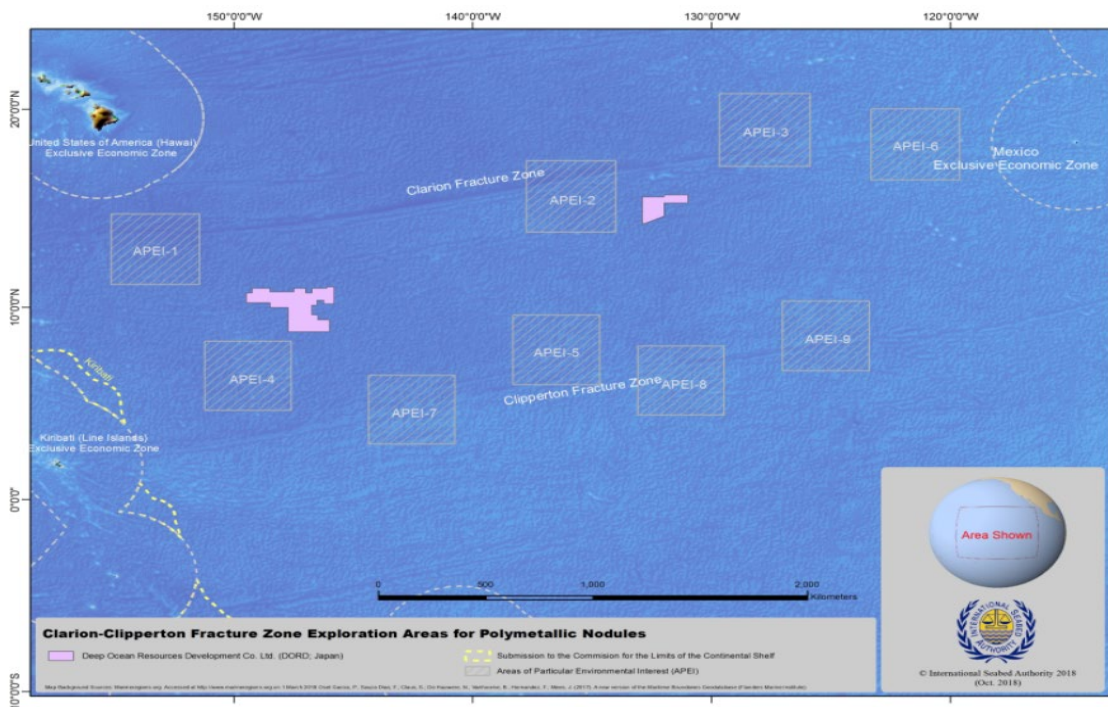


Figure 3: Manganese nodules / Japan's mining areas in CCZ (Contractor: DORD) (Source: ISA)

* The areas shown in yellow frames on the west side of the North American continent (off the southeastern coast of Hawaii in the Pacific Ocean) in Figure 2 are CCZ (so-called "Manganese Ginza"). Note that there are nine zones for the APEI, mentioned in page 5 (Refer to Footnote 21 in this paper).

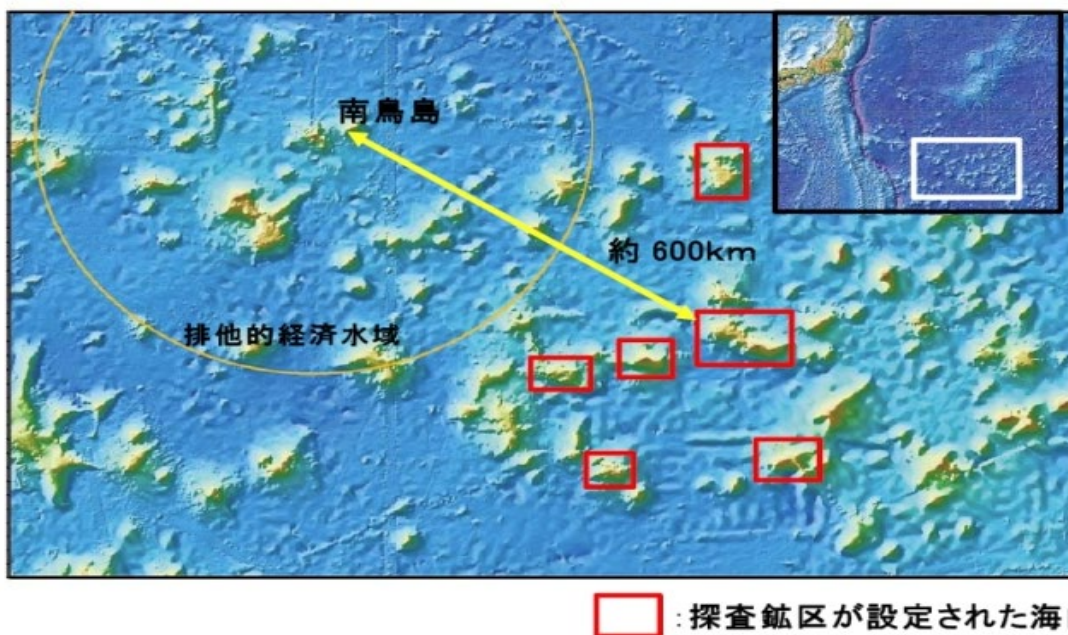


Figure 4: Cobalt-rich crusts / Japan's mining areas in the Western Pacific Ocean (Contractor: JOGMEC) (Source: JOGMEC)

* Comparing [Figure 2]'s 8 and 9, we can see that Japan's mining areas (cobalt-rich crusts) and China's mining areas (cobalt-rich crusts) are extremely close to each other. Here, it is possible that the results of the application of laws may vary if there are significant differences in the contents of domestic laws related to the deep seabed in the both countries. This paper will discuss this point again.

(1) Remaining Issues with the Revised Mining Act

The Mining Act was originally a law enacted to regulate the mining industry on land. This means that the exclusive economic zones (EEZ) and continental shelves prescribed by Japanese laws are subject to the application of the Mining Act. Accordingly, the Mining Act is a specific law that regulates the mining of continental shelves as well as the exploration and exploitation of natural resources as prescribed in Article 3 of the Act on Exclusive Economic Zone and Continental Shelf⁴⁵ (No. 74 of 14 June 1996). Article 4 of the Mining Act defines mining as “prospecting and digging of minerals, and consequent dressing, smelting and other relevant businesses.” Article 11 of the Act defines mining rights as “prospecting rights and digging rights.” Hence, under this law, “prospecting rights” corresponds to exploration, while “digging rights” corresponds to exploitation.

