DEEP-OCEAN STEWARDSHIP INITIATIVE
Deep-sea minerals

October 27, 2016

International Seabed Authority
14-20 Port Royal Street
Kingston
Jamaica
(submitted via email to consultation@isa.org.jm)

RE: Working draft – Exploitation regulations (ISBA/Cons/2016/1)

Sir/Madam

Attached, please find a Commentary on the draft Exploitation Regulations issues in July this year.

The commentary is a submission from the Deep-Sea Minerals Working Group of the Deep Ocean Stewardship Initiative. A list of the contributors is presented at the end of the document. Express Consent for sharing is granted.

In addition, we also attach (separately) a paper recently published by members of DOSI: Levin et al. 2016 in Marine Policy. It continues the dialogue on identifying "Serious harm" in the deep ocean.

As Working Group Lead, I am pleased to have the opportunity to present this commentary and commend you on the work in progress.

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Deep Ocean Stewardship Initiative

COMMENTARY ON
"Developing a Regulatory Framework for Mineral Exploitation in the Area"

October 31, 2016

A. PREFACE

The Deep-Ocean Stewardship Initiative integrates science, technology, policy, law and economics to advise on ecosystem-based management of resource use in the deep ocean and strategies to maintain the integrity of deep-ocean ecosystems within and beyond national jurisdictions. DOSI gathers expertise across disciplines, jurisdictions and industrial sectors to foster discussion, provide guidance and facilitate communication. As a distributed network, DOSI has leads in the USA, Mexico and the UK, has 480 members from 40 countries including developing countries, island states and land-locked countries.

DOSI was granted Observer Status at the 22nd Session of the ISA in Jamaica during July 2016.

DOSI is closely affiliated with INDEEP– the International Network for scientific investigations of DEEP-sea ecosystems, and the Consortium for Ocean Leadership (COL), a U.S. based 501(c)(3) non-profit organization representing a unified voice of the ocean science and technology community. INDEEP is composed of many of the deep-sea scientists who participated in the Census of Marine Life, and COL served as the Secretariat for the Census of Marine Life. **Highlights of DOSI activities relevant to deep seabed mining are available in Appendix A.** Further information about DOSI, INDEEP and COL are available at: http://dosi-project.org; http://www.indeep-project.org; and http://oceanleadership.org.

DOSI looks forward to the opportunity to contribute to the work of the Authority and States Parties with the goal of improving the knowledge base.

B. EXPRESS CONSENT

This contribution was formulated from responses to a Call to Comment to the DOSI Working Group on Deep-Sea Minerals. The document was circulated to the DOSI Advisory Board and reviewed/approved by the DOSI Leadership. It is submitted to ISA by DOSI through Prof. Verena Tunnicliffe, Lead for the DOSI Deep-Sea Mining Working Group (verenat@uvic.ca) .

DOSI gives consent to the International Seabed Authority to make this submission publicly available.

C. SUMMARY COMMENTS AND RECOMMENDATIONS

1. DOSI acknowledges the significant work and progress made by the Legal and Technical Commission of the ISA ("The Authority") in the development of the first working draft of the Exploitation Regulations. Further, we express our appreciation for the opportunity to comment upon the draft. In the points below, we outline some general areas that may warrant further attention. In the next section, we briefly address the four questions posed under 'Next Steps', followed by more detailed comments per clause.

2. **Common Heritage of Mankind**: Reference to the Common Heritage and Benefit of Mankind appears but once: in the Preamble. Given the unique legal status of the Area and its resources, we recommend that the regulations reaffirm its centrality through its inclusion in more clauses. For example, regulation 4-2 on p. 15 could reference adherence to the common heritage principle, the section on Royalties could be prefaced with this rationale, and the last sentence of the Preamble could stress the need to adhere to the common heritage principle, including its focus on inter- and intra-generational equity, the sharing of benefits, and environmental protection.

3. **Scope**: The Draft Exploitation Regulations relate to the work of a contracting party. But there is also a need for a higher level of Environmental Assessment and Management, namely at the regional and global levels, that would likely be led by the Authority. We request that the Commission consider whether this framework should reside under Environmental Regulations or in a separate document that provides the basis for the decision-making in an integrated framework at regional to ocean scales. Given the focussed definition for the Regulations presented in Annex VII 1.1.1(b), a larger planning document appears necessary. Another aspect of scope is the need to outline the obligations of the Sponsoring State.

4. **Environmental Regulations**: DOSI supports the development of a detailed set of regulations related to the environment that allows both a clear focus on relevant issues and updates independent of the Exploitation regulations. It could combine all environmental issues within one set of Environmental Regulations, and not in multiple locations. Environmental risk assessment, measurement, monitoring and mitigation should be included together, so they are a coherent package. We do not hold a position on whether the Environmental Regulations should be completely separate or simply a separate Part in a unified regulation. The strength and completeness of the Environmental Regulations concerns us more. Environmental Regulations should, however, be fully integrated into, and made legally binding on, all contractors and sponsoring States through cross references to the Exploitation Regulations (and vice versa) as well as the relevant Strategic Environmental Management Plans, Regional Management Plans and the Seabed Mining Directorate Regulations, assuming a decision is made to keep them all separate.

5. **Authority sponsored research:** To date, both the Exploration Regulations and the draft Exploitation Regulations are silent with respect to the Authority's role in conducting targeted research projects, including establishing regional environmental baselines. Article 143 of the Convention mandates the Authority to carry out marine scientific research itself 'concerning the Area and its resources.' How will this obligation be addressed in the Mining Code? Is there a way to finance such research as part of the fees

for applications for contracts of work? What other mechanisms might be established? It will be important to enable such research to occur prior to exploitation.

