

Developing a Regulatory Framework for Mineral Exploitation in the Area

A Discussion Paper
on the development
and drafting of
Regulations on
Exploitation for
Mineral Resources
in the Area

*(Environmental
Matters)*



Tentative Working Draft

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Section I

Background to the development of the working draft Environmental Regulations

1. Introduction

1.1 At its July 2016 meeting, the Legal and Technical Commission issued a first working draft of the *Regulations and Standard Contract Terms on Exploitation for Mineral Resources in the Area* for consideration by the Members of the Authority and all stakeholders.¹ The Commission invited stakeholders to comment on that draft. Submissions have now been duly received and are published on the Authority's website.²

1.2 The Commission also proposed a revised work programme and action list, including commencing a working draft of the "environmental regulations",³ the subject matter of this document.

1.3 The purpose of this discussion paper is to: -

- provide preliminary thoughts and background to the development of the "Environmental Regulations".
- provide comments relating to specific elements of these proposed regulations and the challenges associated in their development alongside that of the "Exploitation Regulations" (and Seabed Mining Directorate Regulations).
- populate, as far as possible, the suggested structure and content for the Environmental Regulations as presented to the Legal and Technical Commission in March 2016 and subsequently to participants at an environmental management workshop in Australia in May 2016.⁴

2. Disclaimer

2.1 This document relating to the preliminary structure and wording for the "Environmental Regulations" has been prepared in advance of any detailed review of responses to the Authority's working draft "Exploitation Regulations". Consequently, this document does not reflect any relevant suggestions flowing from those submissions nor any potential inconsistencies highlighted between them. While every care has been taken to harmonize the draft Exploitation Regulations (as they currently stand) and these draft Environmental Regulations, some inconsistencies and ambiguities remain and require resolution in due course.

2.2 Furthermore, the Authority has received a wealth of stakeholder input particularly in relation to environmental matters over the last 2-3 years as part of its on-going stakeholder engagement commitment. The working draft has clearly benefited from these submissions and its drafting has attempted to factor in the widest range of views and opinions as

¹ See *Working Draft Regulations and Standard Contract Terms on Exploitation for Mineral Resources in the Area*, March 2016. Available at

² See <https://www.isa.org.jm/files/documents/EN/Regs/DraftExpl/Comments/Comments.pdf>.

³ See Annex II, Report of the Chair of the Legal and Technical Commission on the work of the Commission at its session in 2016, ISBA/22/C/17, 13 July 2016.

⁴ See Co-Chair's Report of the Griffith Law School and the International Seabed Authority Workshop on Environmental Assessment and Management for Exploitation of Minerals in the Area Surfer's Paradise, 23-26 May 2016. Available at <https://www.isa.org.jm/files/documents/EN/Pubs/2016/GLS-ISA-Rep.pdf>.

objectively and as reasonably as possible. Certain judgement calls have had to be made and the draft demands a full and fair discussion in the interests of the common heritage and that of sustainable development.

2.3 In the time available, not all components of the draft have been fully populated with narrative or require a relevant technical expert to provide appropriate comment before any drafting.

3. The Role of the Authority in regulatory development

3.1 In connection with the protection of the marine environment, the Authority is tasked under LOSC Article 145 to adopt “appropriate rules, regulations and procedures” (RRPs) in respect of necessary measures for the effective protection of the marine environment. Annex III, Article 17 of the Convention specifically requires development (and subsequent uniform application) of RRP in connection with, *inter alia*, the protection of the marine environment and in accordance with the objective criteria set out in Article 17(2)(g): -

“Rules, regulations and procedures shall be drawn up in order to secure effective protection of the marine environment from harmful effects directly resulting from activities in the Area or from shipboard processing immediately above a mine site of minerals derived from that mine site, taking into account the extent to which such harmful effects may directly result from drilling, dredging, coring and excavation and from disposal, dumping and discharge into the marine environment of sediment, wastes or other effluents”.