With regard to the application of the Mining Act enacted in 1950 (hereafter, “former Mining Act”) to seabed resources, several points have long been raised. Firstly, it did not prescribe any specific qualifications or conditions apart from stating that mining rights can only be held by the people of Japan or juridical persons of Japan (Article 17 of the former Mining Act). Hence, it was possible even for entities that did not have the technical capabilities or track record in resource exploitation to submit applications for mining rights. Secondly, in the screening process for mining rights, criteria for the authorization of mining activities were not prescribed; instead, only reasons for the non-authorization of mining activities were prescribed—when mining areas overlap, and when the mining of minerals at the mining application area is deemed to have no economic value, or deemed to be harmful to health and hygiene, destructive to public facilities, damaging to the interests of the agricultural, forestry or other industry, and/or in violation of public welfare (Articles 29 to 35 of the former Mining Act). This means that as long as the conditions for non-authorization are not applicable, the application for mining rights shall be authorized in principle. Thirdly, a first-to-file system was adopted, meaning that for the overlapped application area, “the person whose date of sending his/her application in earlier shall have the right of priority concerning the creation of mining right” (Article 27). This gave rise to a situation in which applications by “paper companies,” which submit applications for reasons such as to resell the acquired mining area or to prevent others from engaging in exploitation activities, could not be excluded. In reality, prior to the revision of the former Mining Act, there were more than 70,000 applications believed to have no intention of engaging in exploitation activities, and more than 80% of the approximately 8,000 cases of mining rights that had been created up till that point had not yet commenced activities.⁴⁶ Fourthly, the former Mining Act only regulated prospecting and digging activities, and did not include provisions on the geophysical exploration that takes place before these activities (in addition to magnetic exploration and gravity exploration, which investigate the geological structure using the physical properties of the substances that make up the earth's crust, this also includes methods such as seismic exploration, which investigates how seismic waves generated artificially on the earth's surface hit the underground stratum and bounce back. [From the information panel in the Petroleum Museum, Akiha Ward, Niigata City]). As such, it would be difficult to regulate even for foreign research vessels, etc., that do not have mining rights, if they were engaged in physical exploration activities.⁴⁷

Due to these circumstances, the government was called upon to “take necessary measures on [...] promotion of the development and use of petroleum, inflammable natural gas, other mineral resource including manganese ores,

⁴⁵ With regard to this law, Hiroshi TERASHIMA has pointed out that it is difficult to say that it fulfills the needs for the establishment of a domestic law, which is the need for Japan to define specifically and present, internally and externally, how it will exercise its rights and obligations based on both systems. Of the regulations, which comprise four clauses, Article 3 of the law is especially problematic. This article provides that Japan shall apply its domestic laws to the exploration and exploitation of natural resources in its EEZ or continental shelves, the setting up of artificial islands, facilities, and structures, the protection and preservation of the marine environment, and scientific research on the oceans, as well as to the performance of obligations by Japanese civil servants in these waters and acts to prevent them. However, it does not make any particular mention of which Japanese laws should be applied specifically, does not go further than coordination between UNCLOS and fisheries, ocean pollution, and maritime security, and *attempts to respond partially within the conventional vertical framework as well as mostly through the interpretation and operation of the existing legal system* (emphasis added). Hiroshi TERASHIMA, KAIYO GABANANSU: KAIYO KIHONHO SEITEI, UMI NO GUROBARU GABANANSU E [OCEAN GOVERNANCE: ENACTMENT OF THE BASIC ACT ON OCEAN POLICY, TOWARD THE GLOBAL GOVERNANCE OF THE SEA] (Nishinihon Publisher, 2020) 24-27. Note that the Act on Establishment of Safety Zone Pertaining to Structures at Sea, etc. (Act No. 34) was enacted in 2007 alongside with the Basic Act on Ocean Policy (Act No. 33), for the exploitation and prospecting of gas fields in the EEZ.

⁴⁶ Ministry of Economy, Trade, and Industry, *Hompo ni okeru Shigen Kaihatsu no Arikata ni kansuru Kentokai Torimatome* [Summary of the Study Group on the Approach to Resource Development in Japan] (FEB. 2017), Available at https://www.meti.go.jp/report/whitepaper/data/pdf/20172028002_01.pdf, at 2-4. (30 JULY 2020).

⁴⁷ To understand the morphology of sedimentary basins and the properties of their geological structures, airborne magnetic exploration and gravity exploration are carried out, the resulting exploration value is recognized, and a reconnaissance survey and detailed survey on the geological structure are undertaken. To realize these, seismic reflection survey continues to be carried out. Tadayoshi SASAKI *et. al.*, KAIYO KAIHATSU JITEN [OCEAN DEVELOPMENT ENCYCLOPEDIA] (Tokyo Keizai Inc., 1971) 348. Mamoru INAMOTO, Tatsuya NAKADA and Tetsuro TSURU, *Kaitai Kobutsu Shigen Kaihatsu wo Meguru Kokuasaiho to Kokunaiho: Sono Genjyo to Kongo no Kadai* [International Laws and Domestic Laws on Seabed Mineral Resource Development: Current Situation and Future Challenges], 16 J. TOKYO UNIV. MARINE SCI. & TECH., 29-30 (2020).

cobalt ores existing on and under the sea floor,” as set out in Article 17 of the Basic Act on Ocean Policy (2007). By chance, Neptune Minerals Japan, the Japanese subsidiary of Neptune Minerals Plc. mentioned at the start of this paper, announced that it had submitted an application for mining areas in 122 locations of nine EEZ sea areas of Japan on 22 February in the same year, and an additional application for a further 405 locations on 15 May 2008.⁴⁸ In part to respond to this application, the Mining Act was revised (22 July 2011) for the first time in about 60 years since the enactment of the former Mining Act, including the four issues described above; this revised Act came into force on 21 January in the following year. With the aim of including seabed mineral resources within the applicable scope of this Act, which it had not been included before, the revised Act designated “Minerals which are oils, combustible natural gases, and other Minerals important for the national economy and which are specified by Cabinet Order as Minerals whose reasonable development is particularly necessary” as “specified minerals” (Article 6 of the revised Mining Act). On top of that, with the aim of regulating applications from “paper companies,” it stipulated that applicants have to fulfill the criteria of having “a sufficient financial foundation and technical capability sufficient to properly carry out reasonable development of Minerals” (Article 29 of the revised Mining Act). Next, it abolished the first-to-file system for the exploitation of specified minerals, designated the areas where mineral deposits are present or may be present as “specified zones,” and made it possible for the Minister of Economy, Trade and Industry to select, from among the applicants, the entity that is able to engage in development activities in the most appropriate manner (Paragraph 1 of Article 38 of the revised Mining Act). Furthermore, with regard to activities by foreign research vessels that do not have mining rights, exploration that is not accompanied by the mining of minerals, would also be subjected to an approval system. Thus, through the revised Mining Act, it became possible for the state to control, at its discretion, the granting of approval for the mining area in question, as long as it deems the mining area to be of value. Moreover, it became possible for the Minister of Economy, Trade and Industry to request reports on the exploration results, as well as conduct on-site inspections for foreign vessels engaged in exploration activities (Paragraph 2, Article 144 of the revised Mining Act).