D. QUESTIONS POSED UNDER "NEXT STEPS"

Page 7 requests responses to four questions.

(a) Whether the structure and content is sufficiently adequate and clear for the intended purpose and objectives of the regulations?

- The overall structure follows prior documents and is clear.
- The document focuses on contractor instructions and details. Two missing components are Sponsoring State obligations and greater ISA oversight and obligations. Aspects such as transparency, cultural values, and environmental requirements should be applied consistently across all three components.
- Although the draft Regulations require an applicant to have risk assessment and management systems in place, they do not mention such systems for the ISA itself. All agencies (ISA, Sponsoring States, and contractors) are required to apply a precautionary approach and best environmental practices, which encompass risk assessment and risk management.
- Under Part V, a section is recommended to cover compensation or offsets for environmental harm/damage. A sustainability fund may be part of this compensation.

(b) Whether stakeholders consider that separate regulations in respect of the environmental matters and a mining directorate are appropriate?

- Well considered, and thorough regulations for environmental management are most definitely needed. Whether they should be completely separate or a separate Part in a unified regulation, may be of less concern, provided the environmental regulations are effective, integrated, and easy to update.
- Two levels of environmental regulations are needed– one that works at the Contractor level, and one that works at the regional level. Environmental risk assessment and management need to be undertaken at multiple scales, including at the regional scale and at the Contractor scale. Assessment of cumulative impacts on a regional scale is outside the scope of Contractor obligations. Therefore, a separate set of regulations / policies that address obligations of the Authority at the strategic regional level would be appropriate.
- Specific regulations are needed to specify the rights and duties of a Seabed Mining Directorate. These should include all aspects related to oversight of the environmental regulations, including EIAs, strategic environmental assessments, environmental management plans (both contractor and regional), and implementation. Application fees and annual fees could incorporate the costs of administering such oversight.
- Environmental Regulations should also address relevant environmental bonds, insurance, offsets, performance bonds and other means of compensation for inevitable, unavoidable and unanticipated damage to the environment.

(c) What recommendations do stakeholders have for the Authority to ensure its development in a transparent and inclusive manner while at the same time recognizing a need for efficiency?

- DOSI welcomes the clauses in the draft regulations concerning transparency and public engagement. Regarding transparency of the process to develop the exploitation

regulations, we likewise are pleased with the consultation process so far and would like to see it continue. The process could be strengthened, however, through a report-back mechanism, whereby comments received are listed (or at least summarised), accompanied by the Authority's response.

- The process could also be further strengthened by additional stakeholder workshops akin to the Griffith Law School/ISA workshops, where scientists, industry and civil society are able to exchange information and views on all aspects of the developing mining code.
- In general, the transparency provisions in this draft of the Regulations reflect current best practices. However, there are places where further elaboration is needed. For example, it should be made clearer that there is a presumption of public availability, an assurance certain key documents, such as EIAs / EISs, risk assessments, and findings of serious harm to the environment, should unequivocally be made public.
- Definitions as to what is confidential or proprietary will need to be constrained and justified. There remains a need to outline what a due process concerning evaluation of confidentiality of information will look like.
- Greater public and expert engagement in review and decision-making processes should be better anticipated in the regulations.

(d) Any comments related to the ISA Discussion Papers referred to at paragraph 4 above.

- Please see the Comments submitted (Oct'16) by DOSI on the 154 Review.
- DOSI suggests that comments on the ISA Discussion Papers referred to paragraph 4 above should be addressed via a separate consultation process, as the draft Exploitation Code should remain the main focus of this review.

E. ITEMIZED COMMENTS

1. Progress to Date

The Commission is congratulated for the progress noted in the last two years. There is no precedent for the endeavour placed before the Commission, thus forging a new direction is not trivial.

2. Environmental and Seabed Mining Directorate Regulations

- With different timelines for developing at least three documents, there is a challenge in finding the complementarity for both the drafters and the readers. Hopefully, parallel development will support integration. We note that the Mining Directorate is mentioned only in the titles and in the Annex.
- We recommend that environmental regulations for exploitation reference environmental outcomes of test mining from exploration licenses – no new contract should be awarded for any Plan of Work that does not include a fully environmentally vetted test mining operation, with understanding of the impacts and success of mitigation, with reasonable ability to extrapolate to commercial mining impacts, including cumulative ones.
- Currently the environmental risk assessment is folded into the Feasibility Study as a bullet on p.52, item Q. Environmental risk assessment, measurement, monitoring and mitigation should be included in the Environmental Regulations, so they are a coherent

package. Recommend that all environmental instructions appear in one section or document.

- Environmental risk assessment and management need to be undertaken at multiple scales, including at the regional scale and at the contractor scale. We strongly recommend independent expert review of risk assessment and of the monitoring, management, mitigation efforts.
- Plans for development and application of management tools in risk assessment, monitoring and intervention should be developed as part of the Directorate Regulations.
- Development of guidelines for the collection, standardisation and sharing of environmental data will be very useful. . Such guidelines would also be a useful addition to the *Recommendations for the guidance of the contractors for the assessment of the possible environmental impacts arising from exploration for marine minerals in the Area* (ISBA/19/LTC/8).
- Training plans for environmental management should be included amongst the obligations for mine operators.