3.2 The 1994 Agreement also highlights the role of the Authority with regard to environmental matters prior to the approval of the first exploitation contract,⁵ namely: -

- (g) Adoption of rules, regulations and procedures incorporating applicable standards for the protection and preservation of the marine environment.
- (h) Promotion and encouragement of the conduct of marine scientific research with respect to activities in the Area and the collection and dissemination of the results of such research and analysis, when available, with particular emphasis on research related to the environmental impact of activities in the Area.
- (i) Acquisition of scientific knowledge and monitoring of the development of marine technology relevant to activities in the Area, in particular technology relating to the protection and preservation of the marine environment.
- (k) Timely elaboration of rules, regulations and procedures for exploitation, including those relating to the protection and preservation of the marine environment.

3.3 To date, regulatory development has benefited from environmental and scientific workshops, and from submissions to the Authority’s initial stakeholder survey in 2014 and subsequent draft legal framework issued in 2015. In respect of the development of the Environmental Regulations account will continue to be taken of the wealth of the stakeholder content provided to date. The Authority intends to promote, encourage and support further workshops and initiatives to further develop the overall “Mining Code”.

3.4 At its 21st Session, the Commission proposed a list of seven priority deliverables which the Council duly endorsed at its 21st Session. These deliverables remain relevant to

⁵ Annex, Section 1 Para. 5.

the delivery of the regulatory framework and mechanism together with any recommendations flowing from the Article 154 Review that are subsequently adopted by the Assembly.

Regulatory development will also benefit from the delivery of a Strategic Plan by the Authority to direct and focus its work.

4. The Draft and Drafting approach

4.1 The aim of the working draft is to address the following issues: -

- (a) the prevention, reduction and control of pollution and other hazards to the marine environment, including the coastline, and of interference with the ecological balance of the marine environment, particular attention being paid to the need for protection from harmful effects of activities in the Area in accordance with best environmental practice, adaptive management techniques and the precautionary approach.
- (b) the protection and conservation of the natural resources of the Area and the prevention of damage to the flora and fauna of the marine environment.
- (c) to advance transparency in environmental decision-making by permitting appropriate access to information held by the Authority concerning the impact of activities in the Area on the marine environment and to facilitate and encourage public awareness and participation by making such information widely available.⁶
- (d) to ensure that necessary measures, including for coordination, cooperation and harmonization, that are reasonable, practicable and safe, are adopted and implemented for the effective protection of the marine environment.
- (e) to ensure that environmental assessments are conducted in accordance with best practice at both regional and project-impact levels.
- (f) to apply a precautionary approach to the assessment and management of the risk of harm to the marine environment and ensure that all aspects of the quality of the marine environment affected by pollution and waste are considered in decisions relating to the marine environment.
- (g) to require persons engaged in activities in the Area to progressively make environmental improvements (including reduction of pollution and waste at source) as such improvements become practicable through technological and economic developments.
- (h) to provide for monitoring and reporting on environmental quality on a regular basis to ensure compliance with regulatory requirements and the maintenance of a record of trends in environmental quality.
- (i) to promote the disclosure of, and public access to, information about significant environmental incidents and hazards.
- (j) to promote the adoption of good standards and protocols to deliver effective regulation and to secure the highest standards of marine environmental protection.
- (k) to provide for meaningful Consultation during environmental assessment, planning and the on-going environmental management of activities in the Area.
- (l) to ensure that appropriate weight be given to both the long and short term economic, environmental, social and equity considerations in deciding all matters relating to the protection of the marine environment and, where technically feasible its restoration.
- (m) to promote industry collaboration and involvement in the environmental protection process.

4.2 Given the levels of uncertainty (driven by a paucity of data and information and lack of real industry experience), the formulation of the regulations is challenging. It is recognized that this regulatory development process will generate further questions. But a start must be made in prescribing key procedural requirements relating to environmental assessment and management, both at the level of the Authority and at a project level. Drawing on parallel

⁶ See Principle 10 of the Rio Declaration.

examples and experience from land-based mining and oil and gas regimes, the shipping industry and deep sea fishing activities is useful. The process also begins to provide clearer expectations for potential investors. It also highlights the paramount need for a re-think in the day-to-day operational functioning of the Authority.

4.3 The main purpose of the Environmental Regulations is to ensure that the approval process for a Plan of Work for exploitation fully integrates environmental concerns into the evaluation and decision-making process and that this integrated approach continues throughout the life of a mining project.