From this perspective, the revised Mining Act was revised mainly in the respect of a state’s rights and cannot be considered to have given full consideration to international obligations to protect and preserve the marine environment for seabed mineral resources (Articles 192, 193 and 145 (b), etc. of UNCLOS). In this respect, we should recall that Article 2 of the Basic Plan on Ocean Policy clearly states, “allowing for the sustainable development and use of the oceans with conservation of marine environment.” The same applies for (2) and (3) in the following section. As the revised Mining Act is applicable up to the limits of continental shelves, it also includes provisions that require the acceptance of domestic laws, such as the provision in UNCLOS on the obligation to equitably distribute revenue generated from the exploitation of extended continental shelves (Article 82). Furthermore, there is also the possibility of the theory that the protection of the marine environment can be derived from the interpretation of the revised Mining Act, or the idea that it is ultimately possible to secure such obligation by establishing it, through ministerial ordinance, as a criterion for approving an application. However, as explained later in (3) of the following section, establishing domestic laws that facilitate compliance with the contents of regulations formulated by ISA will become necessary, to a certain extent, not only for the deep seabed, but also for the EEZ seabed. This is because the more detailed the rules are for the protection and preservation of the marine environment, the more likely it will be that coastal states will be called on to be accountable for not introducing environmental standards that diverge from ISA rules into domestic laws. This point will be discussed in detail in a separate paper.

(2) Mine Safety Act

Like the Mining Act, the Mine Safety Act is also aimed at preventing harm to miners as well as preventing mining pollution, and at realizing reasonable development of mining resources (Article 1). Based on this purpose, it states that in mines, miners must comply with the necessary matters for preventing harm to people and preserving the facilities in mines, corresponding with the measures taken by mining rights holders, and in accordance with stipulations prescribed by the Ordinance of the Ministry of Economy, Trade and Industry (Article 9). On top of that, it also prescribes that the Minister of Economy, Trade and Industry may order mining rights holders to suspend mining operations when it is necessary to do so for safety reasons, in cases where the operation of mining

⁴⁸ Ocean Mining Industry Promotion Roundtable Secretariat, *Kaiyo Kobutsu Shigen Kaihatsu no Ayumi [The History of Marine Mineral Resource Development]*, KAIYO SHIGEN/SANGYO RAUNDOTEURU 10 NEN SHI 2009 – 2019: KAIYO KOBUTSU SHIGEN KAIHATSU NO AYUMI [10-YEAR HISTORY OF THE OCEAN MINING INDUSTRY PROMOTION ROUNDTABLE 2009-2019: HISTORY OF MARINE MINERAL RESOURCE DEVELOPMENT] (2019) 46.

activities causes harm or mining pollution, damage mineral resources or facilities, or where there are grave concerns of these risks (Article 34). However, the meaning of “safety” in the Mine Safety Act ultimately includes the prevention of harm to the people involved in the mining of minerals, the protection of mineral resources, the preservation of facilities, and the prevention of mining pollution (Articles 5, 37), and it is questionable if the “prevention of mining pollution” prescribed here can be interpreted as including harm or damage to seabed ecosystems. This is because the purpose of the Mine Safety Act is ultimately to protect human life, body, and property, and was established primarily to regulate acts that may cause danger to life.⁴⁹ In this regard, it has been mentioned that the mining rights holder must make compensation for damage when such damage is incurred, and that the so-called “liability without fault” is prescribed (Article 109 of the Mining Act, Article 60 of the Mine Safety Act). With respect to this, it is highly unlikely that the Mine Safety Act makes assumptions for adverse impacts on seabed ecosystems, which the party paying the compensation for damages does not have *locus standi* (benefit of suit) for. Therefore, the “liability without fault” provisions that are present in the Mine Safety Act, and the absence of provisions for addressing damage to seabed ecosystems, are completely different matters.

(3) Act on Interim Measures for Deep Seabed Mining

The States that undertook the establishment of legislation to be applied as provisional measures before UNCLOS entered into force were the United States (1980), West Germany (1980), United Kingdom (1981), France (1981), Japan (1982), Russia (1982), and Italy (1985). The essence of these measures was, firstly, to establish mining areas on which countries could make mutual claims to external parties, when pioneer investors make adjustments to international mining areas based on the PIP resolution. In this regard, it is important that Paragraph 3, Article 7 of the Implementing Agreement prescribed, “Provisional application shall terminate upon the date of entry into force of this Agreement. In any event, provisional application shall terminate on 16 November 1998 if at that date the requirement in Article 6 (1) of consent to be bound by this Agreement by at least seven of the States (of which at least five must be developed States) referred to in paragraph 1 (a) of resolution II has not been fulfilled.” Japan is also included in Resolution II 1 (a).⁵⁰

With regard to the contents of the Act on Interim Measures, articles that are based on the Mining Act can be found in many parts of the Act. However, as the deep seabed is an area of the sea that lies beyond the jurisdiction of any State, it would be difficult, logically, to apply *mutatis mutandis* the Mining Act, which is applicable to territories under the jurisdiction of the State, to the deep seabed beyond the boundaries of the continental shelf. For example, Article 4 of the Act on Interim Measures prescribes that those who wish to engage in deep-seabed mining must define the areas of exploration or exploitation and obtain the approval of the Minister of Economy, Trade and Industry. However, now that UNCLOS has entered into force, the said areas are considered the “common heritage of mankind,” and mining rights for deep seabed areas that are not subject to the jurisdiction of any country can only be granted through domestic laws. In other words, it is necessary to remember that deep-seabed activities can only be made possible through a contract with the ISA. Of course, that includes compliance with the regulations formulated by the ISA. Furthermore, Paragraphs 1 and 5 of Article 27 of the Act on Interim Measures state that in cases where damage is caused to others through the discharge of wastewater, deposition of debris or slag, or emission of metallurgical smoke as a result of deep-seabed mining activities, the operator of the deep-seabed mining activities in question at the time of the occurrence of the damage will be responsible for providing compensation for that damage.