Part I, Introduction

p13, 1-4: "These Regulations shall not in any way affect the freedom of scientific research…"

- Will there be a process elaborated for an independent researcher to gain access to an area under exploitation contract? It would appear that a Contractor should not have a right of refusal, provided there is some form of prior notification/consultation to ensure that the research is legitimate and pays due regards to/does not unduly interfere with ongoing operations.
- Recommend to state explicitly this term includes scientific study of the impacts of the mining operation by non-contractors, i.e., by independent scientists.

p13, 1-5: "These Regulations may be supplemented by further rules…"

- Suggest 'will be supplemented…' (as it is clear that further rules will be needed).

Part II

p15, 3(3)c: "Subject to the **effective control** of the sponsoring State or its nationals".

- It may be useful to elaborate what effective control entails, building on the 2011 Advisory Opinion by the Seabed Disputes Chamber.

p15, 4-2(a): "Accept as enforceable and comply with the applicable obligations…"

- It would be beneficial to clarify what is meant by "applicable obligations". This should include changes to the obligations under future amendments to the Mining Code. Otherwise, the contractor is only bound by the Regulations in place at the time of entering into the contract. This would lead to unequal treatment and standards for different contractors and reduce the control of the ISA over activities in the Area granted by UNCLOS Art. 153(1) and 162(2)(l). In its Advisory Opinion, the Seabed Disputes Chamber clearly aimed for all sponsoring states to be held to the same standard: 'In the absence of a specific reason to the contrary, it may be held that the Nodules Regulations

should be interpreted in light of the development of the law, as evidenced by the subsequent adoption of the Sulphides Regulations' (para 137).

- Having the Mining Code apply equally to all contractors would also reduce any disadvantage for states that will only be in a position to engage in mining at a later stage.

p15, 4-2(c): "Provide the Authority with a written assurance…"

- Reference to principles could be added here. E.g. '…obligations under the Contract will be fulfilled in good faith, that all activities in the Area will be carried out for the benefit of humankind as a whole, and that it will comply with the benefit-sharing regime and environmental protection strategy established by the Authority.'

P15, 4-4:

- Recommend the Health Safety and Maritime Security Plan, as mentioned in Annex VII 2.2, also be listed.
- As the seafloor resources in the Area are considered the common heritage of mankind, it is recommended to also include a Public Engagement and Information Sharing Plan as a required document in the application.

p16, 4-4(b): "An Environmental and Social Impact Statement prepared …"

- The social impact statement should include assessment of cultural heritage/artifacts, which the ISA is to protect for the benefit of the whole of mankind. These issues will need to be assessed at the regional scale as well as the contractor scale.
- Clarify how an EI 'statement' differs from an EI 'assessment' as this may be a source of confusion.
- Statement should identify i) The uncertainties in the project design and underlying environmental baseline, together with a statement on how the contractor intends to address and manage these uncertainties; and ii) How the operation will benefit humankind.

p16, 4-4(g): "An Environmental Management and Monitoring Plan…"

- Recommend to add: 'and applicable principles of international environmental law, such as the precautionary principle, the use of best available technology and best environmental practices, and the ecosystem-based approach"

p16, 4-5: "The Commission may permit the delivery and submission of the Environmental Management and Monitoring Plan and Closure Plan **at a date later to that of the original application."**

- DOSI received several comments on the bolded phrase.
- This provision could be highly problematic. It would be important to clarify that the Environmental Management and Monitoring Plan must be submitted before the Commission assesses the application. If the Plan could be submitted after an approval for exploitation has already been granted, then it would have no bearing on the application. At this point, it can be rubber-stamped. Instead, this Plan should be an important piece of information for the Commission to assess how the applicant intends to manage environmental impacts. At the application stage, the Commission can still require changes to the Plan.
- Decisions to accept applications should be based on the existence of appropriate plans that demonstrate an ability to detect *serious harm* once mining commences, and the ability to take action to prevent it.

p16, 5-3: "…in order to ensure that it covers the administrative costs incurred by the Authority in processing an application"

- Footnote 13 notwithstanding, there remains the question of ISA-sponsored independent research as well as the costs of development, implementation, enforcement and dispute tribunal for environmental issues. The Regulations are Contractor-specific yet a host of overarching mechanisms, tools and research should be funded.
- As many of these elements are required prior to the commencement of exploitation, consideration should be given to a funding mechanism, and/or inclusion of such costs as part of the application fee, or the Annual Contract Administration Fee (Regul'n 22).

p17, 7-1: "The Commission shall examine applications in the order in which they are received."

- While recognizing that first-come first-serve is the current model, this approach is seldom practiced in national jurisdictions, where other practices are now considered more transparent and equitable; for example, open tender systems, whereby the government makes blocks available on a scheduled basis, and accepts tenders from more than one bidder. There is considerable merit in the Authority re-examining the first-come first-serve system in light of the Common Heritage of Mankind Principle, and the means by which some areas will be set aside for future generations.

p17, 7-3: "… **including advice from an Appropriately Qualified Expert**, on any aspect of the Plan of Work."