4.4 The current working draft sets out a general set of environmental considerations and obligations. That is, the draft is not resource-specific. Whether resource-specific regulations will be required or whether resource-specific considerations can be dealt with through annexes, relevant recommendations and guidelines can be addressed in due course.

4.5 In the drafting of these regulations, the approach taken is largely one of focusing on procedural requirements (safeguards) on applicants (proponents of a Plan of Work), contractors and the Authority. These procedural requirements will contribute to the delivery of the RRP's required by Article 145 of the Convention.

4.6 References are made to Sponsoring States in the working draft but the lines of duty and responsibility (jurisdictional competence) between the Authority and sponsoring States (together with that of flag States, States Parties and non-Parties to the Convention and relevant international organizations, including the International Maritime Organization) are not entirely clear and will need to be "workshopped" in due course.

4.7 As knowledge advances, the working draft can provide for more prescriptive obligations on the various actors as appropriate. At this stage, however, many requirements are general in nature and the draft makes many references to "the Authority's guidelines". It is intended that the regulations will be supported by technical guidance, guidelines and recommendations to "operationalize" the regulations and retain flexibility until knowledge gaps are filled. Being overly prescriptive at this stage will be counterproductive as regulations will require a more formal amendment and adoption process compared with that of say recommendations issued by the Commission or perhaps guidelines by the Secretariat.

4.8 Definitions will play a significant role in the Environmental Regulations and it is necessary to develop internationally accepted definitions that are also compatible with Part XI of the Convention. Schedule 1 to the working draft sets out a number of defined terms for consideration. However, as highlighted below, defining certain terms, or at least setting out a common understanding of those terms in an Area context, remains particularly challenging

5. Cost structure

5.1 It is hoped that the working draft reflects suggested best practice, both from the stakeholder survey and approaches in national, regional and international regimes, applying to good governance (regulatory administration and compliance) including transparency and public participation mechanisms and commissioning opinions from experts. However, this will add additional administrative (and likely material) costs to the existing structure, including regulatory compliance costs for applicants / contractors. What the level of this cost will be is unknown. But the overall cost structure has to be reasonable and transparent including the allocation of those costs across the relevant actors.

6. Exploration, Environmental impact assessment⁷ and the Environmental Regulations

6.1 Environmental assessment is a fundamental focus of the working draft from a procedural perspective. The PN Exploration Regulations provide for the following in connection with environmental assessment:

Regulation 32 requires a contractor to “to gather environmental baseline data and to establish environmental baselines...” and to assess the likely effects of its exploration activities (which may include the testing of collecting systems and equipment). A contractor is required to take account of the recommendations of the Commission.⁸ The regulation also prescribes for the submission of data from monitoring programmes on an annual basis.⁹

6.2 The data collected during exploration and establishing environmental baselines are the primary inputs into an environmental assessment process leading toward the submission of an environmental impact statement as a document needed for the approval of a plan of work for exploitation. ISA Technical Study No. 10 (*Environmental Management Needs for Exploration and Exploitation of Deep Sea Minerals*) contains a suggested template for the content of an environmental (and social) impact statement and further work was undertaken on this template at the Gold Coast workshop in May 2016.¹⁰

6.3 However, the definitive process(es) for environmental assessment (baseline delivery to the production of an impact statement) have yet to be outlined by the Authority and the extent and nature of the Authority’s involvement in the assessment process from cradle to grave. Indeed, what is also unclear, is the role of Sponsoring States in the environmental assessment process and subsequent monitoring / addressing non-compliance.¹¹

6.4 The title of the suggested draft Environmental Regulations under Section III to this paper includes “exploration”. Perhaps these regulations provide an opportunity to deal comprehensively with all environment-related issues in the Area? It is not the intention to “re-write” the environmental obligations or deliverables under the Exploration Regulations but it needs to be acknowledged that the latter are relatively basic in their approach, albeit supported by recommendations of the Commission.

6.5 Consequently, the development of the Environmental Regulations provides the opportunity to look critically at the obligations and deliverables under the Exploration Regulations and related processes which potentially feed into the exploitation application process and ongoing management and monitoring programmes and to clarify or populate further detail. That is, what exactly is / are the specific (not generic) deliverables at the end of

⁷ Under the regulations a combined Environmental and social impact assessment will be required.