The Mining Act is applicable *mutatis mutandis* for the compensation of the damage; however, in this provision,

⁴⁹ Itaru SONODA, *Fuho Koi ni okeru Iho to Sekinin ni kansuru Shiron (2): Kashitsu to Iho [Essay on Illegality and Responsibility in Unlawful Acts (2): Negligence and Illegality]*, KEIEI TO KEIZAI [38 MANAGEMENT & ECONOMICS, 15-16 (1959). With regard to this point, it would probably not be futile to present the minority views presented in the U.S. Supreme Court Case (Sierra Club vs. Morton, 1972). In this case, the Walt Disney Company proposed to develop a large-scale ski resort at Mineral King Valley, which lies within a wildlife sanctuary in a national forest, surrounded by the Sequoia National Forest in the Sierra Nevada Mountains of southern California. In response, the nature preservation organization, Sierra Club, which strives to protect the environment in the Mineral King area, claimed that the decision by Secretary of the Interior Morton to grant the development permit was illegal, and sought to declare this permission illegal as well as to suspend the implementation of the development project. The Supreme Court (19 APR. 1972) rejected the appeal by the Sierra Club. Here, I would like to focus on the views of Justice William O. Douglas (1898-1980) although these views are in the minority. According to Justice Douglas, the current public interest in protecting the ecological balance of nature should move in the direction toward granting the parties concerned the eligibility to institute legal proceedings for the self-preservation of natural objects in various environments. He mentioned the following paper in presenting the dissenting opinion. Christopher Stone, *Should Trees Have Standing?: Towards Legal Rights for Natural Objects*, 45 SOUTH. CALIF. L. REV. 450, 450-501 (1972). During this time, his logic came under considerable criticism, but how should we evaluate it in current times?

⁵⁰ Supervised by the Law of the Sea Division, Economic Bureau of the Ministry of Foreign Affairs, and The Marine Association of Japan, UNITED NATIONS CONVENTION ON THE LAW OF THE SEA (Translation) (Seibundoh, 1997) 398-401.

the requirements for exemptions under Article 139 of UNCLOS (measures taken by the State to clearly stipulate ISA's regulations in its domestic laws) cannot stand. This is because, firstly, limitations are imposed by use of the wording "in Japan." Hence, it is implicitly presumed that no damage to the marine ecosystem is expected to arise accidentally when carrying out seabed mining activities. The second reason is because "transparency" has been included as one of the basic principles of the CCZ-EMP adopted on 13 July 2011, by the LTC.⁵¹ The interpretation of this is that laws related to deep-seabed activities are also required to take the form of an explicit code and standard for the international community. In any case, as this law is no more than an interim law that was presumed to be effective only until UNCLOS enters into force and international rules related to the deep seabed are accepted by the international community, there is a need for Japan to undertake drastic revisions of the existing laws in order to establish new legislation to regulate deep-seabed activities.⁵² In this respect, the Ministry of Economy, Trade, and Industry has formulated the Plan for the Development of Marine Energy and Mineral Resources (March 2009, December 2013, and February 2019⁵³) in response to the Basic Plan on Ocean Policy that has been formulated three times to date (the third version was approved by the Cabinet on 15 May 2018). This plan states clearly that consideration is given to the trends of regulations formulated by the ISA and others. The problem lies with the form in which these points of consideration are presented. For example, in light of the fact that a ministerial ordinance follows the subordinate legal norms of Constitution>Treaty>Law and ordinance, even in consideration of the relationship with the revised Mining Act, the revised Act on Interim Measures of June 2014 (Act No. 69) and the revised Mine Safety Act of March 2018 (Ordinance of the Ministry of Economy, Trade and Industry No. 9) are inadequate. In addition, Ministerial Ordinance would not be subject to the deliberations of the National Diet, unlike laws. Consequently, there is no way to confirm whether the Ordinance is certainly determined on the ideal and/or philosophy of the Convention. On the contrary, in some cases, the general words in the Ordinance could even admit of widespread interpretations of the competent authority. In other words, *inter alia*, the related national laws concerning the Area need to be in conformity with the regulations under ISA in order to be objectively and transparently accountable to the benefit of mankind in a form that the international community can visibly understand as far as possible⁵⁴; Japan cannot avoid taking the legislative measure of establishing a Deep Seabed Mining Act that incorporates not only UNCLOS Article 139, but also the series of regulations formulated by ISA toward the adoption of the Exploitation Regulations.

Currently, the number of registered sponsoring states that have concluded exploration contracts with ISA stands at 20. These include contracts with Nauru, the Cook Islands, Tonga, and Kiribati for manganese nodules at a water depth of 4,500m. The United Kingdom has also acquired 2 mining areas, while China has acquired five mining areas. Once a mining area has been acquired, the state will have to pay US\$60,000 to ISA even if it does not engage in any activities,⁵⁵ in accordance with Section 10.5 of Annex IV "Standard clauses for exploration contract" of the Exploitation Regulations. Here, the requirement is to create a path toward achieving exploitation in 15 years'

⁵¹ ISBA/17/LTC/7. I.C. Guiding principles, 13 (f) Transparency. The Authority shall enable public participation in environmental decision-making procedures in accordance with the Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters, 1998, and its own rules and procedures. This is the document adopted by LTC at the 17th ISA session (13 July 2011).

⁵² INAMOTO *et al. supra* note (47), at 30-31.

⁵³ Agency for Natural Resources and Energy, Ministry of Economy, Trade and Industry, *supra* note (10), at 8-9, 11. It states that steady efforts have been made to date in the development of seafloor hydrothermal polymetallic ore, such as the valuation of resource quantity and discovery of multiple new ore deposits, the development of mining and lifting technology primarily for pilot mining and lifting tests in the actual sea areas, which was a world's first in FY2017, the development of ore selection and metallurgical processes, and the implementation of environmental impact assessments and establishment of evaluation methods. On the other hand, to launch projects aimed at commercialization and the involvement of private-sector companies, many issues remain, including technical and economic aspects. As such, while continuing to take into consideration various conditions such as economic trends and establishment of legal systems, there is a need to work on resolving issues from a medium- to long-term perspective. On the other hand, under existing domestic laws, there are no provisions that position the prior impact assessment for the environment regarding marine mineral resource development in the EEZ. As ISA advances discussions on the rules for development, including environmental impact assessments, there is a need to ensure consistency with the relevant international treaties when reviewing domestic laws and regulations. Refer to p.146 (4) in the same document.