- This provision is important and an improvement from the exploration regulations. It would be helpful to refer to experts in plural.

p18, 8-1: "The Commission shall determine if the Applicant…"

- Recommend additional condition: The applicant (including each director, trustee, executive officer, secretary, affiliate or any other person associated or significantly connected with the ownership, administration or management of the applicant's business) has not previously:
  - (i) been convicted of an offence pertaining to the conduct of seabed mineral activities or similar sea or land based activities; or
  - (ii) been convicted of an offence involving fraud or dishonesty.

p18, 8-1(c): "Has satisfactorily discharged its obligations…"

- How does this clause affect Contractors and Sponsoring States who have more than one contract with the Authority, of which one may not be satisfactorily met?
- Recommend detailed guidance regarding acceptance of work completed under exploration contracts, such as: i) what baseline data are sufficient; ii) who determines that? iii) how will the quality of annual reports be taken into account? Refer to Environmental Regulations for requirements there.
- Recommend to include a requirement that the applicant has fulfilled past obligations regarding activities relating to seabed exploitation in areas within national jurisdiction or in other contracts; or has provided satisfactory explanation of the reasons for the failure and the measures taken or put in place to guarantee that the same or similar failures will not re-occur in respect of the mining activities proposed in the application.

p18, 8-2: "estimated costs of … continued monitoring and management of the Marine Environment"

- Agree that costs of monitoring a site after closure will need to be considered, but note that this requirement will need elaboration. Deep-sea ecosystems usually recover very slowly. Suggest "…long-term monitoring…" in the wording here, and a cross-reference to the anticipated Environmental Regulations.

p18, 8-3 (b,c): "In considering the technical capability …"

- Should the applicant also demonstrate commitment to the 2016 Standard of the Extractive Industries Transparency Initiative?
- Guidance needed as to what these 'necessary Risk Assessment and Risk Management systems' entail.

p18, 8-4(a): "Optimizes the recovery and extraction of the Minerals"

- It is unclear what "optimizes" (and "optimum" used later) means in the context of deep-sea mining. This term is not defined. We note that UNCLOS uses the term only once, but are unsure if this is the meaning intended (see UNCLOS Annex III Art 13 (1)(a)). In any case, we note that effects on the environment and ecology of the region will need to be taken into account when determining what is "optimum", and may be at odds with maximising financial returns.

p18, 8-4(c): "Provides for effective protection of the Marine Environment…"

- DOSI received many submissions on this provision. This is a compelling provision in that it sets out (as has been done elsewhere in ISA documents) the need to apply a precautionary approach and requires the protection of vulnerable marine ecosystems and protection from cumulative impacts.
- We suggest that the bracketed comment be eliminated and that the proponent is referred to the Environmental Regulations for full guidance. Some comments are below but, without full context, they are likely insufficient.
- It will be key to define clearly what is meant by 'effective protection'.
- What is the environmental target that contractors must reach? E.g. protect x% of habitat; no net biodiversity loss etc.
- How will the Commission determine whether a plan of work provides for 'the protection and conservation of natural resources'? It would be useful to specify to which resources this comment is directed. Recommend that determination will require input from a panel of independent environmental scientists.
- Reference should also be made to the protection of ecosystem integrity, functions and services.
- The provision should also specify that no mining is to be allowed in EBSAs or protected areas designated by other organizations. This will be a crucial step towards ocean governance.
- It would also be useful to specify what the upper threshold is for environmental harm (what is clearly not effective protection? What triggers liability?)
- Again, there needs to be the same Commission-level review of a Plan of Work at the level of regional risk assessment, regional environmental management.

p19, 8-6: "The Commission shall determine whether appropriate public review…"

- Wording does not specify who is responsible for such consultation. Overall consultation requirements should be specified in these Regulations, not just the Environmental Regulations as consultation is needed for many aspects of the contract process.

p19, 9-3: "…Such agreed criteria, measures, indicators and thresholds shall be incorporated in the Plan of Work."

- This sentence is important to ensure the thresholds etc. are binding. While the indicators can be agreed with the contractor, the ISA, as the regulatory body, should set the environmental thresholds.
- If Environmental Regulations are separated, then this requirement should be explicit within them, and not under this regulation.

p20, 11-2(c): "…where **substantial evidence indicates the risk of serious harm** to the Marine Environment"

- 'substantial evidence' is a very high evidentiary burden that is not only unrealistic (given the numerous uncertainties involved in deep-sea endeavours), but also is not in line with the precautionary approach.
- An operational definition of serious harm is required for this regulation to function. Please see recent paper published on this topic and presented as an Accompanying Document: Levin et al. 2016, Defining "serious harm" to the marine environment in the context of deep-seabed mining, Marine Policy, 74: 245.
- In terms of spatial planning, the ISA is promoting both a precautionary approach at a regional level (operationalized through APEIs) and in protecting vulnerable marine ecosystems which could also be called areas at risk of serious harm as indicated here. It would be good to clarify this point, and to understand how the ISA understands vulnerable marine ecosystems and areas at risk of serious harm.

p20, 11-2(d): "An area otherwise designated by the Council…"

- Recommend this provision specifically refer to areas disapproved by the Council as a result of regional environmental assessments. It should mention the possibility of an application not being approved if an upper regional limit of simultaneous operations has been reached. Lastly, reference could also be made to conservation areas declared by other international organisations.

p21, 11-3(b): please see above comment on first-come first-serve, which we suggest does not reflect current best practices or serve the common heritage of mankind principle.

p21, 12: "The Council shall consider the reports and recommendations of the Commission…"

- Regulation 12 is clearly incomplete in this draft. In the next draft, we would expect a clause indicating how the Commission will submit its written public recommendations to Council, which should include:
  - detailed reasons for its recommendation;
  - the questions posed to the applicant and the responses received;
  - a summary of the discussion the Commission had regarding this application;
  - a statement on how this application contributes to the common heritage of humankind;
  - a statement regarding what uncertainties underlie the project design and how the applicant intends to minimise and manage them;
  - information regarding how this application will contribute to the relevant regional environmental management plan;
- Consider a public register stating who has submitted an application and the status of that application. This has been done in countries such as New Zealand without compromising confidentiality of the Contractor: https://permits.nzpam.govt.nz/aca/ .