⁸ See *Recommendations for the guidance of contractors for the assessment of the possible environmental impacts arising from exploration for polymetallic nodules in the Area* ISBA/16/LTC/7.

⁹ See also *Recommendations for the guidance of contractors on the content, format and structure of annual reports* ISBA/21/LTC/15.

¹⁰ One of the principle agenda items and priority outputs of the March 2017 environmental management workshop in Berlin is a final review of this template and the issue of a final draft version.

¹¹ Also, as highlighted in ISA Discussion Paper No 4., *Enforcement and Liability Challenges in the Regulation of Deep Seabed Mining* at page 10: “Even where adherence to international rules is demonstrated, there would remain potential for inconsistent interpretation and application of those rules that may need to be resolved. As a consequence, there will be a need for both vertical (Authority – sponsoring state) and horizontal (between sponsoring states) harmonization of EIA processes and related compliance action to avoid conflicting directions and duplication”.

the exploration phase? What, for example, constitutes an “adequate” or “good” baseline (criteria?) which feeds into the next stage of an environmental assessment process? (Note: the current working draft attempts to define the components of an EIA process, including an adequate baseline study but further guidelines will be needed).

7. Drafting challenges: specifics

7.1 The working draft presents a number of challenges for consideration, not least in relation to terminology and language. Appropriate commentary has also been added to a number of draft regulations.

“Impact”, “Effect” and “Change”

7.2 The working draft defines both “Environmental Impacts” and “Environmental Effects”. However, what is the difference? Or can these terms be used interchangeably in a DSM context? The Convention makes no reference to the word “impact” but to “effects” (e.g. Article 145 speaks to “harmful effects”). The SDC Advisory Opinion makes numerous references to “impacts” and refers only to “effects” in repeating the language of the Convention. The PN Regulations uses both words and what appears to be interchangeably.¹² The US NEPA Regulations treats the two words as synonymous.¹³ It is generally understood that “impacts” are any changes resulting from activities or action; whereas, “effects” are the consequences of “impacts”.¹⁴ Is the distinction one of timing? That is, “impacts” are assessed during an EIA process, whereas “effects” are monitored and managed as mining activities progress? That said, there is merit in sticking with the language of the Convention wherever possible.

7.3 In defining serious harm, the Authority uses the concept of *significant adverse change*. Again, is there any intended difference or consequence between “change”, “impact” or “effect”? While many contemporary environmental instruments use similar language, perhaps interchangeably,¹⁵ the Convention uses the words “change” and “effect” in such a way that they are different concepts. In an environmental context, Article 196(1) makes reference to “*significant and harmful changes*”; furthermore, Article 206 refers to planned activities that may cause, *inter alia*, “significant and harmful changes to the marine environment” combined with a requirement to “assess the potential effects of such activities on the marine environment”. Article 206 makes a clear and fundamental distinction. It is possible legally to have an “effect” without having a “change”.

7.4 The language in the working draft may need to be modified to take account of these observations in due course to ensure both a consistent approach and terminology that accords with the language and intent of the Convention.

¹² E.g. regulation 32: “...against which to assess the likely effects of its programme of activities under the plan of work for exploration...”.

¹³ §1508.8 Effects.

¹⁴ Equally, national legislation generally refers to the need for environmental assessment where a project is likely to have *significant effects* on the environment. In the context of the PN Exploration Regulations, serious harm encompasses *significant adverse change*. In the *Pulp Mills on the River Uruguay* case, reference is made to *significant adverse impact* (Para.204).

¹⁵ This point was also highlighted at the Gold Coast workshop in May 2016 and a need to consider and align the different terminology to fill any gaps of the type of harm anticipated under UNCLOS.