⁵⁴ For this problem, see e.g., an essay which makes more understandable the background of legal circumstances at that time; Hidehiro KIKUCHI, *Deep Ocean Resources Development under the United Nations Convention on the Law of the Sea*, 17 J. Japan Society of Energy & Resources 35, 35-40 (1996). He was an executive staff member of the Secretariat of Director-General of the Agency for Natural Resources and Energy, General Affairs Division Marine Development Office as of 5 January 1996.

⁵⁵ According to the provisional translation by the Ocean Mining Industry Promotion Roundtable (in cooperation with JOGMEC's Metals Technology Department), the contractor must pay an annual expenditure of US\$47,000 on the submission of the annual report (or the total amount that can be determined in accordance with 10.6 of the contract), in order to cover ISA's expenses related to the review of the report that is submitted in accordance with 10.1 of the contract, as well as the management and supervision of the contract. However, Section 10.6 prescribes that ISA can review the amount of the annual expenditure to reflect the actual and reasonable cost that was borne. Under the same item, it was decided that the annual expenditure prescribed in 10.5 of the standard clause of the exploration contract shall be increased from \$47,000 to \$60,000 from 1 JAN. 2019, based on item 8. Of the ISA Assembly Resolution (24th session, 26 July 2018) titled "Decision of the Assembly of the International Seabed Authority relating to the budget of the Authority for the financial period 2019–2020," ISBA/24/A/11.

time. As exploration encompasses processes extending to the mining test, it is vital to fulfill the technical requirements for exploitation. To fulfill these requirements, the first pressing task is to develop ore collecting machines that can minimize the adverse effect on the marine environment. This is because while the review criteria when evaluating a mining system can be higher than the current criteria, it will never fall below the current criteria. It is also vital to develop a lifting tube that can convert seabed minerals into slurry (a mushy, porridge-like state, comprising a mixture of liquids, solid particles, and suspension) and suck it up onto a ship, while minimizing the adverse impact on water columns. ISA is also working to address this problem, but the domestic legal system pertaining to the processing of lifted seawater and ore should be reviewed as soon as possible.⁵⁶

On the other hand, with regard to the mining of submarine hydrothermal polymetallic ore, exploration and exploitation of polymetallic sulphides in the Izena Hole, located approximately 54 nautical miles (about 100km) offshore northwest from Okinawa Island, is also accompanied by the stirring up of arsenic and mercury. Hence, there is also a need to develop technology that can minimize this occurrence.⁵⁷ Moreover, in cases where there is competition between fisheries (not fishing rights) and mining rights, there is also a need to formulate guidelines on the procedures for compensating fisheries⁵⁸ and how to secure transparency of the standards for calculating the amount of compensation in question.⁵⁹ With regard to this issue, draft clauses that clarify the procedures and rules for compensating fisheries have previously been included in a plan on exercising sovereign rights and other rights on the exploration of natural resources and scientific research in the oceans in EEZs and other waters, which was under review by the Democratic Party of Japan (deliberations by the House of Representatives conducted on 27 October 2005⁶⁰), and in the bill on the new law aimed at the management of Japan's EEZ and the strengthening of interests, prepared by a working group of the Liberal Democratic Party (distributed on 2 January 2016). Thereafter, there was also a period of discussion on a more in-depth draft in the draft outline of the plan on securing Japan's interests relating to exclusive economic zones and continental shelves (distributed on 28 April 2016), prepared by the Special Committee on Space and Ocean Development of the Liberal Democratic Party, which stated that permission may not be granted in cases where the plans for marine science research have a direct impact on the exploration and exploitation of natural resources, or where they are accompanied by the digging of continental shelves (Paragraphs 1, 2 of 4.4 of the outline). After that, however, there is no evidence that any discussions have been held concerning compensating fisheries and marine scientific research.⁶¹

With regard to the use of the ocean, to date there have been no official rules and official spaces for consultation between business operators and those concerned with the fishery industry. In this respect, while limited to territorial waters, I wish to focus attention on the enactment of the Act on Promoting the Utilization of Sea Areas for the Development of Marine Renewable Energy Power Generation Facilities (enacted on 30 November 2018, promulgated on 7 December in the same year, and enforced on 1 April 2019), with a view to promoting the utilization of sea areas for the development of marine renewable energy power generation facilities *while ensuring harmony with measures related to the oceans*, as set out in the Basic Act on Ocean Policy, in consideration of the importance of the long-term, stable, and efficient implementation of marine renewable energy power generation facilities (Article 1). (emphasis added) Based on this objective, the competent minister and head of the relevant local government shall organize a council to engage in the necessary consultations on the implementation of

⁵⁶ See e.g., Agency for Natural Resources and Energy, Ministry of Economy, Trade and Industry, *supra* note (10), at 144-145.

⁵⁷ With regard to polymetallic sulphides, the administration cannot participate as a contractor if it does not reach the level of 5,000t or higher. "Plan for the Development of Marine Energy and Mineral Resources" (FEB. 2019), at 33.

⁵⁸ Already in 1974, it was stated that in order to promote the smooth, multifaceted use of Japan's coastal waters, alongside establishing *certain reasonable standards* for compensating fisheries, it is also necessary to find new development methods that can enable the fishery industry and urban industries to coexist with a mutually organic relationship (emphasis added). Ministry of International Trade and Industry, Ocean Development Industry Study Group ed., KAIYO SANGYO E NO TO—SONO GENJYO TO TENBO [THE WAY TO THE MARINE INDUSTRY—CURRENT SITUATION AND OUTLOOK], Research Institute of Economy, Trade and Industry, at 5. Even now, when seabed resources enter the exploitation phase, discussions on a certain reasonable standard were carried out intermittently in the relationship with fishery compensation carried out in offshore waters. The following literature is a useful reference for sea areas where the mining and fishery industries overlap (such as large-scale roundhaul fishery or tuna longline fishing). Agency for Natural Resources and Energy, Ministry of Economy, Trade and Industry, *supra* note (10), at 146-151.

⁵⁹ In this regard, UNCLOS Article 133 (a) defines "resources" as "all solid, liquid or gaseous mineral resources in situ in the Area at or beneath the seabed, including polymetallic nodules." Hence, methane hydrate is also included in this definition. When mining for resources from the seabed, discussions are held on environmental impact and compensation for fishery operators through negotiations with fisheries and other means. However, with regard to this, it would mean paying fisheries for the price of mining for resource extraction. For details, refer to Chiharu AOYAMA, KAGAKUSHA NO HANASHITTE NANTE OMOSHIROIN DARO: METAN HAIDORETO NO TAIRON KAIJO E YOKOSO [HOW INTERESTING SCIENTISTS' DISCUSSIONS ARE: WELCOME TO A DISCUSSION ON METHANE HYDRATE] (Wani Books, APR. 2017), at 178, 362, and 365.