Part III

p22, 13-1: "…in the form of an Exploitation Contract…"

- The ISA may wish to consider whether exploitation licenses rather than contracts are more appropriate to (a) ensure equal treatment of all mining operators (contracts may contain individual differences) and (b) to reserve a degree of control in accordance with its mandate.

p22, 13-3: An important provision.

- Regarding redacted information, headings and sub-heading should be retained, to provide an indication of what information was not shared.

p22, 14-1: "An Exploitation Contract shall be granted for an initial period not exceeding…"

- Recommend the duration of the contract for exploitation be contingent on evidence that there has been no serious harm to the marine environment.

p22, 14-1(b,c): "The Contractor has complied in all material respect… not in material default…"

- This provision should also refer procedural obligations, not only material ones. This is especially important given that EIAs, public participation, and the precautionary approach all require procedural implementation

p22, 14-1: "The Exploitation Contract shall remain in effect…"

- The risk of remaining in effect is the incentive to prolong negotiations if the new contract includes higher financial or environmental burdens. Recommend indicating a maximum period for which the contract can remain in effect; New Zealand has set such a precedent.

p22, 14-2: "An application to renew an Exploitation Contract…"

- Any application for renewal should include new EIA/EIS including information on the success/challenges regarding environmental during the initial exploitation phase

p22, 14-2(d): "Be accompanied by a report of an Appropriately Qualified Expert verifying…"

- Recommend that this provision is included in the environmental regulations; this needs more thought about wording, placement and referencing. One expert only?

p23, 14-3: "Unless otherwise indicated by the sponsoring State…"

- Recommend written acknowledgement of ongoing sponsorship by sponsoring State for the renewal application to signal State awareness of activities under their sponsorship.

p23, 14-4: "Any renewal of an Exploitation Contract shall be effected…"

- Recommend it be specified that a renewal is subject to assessment and approval by the ISA organs (Commission /Council etc).
- The last sentence is very important to ensure amendments to the Mining Code become applicable to contractors that renew the contracts.

p24, 16-3: financing plans should be made publicly available, with due regard for confidential information.

p24, 16-6: "…including its terms and conditions, in the Seabed Mining Register"

- Called 'Registry' in Definitions – but function is unclear.

p24 17-1: "The rights and obligations of a Contractor under an Exploitation Contract may be transferred…"

- Consider adding a provision similar to 14(4): *'The terms and conditions applicable to the Exploitation Contract after the transfer of rights and obligations shall be the terms and conditions in force as at the date of the transfer.'*
- Once a contract is transferred, does the new contractor have the full contract duration again (15-20yr) or only the time that was left on the original contract?

p25, 17-4(d): "[That in all material respects, the assessment criteria…]

- Recommend that the transferee be subject to the same assessment requirements as the original Contractor, lest this be considered a loophole to obtain contracts without going through the full vetting process.

Part IV

p26, 18-1: "A Contractor shall not be permitted to modify the Plan of Work…"

- There should be a requirement that contractors must update their plans of work in light of new scientific and technical knowledge, including regarding the environmental conditions and impacts at a mine site.

p26, 18-2: "…implemented in accordance with the **relevant provisions…"**

- Does 'relevant provisions' refer to the provisions in effect at the time of the modification or those in effect at the time the contract was originally signed? Amendments to the Mining Code should apply to all contractors to ensure equal treatment and standards.
- The current exploration system provides for unequal standards applying to contractors that obtained their exploration contracts at different times. (2000 Nodule Regulations are less stringent than the 2013 revisions).

p26, 18-3: "…including any relevant matters under the Environmental Regulations."

- Which may include explicit modification of the Environmental Impact Assessment and Environmental Management Plan in response to a material change.

p26, 19-2,3: "An Exploitation Contract shall provide for a review of activities…"

- Please specify what the review will entail (e.g. a review of the contractor's Environmental Management Plan).
- This provision could include a clear statement that the ISA can require a review at any time, for example, if new information from scientific research or strategic and regional assessments warrants a review of current practices.
- The review should be specified as being publicly available.
- As massive sulphide mining activity may exhaust a deposit in less than 5 years (Solwara-1 is expected to last 3-5 years), review may need to be more frequent [Contractor dependent].
- Explicit provision should be made for independent expert consultation and review of activities under a plan of work, and the effectiveness/suitability of the proposed modifications of a plan of work.

Part V

p28, 20: Equality of Treatment

- Perhaps this is the place to remind the Contractor why the Royalty Fees are assigned and even to refer to Article 140 – Benefit of Mankind.

p28, 21-2: "…and reviewed on a regular basis by the Council."

- Good example for how to ensure that amended standards etc apply equally to all contractors. A similar provision should be included in Regulation 59 to ensure that amended environmental or reporting requirements also apply equally to all contractors. It would be similarly inequitable to claim different fees from different contractors and to apply different environmental standards.

p29, 24: "Rate of Royalty…"

- A clause on windfall profits and how they will be shared should be inserted here. ("Windfall" in economic parlance means profits exceeding what was expected, generally due to unforeseen and significant upward swings in commodity prices.)

p30, 28: "Information to be submitted"

- This article will be largely informed by the fiscal schedule that is adopted. Nevertheless, some basic principles, such as benchmarking to international price indices, [6 monthly review] of mineral content, and so forth, could be added in the next draft.

p32, 31: "Proper books and records to be kept"

- Will the ISA emulate the EITI (Extractive Industries Transparency Initiative) standard in this regard? If so, then all payments should be made publicly available at the resolution of projects and required also of the Sponsoring State.

p32, 32: The audit should be publicly available.

p32, 32-2. "Any such audit shall be undertaken at the Authority's sole cost…"

- What is industry practice with respect to bearing the costs of an audit? Would an audit not be part of an administrative cost that should be charged to the contractors?

p32, 32-4(c): "Require any duly authorized representative to answer…"

- Perhaps 'Duly Authorized Authority' should refer only to those appointed by ISA; elsewhere "designated representative" is used for the Contractor party.

p33, 33: Auditing.