Serious harm / significant adverse change

7.5 There is no doubt that a common understanding of what constitutes or how to define “serious harm” for the purposes of the Part XI regime continues to elude the broad stakeholder base.¹⁶

7.6 In 1990, the Preparatory Commission for the ISA considered the following definition for “serious harm”: -

“serious harm to the marine environment” means any effect from activities in the Area on the living or non-living components of the marine environment and associated ecosystems beyond that which is negligible or which has been assessed and judged to be acceptable by the Authority pursuant to these regulations and the relevant rules and regulations adopted by the Authority and which represent:

- (a) significant adverse changes in the living and non-living components of the marine and atmospheric environment;
- (b) significant adverse changes in the ecosystem diversity, productivity and stability of the biological communities within the environment; or
- (c) loss of scientific or economic values which is unreasonable in relation to the benefit derived from the activity in question.”¹⁷

There is merit in considering the definition above for the purposes of the working draft. However, at the time of writing the source and basis for this working definition is not known and this would aid further discussion.

7.7 The Exploration Regulations (and the working draft Environmental Regulations) also speak to the concept of “significant adverse change”. As is the case with many of these definitions in national and international law, further qualifiers / legal thresholds (“negligible”, “significant”, “acceptable” etc.) present further challenges. There is no one single component that will define serious harm (or significant adverse change); that is, a number of factors / criteria will need to be considered.¹⁸ Equally, science speaks to ecological thresholds and their respective tipping points.

7.8 It is not intended in this discussion paper to explore this matter in further detail but to recommend that a working group is established to advance discussions and perhaps re-think the way in which this is being approached. In advance of any working group, a technical paper should be commissioned which considers comprehensively national and international approaches to this.

¹⁶ See also discussion of serious harm at Gold Coast workshop.

¹⁷ Article 2(2) Draft Regulations on Prospecting, Exploration and Exploitation of Polymetallic Nodules in the Area, Addendum, Part VIII, Protection and Preservation of the Marine Environment from Activities in the Area, Working Paper by the Secretariat, LOS/PCN/SCN.3/WP.6/Add.5, 8 February 1990. (In 1991, a redraft by the Chairman of Special Commission 3 used the concept of “unacceptable changes” to the marine environment meaning changes to the marine environment which will result or are resulting from activities in the Area and which are judged unacceptable according to the environmental standards recommended by the Legal and Technical Commission and adopted by the Council (see LOS/PCN/SCN.3/WP.6/Add.5/Rev.1)).

¹⁸ For example, the FAO International Guidelines in connection with deep sea bottom trawling which may provide a starting point as modified or expanded upon for DSM activities.

Addressing serious harm to the marine environment in the regulations for the exploitation of mineral resources in the Area (ISBA/21/C/13, 8 June 2015)

7.9 The Kingdom of the Netherlands, through the above paper, invited the Council to request the Commission to consider the following in the development of the exploitation code:

- (a) The exploitation regulations be based on the provisions on emergency orders in the exploration regulations in order to address threats of serious harm to the marine environment following an incident resulting from or caused by a contractor's activities in the Area;
- (b) The exploitation regulations include an obligation requiring contractors to address serious harm to the marine environment by:
 - (i) Assessing the technical and economic feasibility of implementing restoration measures and;
 - (ii) Providing for restoration by equivalent, compensatory measures and/or the payment of monetary compensation if no adequate restoration measures have been or can be implemented;
 - (c) Private sector initiatives to address harm to the marine environment be supported and encouraged.

7.10 The issues raised by this paper are of significance. As highlighted at paragraph 9 of ISBA/21/C/13, under a number of instruments response measures do not apply to all environmental loss: "The loss must result in an adverse effect on the environment that is measurable or otherwise observable and surpasses a certain threshold. The threshold is usually defined using qualitative terms such as "significant" or "serious".

7.11 Paragraph 10 also highlights that "response measures may not always be technically feasible or economically reasonable". Currently this is the case as regards restoration measures, though further research and studies are warranted.¹⁹

7.12 The working draft does consider a number of the points raised above, including that of emergency orders (though the practical application of this as drafted under the Exploration Regulations is questionable), compensatory measures (through funds (and perhaps offsets) and consideration of restorative measures in an environmental management and monitoring plan / closure plan.²⁰ However, these aspects remain for further discussion by stakeholders as the Authority develops a "total regulatory package".²¹

"Operators"

7.13 UNCLOS refers in Annex III to "operator".²² In an oil and gas context, operators may be the licensee or one of the licensees under a production license or a third party appointed by a licensee. The management of risk is inherent in conducting activities in the Area and it is an operator undertaking day-to-day operations who has the primary responsibility for that

¹⁹ See van Dover et al *Ecological restoration in the deep sea: Desiderata* Marine Policy 44 (2014) 98–106.