⁶⁰ Available at http://www.shugiin.go.jp/Internet/itdb_gian.nsf/html/gian/keika/1D9B9BA.htm (30 JULY 2020).

⁶¹ Social Science Reference Editorial Committee (Representative: Tomoko KAKEE, Tatsuya NAKADA), TOWARD THE DEVELOPMENT OF SEABED MINERALS THAT GIVE CONSIDERATION TO THE PRESERVATION OF THE MARINE ENVIRONMENT: TRENDS IN LEGAL SYSTEMS AND SOCIAL MECHANISMS (Japan Agency for Marine-Earth Science and Technology, 31 JULY 2018, at .31-32).

projects (Article 9), with the view that it is vital for the state, the relevant local governments, business operators, and other stakeholders to cooperate closely (Article 3). It is important for the relevant fishery organizations and other stakeholders to be included in this council (Paragraph 2.3 of Article 9). There are apparently major electric power companies that have said that this has facilitated the formulation of long-term plans and procurement of investment funds, and removed the barriers to commercialization.⁶² Inspired by this format, it would probably also be useful for the revised Mining Act to establish specific standards for the calculation of compensation amounts for fisheries in the case of mining outside territorial waters, through “open” councils that include the Minister of Economy, Trade and Industry, the Fisheries Agency, the Ministry of the Environment, mining rights holders, and fishery organizations and other stakeholders.

There is a point that I wish to put especial emphasis on here. In the ODECO Nihon, S.A. (a Panama corporation) incident (trial concluded in the local district court in 1982 and the high court in 1984⁶³), a theory was developed, based on the principle of natural prolongation⁶⁴ for continental shelves as mentioned in the *North Sea Continental Shelf Cases*, that the Mining Act is applicable to continental shelves as a form of the exercise of sovereign rights, in the absence of an explicit state declaration *ipso facto* and *ab initio* (by the fact and from the beginning). Today, however, more than a quarter of a century after UNCLOS entered into force, continental shelves are subsumed as a part of the EEZ with regard to water columns and seabeds up to the EEZ, while seabeds beyond the EEZ are treated as extended continental shelves. Consequently, in the two seabed areas that coastal countries have jurisdiction over, continental shelves are covered by two legal aspects of matters that are subjected to the same regulations, and those that are subjected to different regulations. This is fully described by Professor Shujuan Xu’s expression of a “shift from a perspective of ‘title’ to a perspective of ‘granting of title’.”⁶⁵ Based on this perspective, and given that the Mining Act follows the provisions set out in UNCLOS, it would be possible to require a scenario where different regulations are applied depending on the classification of the sea area, and where environmental impact assessments (Articles 192, 193 and 206, etc.) are applied to both seabeds—at least, based upon the advisory opinion of the Seabed Disputes Chamber (2011).

(4) Japan’s National Interests in the CCZ

After the Pardo Declaration, it is said that the CCZ, positioned off the southeast coast of Hawaii in the Pacific Ocean, generally tends to have minerals of a richer quality the farther east one goes. The mining areas acquired by Japan are areas with a moderate level of quality within the whole of the CCZ. The baseline for putting these mining areas into development on a commercial basis, is said to be about 200 to 300 tons per year.

Currently, both of the contractors, DORD and JOGMEC, are at present concentrating on the development of a mining system that is compliant with the Exploration Regulations, Guidance, and other rules. The business purpose of DORD is primarily to develop and sell manganese nodules. For this reason, DORD is developing its business with a focus on the development of production technology. On the other hand, the purposes of JOGMEC, according to Article 3 of the Act on Japan Oil, Gas and Metals National Corporation (JOGMEC Act), are to “supply the necessary funds for exploration, etc. for [...] metallic minerals and conduct such other operations as may be necessary for promoting the development of [...] metallic mineral resources [...] thereby contributing to the stable supply at lower prices of [...] metallic and other mineral products, and to loan such funds and conduct such other operations as may be necessary for controlling mine pollution caused by metal mining and other related industries, thereby contributing to the [...] sound development of metal mining and other related industries.” Thereafter, additional business operations were added to the revised JOGMEC Act (deliberated at the 201st ordinary Diet session (from January to June 2020), enacted on 5 June, and promulgated and enforced on 12 June). The addition of business operations, such as providing the loan of funds and debt guarantee to prevent mine pollution, is based on the foundation of support from the private sector (transfer of mining areas) (Paragraphs 1.1, 1.4, 1.7, 1.14, and 2.2 of Article 11, Article 12(2), and Article 15). In light of these circumstances, we should recognize that

⁶² Koichi KURANUKI, *Kaisetsu: Yojo Furryoku: Awanami ni Idomu, Zenkoku Akasho Jigyosha Sentei e* [Opinion: Offshore Wind Power - Tackling the Challenge of Raging Waves, toward the Selection of Four Operators Across Japan] Yomiuri Shimbun, 16 SEP. 16, 2020 (Wednesday).

⁶³ Refer to Judgement of the first hearing, 22 APRIL 1982, Tokyo District Court, Petition for reversal of taxation for corporation tax, etc., 1978 (Gyo-U) 116, Hanreijiho No. 1040, GYOSEI JIKEN SAIBAN REISHU, Vol. 33 No. 4. Judgement of the second hearing, 14 MAR. 1984, Tokyo High Court, Appeal for reversal of taxation for corporation tax, etc., 1982 (Gyo-Ko) 43, Soshō Geppo Vol. 30 No. 8, GYOSEI JIKEN SAIBAN REISHU, Vol. 35 No. 3.

⁶⁴ ICJ REPORTS (20 FEB. 1969), *North Sea Continental Shelf Cases* (Federal Republic of Germany / Denmark; Federal Republic of Germany / Netherlands), paras. 19, 39, 40, 43, 44, 85 (c), 10(C)(1).