- The obligations of the Sponsoring State may need to be specifically spelled out in this regard.
- Sponsoring States should have the specific obligation to ensure that they have the ability to cooperate with and assist the Secretary General and that their national laws enable them to facilitate access to the books and records of a Contractor. Otherwise this could open up loopholes and uneven performance rather than "effective control".

p34, 35: This section on confidentiality could be better placed in Part VI.

- Annual reports should be specified as non-confidential.

p34, 36: "Where the Authority in its reasonable opinion considers that a Contractor has…"

- This regulation should also refer to the importance of meeting all benefit-sharing obligations and acting in accordance with the common heritage of mankind principle.

p36, 43: "…the Authority may suspend or terminate that Exploitation Contract…"

- State that, if a contract was terminated, the contractor would still be responsible for an orderly mine closure and would continue to carry all environmental responsibilities. Perhaps provide suggestions on potential mechanisms to consider.

Part VI

p37, 46-1: Exploitation contracts as non-confidential

- We strongly support this clause.

p37, 46-2: Footnote 24: "Confidential Information" will be included as a defined term…"

- A challenging process that must balance with transparency. The default position should be 'open' unless clearly identified as falling within Confidential.
- Provision 2 should be subservient to Provision 4. Otherwise, the Regulations are unclear and could provide loopholes.
- Support using "significant" or "serious" to reflect the same tone and spirit of the bar set by "serious environmental harm". In other words, minor and insignificant commercial impacts should not be a reason for confidentiality.

p37, 46-2(b): "...remains Confidential Information in accordance with the Exploration Regulations;

- This provision is problematic. Baseline data are collected mainly under an exploration contract and much remains confidential, in part, because it may also provide information about mineral abundance. This provision could allow all baseline information to be confidential, which is not in line with UNCLOS annex III article 14(2).
- Suggest deletion of this clause. Clauses a & d already cover this topic well enough (and indeed could be combined).

p38, 46-4 (d, f): "…where disclosure is required to protect the Marine Environment".

- We fully support and emphasize the importance of ISA access to environmental information - critical for decision making.

p38, 46-6: designation of confidential information by a Contractor

- Recommend Contractor include a written rationale as to why the information should be treated as confidential. This rationale shall be made publicly available, as well as the Authority's decision on the matter.
- It is critical that environmental information, in the broadest sense, is not "confidential", including abundance, morphology and geochemisty of nodules and chimnes because these are important habitat parameters.

p39, 48-2: "…shall submit the following data and information…"

- Presumably will include all environmental information held by the Contractor, if not previously provided?

Part VII

p41, 51(b): "…implement and promote effective and transparent communication…"

- Because the ISA is an international organization and subject to international law, a reference to transparency and public participation under international law could be included.

p41, 51(e): "…relating to the exchange of information and data to facilitate compliance"

- Including reporting of compliance with these international rules and standards.

p41, 52-2: "…likely to cause serious harm or a threat of serious harm to the marine Environment".

- An operational definition of serious harm is required for this regulation to function. Indeed, a specific consultation may be needed to define the terms "effective protection" "harmful effects" and "serious harm" in scientific and socially acceptable ways.

p41, 52-3: "clear grounds for believing that serious harm to the marine environment"

- Suggest replacing this text with "where there are threats of serious or irreversible damage to the environment" – reflecting the wording or Rio Principle 15. Otherwise, "clear grounds" will open up a new area of jurisprudence; whereas Rio Principle 12 has that developed already, after more than 20 years.

Part VIII

p43, 54: Inspectorate

- To whom does it report? We recommend Council and not the Commission, which is an advisory, not a decision-making, body.

p43, 54-2(b): "Monitor the effects of Exploitation Activities on the Marine Environment and human health and safety"

- This may require substantial seagoing resources (e.g., monitoring cruises), and scientific expertise, operated by the Authority.
- Effects on the marine environment should be separated from effects on human health and safety into separate bullet points.
- An Inspectorate is critical at both the regional scale and the scale of contracts. There should be a competent and independent Environmental Inspectorate at each scale.

p43, 54-3: "The Secretary-General shall give reasonable notice"

- This term restricts communications to the office of the Secretary General. We suggest broadening this provision to allow for the Inspectorate to communicate directly with the Contractor (and Sponsoring State).

Part XI

p47, 55-1: "…it may direct the Secretary-General to issue a compliance notice…"

- As with previous comment, we suggest broadening the avenue of communications to allow the Inspectorate to communicate to the Contractors and Sponsoring States.

p47, 55-3: "Authority may not execute […] a decision involving monetary penalties until the Contractor has been accorded a reasonable opportunity to exhaust the judicial remedies"

- This clause is limiting the powers of the Inspectorate, such that it would be unable to issue warnings and fines on the spot – typically a power given to enforcement officers in national jurisdictions, concerning, for example, minor spills, discharges, and other infractions. We suggest a re-working of this clause to allow for immediate fines and warnings for certain kinds of infractions. (They can still be appealed.)

p47, 59-1: "Five years following the approval of these Regulations by the Assembly, or at any time thereafter,"

- Change "or" to "and".

p47, 59-3: "Any such amendments shall be without prejudice to the rights conferred on any contractor with the Authority under the provisions of an exploitation contract entered into pursuant to these Regulations in force at the time of any such amendment."