²⁰ The original draft legal framework issued in July 2015 proposed a restorative / rehabilitative obligation on contractors where required by the Council and based on technical and economic feasibility. The general consensus among stakeholders at the time was restoration was not considered technically feasible, no obligation to restore should be reflected but that such measures be considered in the plan of work.

²¹ Aspects relating to "compensatory measures" will be considered by a legal working group on responsibility and liability in the Area and also as part of the overall payment regime discussions.

²² E.g Article 14, Annex III states "the operator shall transfer to the Authority...". The word is also used in Articles 5, 10, 16, 17

management (operational, health and safety, environmental).²³ The Exploitation Regulations are targeted at a Contractor (the sponsored entity) level with “simple” reporting / disclosure obligations as regards the use of sub-contractors. Was the intention of adopting “operator” to adopt RRP that apply directly to third party operators? Should the regulations consider this further? Or was the drafting of “operator” simply to reflect / include activities by the Enterprise?

Sponsoring States and matters of jurisdiction and competence

7.14 There needs to be a clear understanding of the role of the sponsoring State in the overall regulatory (including the application for sponsorship) and enforcement process as part of its responsibility to ensure. Will an agreement or arrangement between a sponsoring State and a sponsored contractor likely contain / impose any specific terms and conditions on a sponsored contractor?²⁴ This issue of jurisdiction and competence also extend to flag States and matters relating to marine pollution (e.g., as governed by IMO for vessel-based pollution) and dumping. All aspects of the exploitation operations will need to be considered and areas of jurisdiction mapped out.²⁵

Environmental Objectives

7.15 Article 145 of the Convention requires “necessary measures” to be taken to “ensure effective protection for the marine environment” and for the Authority to adopt RRP to this end. Article 145(a) specifically refers to “interference with the ecological balance of the marine environment”, with Article 145(b) requiring the protection and conservation of the natural resources and prevention of damage to the flora and fauna.

7.16 Article 145 clearly stipulates the policy objectives with regard to the protection of the marine environment and the obligation to take necessary measures through the adoption of RRP.

7.17 However, “effective protection” needs to be operationalized in the context of Article 145. Ideally, the Authority (and its stakeholders) need to establish ecological objectives and environmental goals and relevant targets and measurable environmental indicators for the status of the mined and adjacent areas. That is, in order to develop an outcome-based approach (both qualitative and quantitative elements (“Environmental Targets”)) toward designing necessary measures to protect the different components of the marine environment, such an articulation of objectives is required.²⁶ Furthermore, these will be

²³ Under Directive 2013/30/EU of the European Parliament and of the Council of 12 June 2013 on safety of offshore oil and gas operations and amending Directive 2004/35/EC, firmly places responsibility at an “operator” level.

²⁴ Though see for example Section 94 Tuvalu Seabed Minerals Act 2014: not impose unnecessary, disproportionate, or duplicate regulatory burden on Sponsored Parties, nor impose requirements upon a Sponsored Party under this Act or Regulations to be made under this Act except insofar as these are consistent with existing requirements imposed by, the UN Convention on the Law of the Sea, the Rules of the ISA and other applicable standards of international law.”

²⁵ See Commission’s High Level Issue No. 2 and a need for a workshop on jurisdictional competencies.

²⁶ The EU *Marine Strategy Framework* focuses on the achieving or maintaining “good environmental status” of marine waters through a number of qualitative descriptors. The directive also applies the adaptive management approach to achieving such status. Good environmental status is defined as (a) the structure, functions and processes of the constituent marine ecosystems, together with the associated physio- graphic, geographic, geological and climatic factors, allow those ecosystems to function fully and to maintain their resilience to human-induced environmental change. Marine species and habitats are protected, human-induced decline of biodiversity is prevented and diverse biological components function in balance; (b) hydro-morphological, physical and chemical properties of the ecosystems, including those properties which result from human activities in the area concerned,

fundamental in assessing the satisfactory “Environmental Performance” of a contractor under an exploitation contract.