⁶⁵ Shigeki SAKAMOTO, [Shokai] Yuji IWASAWA, Koichi MORIKAWA, Tadashi MORI, Yumi NISHIMURA eds., *Kokusaiho no Dainamizumu: Kotera Akira Sensei Tsuito Ronbunshu* [The Dynamism of International Law: Collection of Papers in Memory of Akira KOTERA], 119 J. INT’L & DIPL. (2020), at 147.

contractors incur the greatest expenditure on the metallurgy process (including ore selection), and that the hurdles to establishing new ore selection and metallurgy facilities in Japan are considerably high due to various factors.⁶⁶

Finally, I will take some ideas from comments made by Mr. Keiichi HAYASHI (then Director of the Treaties Bureau of the Ministry of Foreign Affairs) at a symposium on how legislation should respond to changes in the international community (2003). He said that Japan takes a strict approach to domestic laws when it subscribes to a treaty, and that it adopts a policy of not entering into a treaty without establishing legislation that can ensure firm domestic compliance to the treaty.⁶⁷ In this respect, as UNCLOS was adopted as a “package deal,” Japan’s response prior to ratification was not adequate in certain fields for some parts of the convention. This is highly implicative of the dramatic changes that UNCLOS brought to the International Law of the Sea. Furthermore, with the heightened sense of *opinio juris* on the protection and preservation of the marine environment and the sustainable development of the oceans as we move toward “Rio + 30,” which will be convened in 2022, there may also be cases where that is accompanied by substantive procedural regulations, such as the environmental subcommittee of the TPP and the Joint Dialogue with Civil Society under the EU-Japan Economic Partnership Agreement. Hence, there is a need to continue paying comprehensive attention to the dynamics of the International Law of the Sea.

If we were to consider Japan’s national interests, there are several areas that are in need of legislative measures that give full consideration to the principles of UNCLOS. The fundamental revision of the Act on Interim Measures for Deep Seabed Mining is symbolic of that. ISA’s annual activity expenditures are approximately 1 billion yen, and Japan contributes about 100 million yen to that amount.⁶⁸ For Japan, establishing domestic laws based on the principles of the deep-seabed system is likely to be of great importance in respect to the relationship with the ocean in the Mining Act and the Mine Safety Act. Japan’s deep seabed administration was originally undertaken as it looked to the countries of the West; however, countries in Asia have been enacting deep seabed laws recently. In the next paper, I shall examine representative examples of these in East Asia.

4. Concluding Remarks

For the reasons set out in this paper, we are likely to be still some ways off from the commercial development of reserved mining areas that involve enterprises. A quarter of a century has elapsed since UNCLOS entered into force. Over this period of time, we have reached the conclusion that, if we are to engage in the sustainable development of seafloors while preventing damage to the marine environment as far as possible by gaining knowledge of the seabed that had not been available before, we cannot avoid taking the step of revising Japan’s interim measures law while taking a broad view of the latest rules formulated by the ISA, with regard to what legal foundation is necessary to that end. To begin with, the basic value for the deep seabed is the principle of “common heritage of mankind,” and not the principle of freedom of the seas. I have presented a minimal perspective on the ripple effects, which the implementation of legislative measures derived from this basic principle would have on other related laws and regulations. This is also set out in detail in the report on the SIP (Cross-ministerial Strategic Innovation Promotion Program), *Toward the Development of Seabed Resources that Give Consideration to the Preservation of the Marine Environment*⁶⁹ (2018).⁷⁰ Even so, I would venture to emphasize that renowned international scholars have, for a long time, already said everything there is to say about the fundamental revision to Japan’s Act on Interim Measures.⁷¹

States around the world are now in competition to produce ore lifting pumps, and we have observed the need for legal systems for the processing of leakages sucked up by the slurry pipe, that is, the suspension. Moreover, it

⁶⁶ Hearing from Nobuyuki OKAMOTO in an interview with the author, 22 JAN. 2020 (Wednesday), at JOGMEC Toranomon Twin Building, 15F Conference Room.

⁶⁷ 177 GAIKO FORUM, 17 (2003). Akira KOTERA (Professor, University of Tokyo), Chusei YAMADA (member of the UN International Law Commission), [Moderator] Aiko DODEN (NHK Announcement Room), Symposium by Keiichi HAYASHI.

⁶⁸ OKAMOTO, *supra* note (66).

⁶⁹ Available at <https://www.jamstec.go.jp/sip/pdf/resultList201807.pdf> (30 JULY 2020).

⁷⁰ Social Science Reference Editorial Committee, *supra* note (61), at 8-33.

⁷¹ Naoya KAWANISHI, *Shinkaitei Kobutsu Shigen Kaihatsu to Kokusai Kyoryoku [Deep Seabed Mineral Resource Development and International Cooperation]*, in SHINKAIYOHU TO KOKUNAIHO NO TAIYO 2 GO [THE NEW LAW OF THE SEA AND THE CORRESPONDING DOMESTIC LAW, No.2] (1987), at 161-180; Soji YAMAMOTO, KAIYOHU TO KOKUNAIHOSEI [LAW OF THE SEA AND DOMESTIC LEGAL SYSTEMS] (The Oceanographic Society of Japan, 1988). Soji YAMAMOTO, KAIYOHU [LAW OF THE SEA] (Sanseido, 1992) 224; Soji YAMAMOTO, *Shinkaitei Kogyo Kokunaiho no Zanteisei [The Temporary Character of Domestic Laws for Deep Seabed Mining]*, in COMPARATIVE RESEARCH OF DOMESTIC LEGAL SYSTEMS FOR LAW OF THE SEA No. 1 (1995), at 133-150. Akio MORITA, *Kaiyoho [Law of the Sea]* in Akira KOTERA, Yuji IWASAWA and Akio MORITA eds., KOGI KOKUSAIHO [INTERNATIONAL LAW LECTURES] CHAP. 10 (Yuhikaku Publishing, 2004), at 272.

has been confirmed in Japan that legal systems for deep-seabed activities are not adequate for the three aspects of seabed, water columns, and sea surfaces. This means that there is a need for legal systems for water column pollution, as well as a need for legal systems that extend beyond the impact⁷² that exploitation projects have traditionally been criticized as having on ecosystems, when the powdery sediments on the seabed, stirred up by such exploitation activities, spread polluted seawater across an extensive area of the sea through ocean currents. Furthermore, the Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter (London Convention, 1972) states in Paragraph 1(c) of Article 3 that “The disposal of wastes or other matter directly arising from, or related to the exploration, exploitation and associated off-shore processing of sea-bed mineral resources will not be covered by the provisions of this Convention.” However, in order to regulate the (potential) marine pollution in the aforementioned three aspects, this exemption may also be reconsidered. That is the manifestation of the legal system.