- This provision is highly problematic. It provides for contractors, who obtained their contracts at different times, to be subject to different obligations and standards, including those regarding financial obligations and environmental management. Amendments to the Regulations should apply equally to all contractors. Just as Regulation 21(2) imposes fees that will be determined by the Council and reviewed regularly, this provision 59 should also state that any amendments to the Regulations apply equally to all contractors. To do otherwise could disadvantage developing states that may only have the resources to actively participate in deep-sea mining at a later stage.
- In its Advisory Opinion, the Seabed Disputes Chamber clearly aimed for all sponsoring states to be held to the same standard: 'In the absence of a specific reason to the contrary, it may be held that the Nodules Regulations should be interpreted in light of the development of the law, as evidenced by the subsequent adoption of the Sulphides Regulations' (para 137).

ANNEX I

p48, Section II-17: "and of fulfilling its financial obligations to the Authority:"

- Recommend the Applicant is required to demonstrate ability to meet the financial requirements of its Sponsoring State. These commitments should be reflected and specified in financial submissions made to the Authority.
- Recommended that a new section be inserted to reflect the Applicant's previous dealings in seabed mining in national jurisdictions. This experience and reputation will provide vital information to allow the Authority to make an informed decision on the Application.

p.49, Section III-20(d): End of sentence missing?

ANNEX II

Feasibility Study: Should this Annex acknowledge the requirement for EA and EIS as developed in the Environmental Regulations? References to Environment here appear to relate to Contractor capabilities in execution of plans.

p51, H: Mineral resource and reserve estimates

- Estimates should be made public, reflecting best practices required by security and exchange commissions (e.g. in Canada, which lists over 50% of the world's mining companies).

p52, K(a): "the optimum recovery of the Resources"

- "Optimum" will need to be defined. See also our earlier related comment on this point, p18 4(a).

p53, S: Environment

- Add (c) Details of the Applicant's environmental capabilities, and availability of appropriate expertise for impact assessment and monitoring.

p53, T-U: Suggested new item:

- Insert after T: a Section called 'Compensation for Environmental Damage and Loss of Ecosystem Services' to include (a) Offsets (b) Financial Compensation to CHM (c) Sustainability Fund to promote research.

ANNEX V

p57 Emergency and Contingency Plan

- Little guidance here. Are contingencies only relevant for 'incidents'? What about contingencies around operations relating to timelines or ore quality or investors, etc?

ANNEX VII

p62, Section 4: Legal Title to Minerals

- Clarify that there are no (we assume) rights to the living or genetic resources recovered with the minerals.

p62, Section 6(e): "...effective protection of the Marine Environment from harmful activities…"

- Many scientists fear that compliance with this legal obligation under UNCLOS may be impossible as mineral extraction will cause harm and, in many cases, "serious" harm. Efforts may need to be focused on seeking prior, informed consent and agreement on overarching environmental objectives to guide future mining activities on behalf of all humankind.]
- As noted above, specific consultation may be needed to define the terms "effective protection" "harmful effects" and "serious harm" in scientific and socially acceptable ways. [Some scientists have suggested that a term is needed that acknowledges a degree of 'acceptable' harm for which compensation is required.

p62, Section 6(g): "Ensure the protection of…"

- Include "scientific instrumentation".

p63, Section 8(b): "… environmental liability insurance for a period of [5] years…"

- There needs to be a justification for the selection of # years. Given uncertainty about mining impacts and lack of knowledge about system rates; major consequences could be discovered much later hence the insurance period may need to run for decades.

p64, Section 10: Consider adding a provision to reflect the Authority's obligations to facilitate development and sharing of marine mining technology under the Convention.

p65: 14.2 & 14.3: "optimise" and "an optimum recovery"

- These terms need to be defined and any calculation of "optimum" should take into account environmental / ecological impacts and the interest of all humankind, including future generations.

p67, Section 19: Annual Reporting

- We note the 154 Review suggested a standard template for an Annual Report to assist the Contractor and to ensure equality of evaluation.
- We further support the (interim) 154 Review recommendation that these annual reports be publicly available, and suggest that be explicit in the regulations.
- Recommend that volume and composition of wastewater discharge and tailings discharge be required in the annual report.

p69, Section 20: Human remains and objects and sites…

- This section needs a paragraph to include cultural harm to indigenous sacred places or other cultural heritage. Perhaps include in title "and sites of cultural significance".

p69, Section 21: Responsibility and liability

- Suggest a separate clause that identifies the Authority is responsible for upholding and enforcing environmental regulations.
- Suggest a separate clause to outline Sponsoring State liabilities, based on the ITLOS Advisory Opinion on that matter.

p70, Section 22(2): "…with the Authority's data and information management policy."

- Reference where this policy will be found.

P71, 27.2: anti-corruption laws and obligations

- The liabilities and obligations of the Sponsoring State are presumably similar and should be included here.

p75, 39-2 (and -3): "This Contract may also be revised by agreement between the Contractor and the Authority, including where revision is necessary or desirable to reflect any rules, regulations and procedures adopted by the Authority subsequent to the entry into force of this Contract."

- This provision is problematic. It provides for contractors, who obtained their contracts at different times, to be subject to different obligations and standards, including regarding reporting and environmental management. When the Regulations are amended in the future to reflect improved knowledge or a change in circumstances, these amendments should apply equally to all contractors. This provision, however, provides the contractors with an effective veto if they prefer to not be bound by the amendments. Amendment should be mandatory.

ANNEX IX: SCHEDULE 1

p79: Appropriately Qualified Expert(s)

- The definition does not appear to include the expert having acknowledged expertise in the subject area; Good Industry Practice does not encompass this aspect.

p82: Incident

- (2) Environmental Regulation will need an operational definition of serious harm.
  (3) Include damage to scientific instrumentation and observatories/ geohazard observatories.

p82: Marine Environment

- Please update to this definition: ecosystem function and services are now deemed a major outcome of environmental condition. There are several places in the document that this inclusion matters.

p83: Resources

- As "resources" can have other meanings, the application of this term requires care. For example, p62, section 3.5 refers to other resources … could this mean genetic or biological resources? Are all references strictly mineral (including rare earths)? Upper versus lower case appears to vary somewhat randomly.

F. DOCUMENT CREDITS

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APPENDIX A

Selected Activities of the Deep-Ocean Stewardship Initiative relevant to seabed mining

DOSI-organized (or co-organized) workshops and symposia:

- Deep-sea mining - Workshop with World Economic Forum and the Rockefeller Foundation/RESOLVE (Bellagio, ITALY Oct. 2015)
- DOSI Planning Workshop (Aveiro, PORTUGAL Aug. 2015)
- Deep-Sea Tailings Placement Workshop – with IMO and GESAMP (Lima, PERU June 2015)
- Towards the development of a strategic Environmental Management Plan for deep seabed mineral exploration & exploitation in the Atlantic basin (SEMPIA). (Azores, PORTUGAL June 2015)
- Deep-seabed mining & Pacific cultures symposium (Honolulu Hawaii, USA, April 2015)
- Defining significant impact & performing cumulative impact assessments (La Jolla, CA, USA March 2014)
- Deep Ocean Industrialization: A New Stewardship Frontier (AAAS, Chicago, USA Feb. 2014)
- Inaugural Workshop (UNAM, Mexico City, MEXICO March 2013)

Guidance and Recommendations:

- DOSI-compiled response to the Interim Seascape Report on the Article 154 Review
- DOSI-compiled response to Article 154 ISA Review Questionnaire (Feb, 2016)
- DOSI-compiled review of SPC Regulations and Recommendations for DSM (Oct. 2015)
- DOSI response to ISA call for input on "Developing a Regulatory Framework for Mineral Exploitation in the Area" (May 2015)
- DOSI-compiled response to ISA stakeholder survey (May 2014)
- ISA Research Recommendation Letter (May 2014)

Webinars:

- Seabed Mining Webinar (Environmental Law Institute, April 2015) http://eli-ocean.org/seminars/seabed/
- DOSI – Marine Ecosystem Services Partnership Webinar Series – 2014, 2015 http://dosi-project.org/dosi-outputs

Publications :

- A Call for Deep-Ocean Stewardship (Mengerink et al. 2014) – Science Journal
- Managing Mining of the Deep Sea (Wedding et al. 2015) – Science Journal
- Deep Ocean Under Climate Change (Levin and LeBris 2015) – Science Journal
- Defining "Serious Harm' to the Marine Environment in the Context of Deep-Seabed Mining (Levin et al. 2016) – Marine Policy Journal

Traineeships:

- 2 SOPAC traineeships for 2 Pacific islanders: 3 months at University of Hawaii.

Workshop Attendance:

- Workshop on Enhancing Stakeholder Participation and Transparency in the ISA Process in Ocho Rios, Jamaica, July 2016

Deep Ocean Stewardship Initiative

- SEMPIA Mini meeting, Azores, July 2016
- ISA/Griffith Law School Workshop on Exploitation Regulations and Environmental Impact Assessment for Deep Seabed Mining, Gold Coast, Australia, May 2016
- Deep Seabed Mining Payment Regime Workshop, San Diego, USA, May 2016
- MIDAS Synthesis Workshop, Ghent, Belgium, March 2016
- MIDAS Annual General Meeting, Sintra, Portugal, November 2015
- The Crafting of Seabed Mining Ecosystem-Based Management: Assessing deep-sea ecosystems in the Pacific, July 2015, Japan;
- ISA Assembly and Council, July 2015 (as part of other delegations)
- From Seafloor Hydrothermal Systems to the Sustainable Exploitation of Massive Sulfide Deposits, May 2015, Norway;
- International Workshop on Environmental Standards for DSM, May 2015, Norway;
- MIDAS expert meeting, April 2015, Germany;
- IASS Potsdam Ocean Governance Workshop, Oct 2014, GEOMAR Germany.

DOSI Working Groups:

Deep Seabed Minerals with DSM transparency sub-group
Deep-Sea Tailings Placement,
Deep-Sea Oil and Gas;
Deep-Sea Genetic Resources;
Deep-Sea Bottom Fishing,
Deep-Sea Climate Change,
Deep-Sea Assessments, Technology, Communications, Capacity Building.

ATTACHMENT

Please see accompanying peer-reviewed article:

Levin L.A., Mengerink K., Gjerde K.M., Rowden A.A., Van Dover C.L., Clark M.R., Ramirez-Llodra E., Currie B., Smith C.R., Sato K.N., Gallo N., Sweetman A.K., Lily H., Armstrong C.W. & Brider J. (2016) Defining "serious harm" to the marine environment in the context of deep-seabed mining. *Marine Policy* **74**, 245-59.