Apart from these, the Fifth Basic Environment Plan (2018) based on the Basic Environment Act (1993) clearly sets out cooperation between the state, local governments, and other entities on environmental impact assessments. It also sets out provisions on putting effort into gathering information on strategic environmental assessments for the appropriate incorporation of environmental considerations into the formulation of higher-level policies and plans, from the phase of reviews on matters such as the positioning and scale of the business, as well as information on projects that are excluded from the scope of the revised Environmental Impact Assessment Act (2011), and, where necessary, reviewing policies for promoting environmental considerations in the planning and implementation of projects (Part 2, Chapter 3.5⁷³). With regard to environmental impact assessments based on local government ordinance, in a report on its stance on the preparation and publication of reports on environmental impact assessments, published in March 2017, the Ministry of the Environment confirmed that, as part of the coordination with state systems, state systems would be applicable to 13 projects and port plans that are subjected to the Environmental Impact Assessment Act. With regard to projects that are not subject to Article 61 of the revised Environmental Impact Assessment Act, it is worth noting that local governments may prescribe environmental impact assessment procedures. This suggests that it may be possible to take a first step toward the enactment of laws concerning non-marine biological resources in territorial seas over which the jurisdiction of local governments generally extends.⁷⁴

Article 8 of the Basic Act on Ocean Policy states, “The State shall be responsible for comprehensively and systematically formulating and implementing measures with regard to the oceans, in conformity with the basic principle [...]” This provision implies that ocean policy is not solely a domestic matter but should instead be promoted based on the legal and policy frameworks for oceans that have been developed by the international community.⁷⁵ Article 17 of this Act states that the State shall promote the development and use of mineral resources such as manganese ores and cobalt ores, the development of systems to that end, as well as other necessary measures. When putting in place these measures, there is a need to strengthen initiatives related to the “development, use and preservation” of EEZ and continental shelves, set out in Paragraph 1 of Article 1 of the Law on the Exclusive Economic Zone and the Continental Shelf; this is touched on in Article 19 of the Basic Act on Ocean Policy. This signifies that there is a need to implement measures that are related not only to development, but that also include use and preservation.⁷⁶ As for the standard for these measures, regulations that make reference to the regulations formulated by ISA, which we have looked at in detail in this paper, would be desirable. The reasons for this will be detailed in a separate paper.

2022 is the year for the extension of the exploration contract for manganese nodules between DORD and ISA. As DORD’s projects are based on the exploration contract with ISA, it goes without saying that it is an initiative with international significance. Revising the Act on Interim Measures is unavoidable from the perspective of the

⁷² Naoya OKUWAKI, *Kokusaiho kara mita Kokunaiho Seibi no Kadai [Issues of Domestic Law Development from the Perspective of International Law]* in Soji YAMAMOTO ed., *KAIJO HOAN HOSEI: KAIYOHU TO KOKUNAIHO NO KOSAKU* (Sanseido, 2009) 438.

⁷³ Available at https://www.env.go.jp/policy/kihon_keikaku/plan/plan_5/attach/ca_app.pdf (30 JULY 2020).

⁷⁴ With regard to the international trends in environmental impact assessment that can facilitate this, Yoshihisa SHIRAYAMA of JAMSTEC, who has been disseminating information internationally for a long time, points out that there is a correlation between discussion of the ocean in the *Basic Environment Plan* and awareness of the marine environment among the international community. Yoshihisa SHIRAYAMA, *Kaiyo Kihonho to Kankyo Kihonho: Kaiyo no Kankyo Hozon no Arikata [Basic Act on Ocean Policy and Basic Environment Act: Approach to the Preservation of the Marine Environment]* in 70 JAPANESE J. ECOL. (2020), at 147-150.

⁷⁵ TERASHIMA, *supra* note (45), at 112.

⁷⁶ *Id.*, at 122-123. To be sure, the provisions set out in the Basic Plan on Ocean Policy (MAR. 2008), Second Basic Plan on Ocean Policy (APR. 2013), and Third Basic Plan on Ocean Policy (MAY 2018), place the emphasis on “development.” However, in the context of seabed mineral resources, the expression of “harmony between development and use, and environmental preservation” does not appear. Based on this, we cannot say that the Basic Plan on Ocean Policy accurately reflects the purposes of the Basic Act on Ocean Policy. *Id.*, at 156, 178-179, 194, 198-199, 211 (fn. 28).

trends in the Draft Exploitation Regulations. This is also clear from Action Plan 2020, prepared by the SDGs Promotion Headquarters established under the Cabinet, and approved by the Cabinet on 20 May 2016. Specifically, priority area 6, Conservation of Environment, including Biodiversity, Forests and Oceans, in the SDGs Implementation Guiding Principles, sets out clearly the promotion of research and development through industry-academia collaboration, toward the utilization of marine samples that have been accumulated, as well as technology and products provided, where necessary, by corporations and which have been developed for the effective use of marine biological and mineral resources.⁷⁷ This is in line with the direction and the series of regulations formulated by ISA, including the Draft Exploitation Regulations. We should once again recall that the essence of BBNJ and the laws and regulations in close relation to the ocean in SDG14 are already becoming firmly established and irreversible regulations. Last but not least, I wish to conclude this paper with the contents of the petition to request the strengthening and establishment of mining policies, published in May 2016 by the Japan Mining Industry Association (established in April 1948). This petition explains that while there are reserves of seabed mineral resources in Japan's EEZ and high seas, there is currently insufficient information on the status of those reserves. Moreover, the mining technology for these resources and the technology to address environmental impacts are still in the developmental stages, while corporations are not yet at the stage of commencing resource development. In the future, competition to acquire these seabed mineral resources is expected to intensify. Hence, in order to gain an edge in securing seabed mineral resources, it will be crucial to establish systems for the development of these resources *ahead of other countries*. (Emphasis added)⁷⁸

⁷⁷ Available at <https://www.kantei.go.jp/jp/singi/sdgs/dai8/actionplan2020.pdf> (30 JULY 2020).

⁷⁸ The request sets out the following objectives in "1. Strengthening of Support Measures to Secure Resources," "(5) Continuing with Long-term Initiatives Toward Ocean Mineral Resource Development." In other words, many issues remain with regard to the development of seabed mineral resources, such as capturing the amount of ore reserves, developing exploitation methods, developing environmental measures, and developing laws. Moreover, even in cases where the project actually reaches the exploitation stage, a huge amount of funds is required for exploiting the ore deposits on the deep seabed, and for putting in place environmental measures in the deep seabed; these costs cannot be borne by one company alone. It is vital to have the close involvement of the state in development; for example, the state may engage in mining and lifting and sell the ore to a private company, which then carries out ore selection and processing, and undertakes the tailing process. It calls for the steady implementation of initiatives toward the holistic and systematic development of marine mineral resources from a long-term perspective such as the establishment of laws, including reviews to create the relevant new mechanisms. In its request to establish a mining policy in JULY 2018 (item 2. Strengthening of support measures to secure resources), the association also covers the establishment of laws, implementation of trials, technological development as long-term initiatives toward the marine mineral resource development.