Application of the Precautionary Approach

7.18 Discussion still remains around both definitional and operational aspects of the precautionary approach in a DSM context. Academic literature has for over two decades discussed the application of the precautionary approach and the threshold at which its application is triggered. For DSM activities, the fundamental question to be addressed now is not should the precautionary approach be applied, but how? How is the precautionary approach to be applied to activities in the Area by an applicant, contractor, ISA and sponsoring States?

7.19 The working draft sets out the approach as one of the guiding values. It also requires in certain cases for applicants and the Authority to demonstrate where precaution has been applied, the rationale for its application and the precautionary measures to be adopted. Further thought and guidance is needed to ensure that the approach is embedded in a risk assessment and management framework. There are many parallels and much experience in applying the approach in other regimes.²⁷

7.20 Adaptive management (as a tool for the application of precaution²⁸) is discussed briefly within the relevant section of the working draft but as yet, no suggested regulatory wording. Adaptive management and its appropriateness / criteria for DSM activities, require a dedicated working group.

“The Authority”

7.21 Currently numerous references to “the Authority” exist in the working draft regulations and the Exploitation regulations. In due course, the specific organ or functioning unit of the Secretariat will need to be identified as the object of the obligation or duty.

Time limits

7.22 Time limits in the evaluation of and decision making in connection with the approval of a Plan of Work need to be set. Benchmark time-scales are found in terrestrial mining codes. A responsive and clear time-bound decision-making process is needed. The working draft attempts to define certain key time limits in the regulatory process. However, these need to be reviewed and considered in the light of the overall approval process for a Plan of Work, the complexities involved (which may be resource- / location-specific as well) and the interests of a fair and proper process and procedure.

7.23 Equally important is the issue of the operational practices of the various organs of the Authority and the timing of meetings of the Council and the Commission in particular. The

support the ecosystems as described above. Anthropogenic inputs of substances and energy, including noise, into the marine environment do not cause pollution effects.

²⁷ See also Aline Jaeckel, *The International Seabed Authority and Marine Environmental Protection: A Case Study in Implementing the Precautionary Principle* (PhD thesis, University of New South Wales, Australia, 2015). An extract /discussion paper based on this thesis was presented by Jaeckel at the Gold Coast workshop in May 2016 and centres on three dimensions involved in the implementation of the precautionary approach, namely the taking of protective measures as well as the procedural and institutional dimensions. Several elements within these dimensions have been addressed in the working draft including the significance of transparency and public participation in the evaluation process.

²⁸ Adaptive management may also be considered as part of Best Environment Practice and overall good management within any organization.

regulations cannot be practically structured / drafted around the current meeting schedules of these organs. The latter will have to be adjusted accordingly. The content of the regulations must drive the form and functioning of the Authority. This includes the resourcing needs for the Secretariat, e.g., the need to establish an “Environmental division / EIA Unit” in the Secretariat function to help guide (scope) the EIA process such that as detailed and as comprehensive an EIS is produced for consideration and evaluation by the Commission.²⁹

8. Remoteness of Mining Activities

8.1 The development and implementation of a fit-for-purpose regulatory and enforcement framework needs to consider the remoteness of mining operations. A classical command and control structure may not be an entirely appropriate mechanism for the Area. The regime needs to develop clear and unambiguous contractual obligations, encompassing relevant standards and protocols (see 10. below) duly enforced by an inspection / observer scheme (including remote visual / sensors) and co-operation between the Authority and Sponsoring States. This points to the need for an effective mining, compliance and enforcement mechanism.

9. Managing Impacts of Deep Sea Resource Exploitation project (MIDAS)

9.1 The working draft has been prepared as certain deliverables flowing from the MIDAS project were being released. It has not been possible within the timeframe to assimilate the full outputs of this project. Aspects of the various work packages have been used, where appropriate, to validate approaches taken in the drafting of these regulations. Nevertheless, a wealth of considerations flowing from the MIDAS project remains for discussion.

9.2 Readers of this paper are encouraged to read as a minimum, MIDAS Deliverable 9.6 (Work Package 9) *Report on the implications of MIDAS results for policy makers with recommendations for future regulations to be adopted by the EU and the ISA*³⁰ which provides an overview of the key regulatory recommendations. As highlighted above, a key challenge will be the balance between adequately prescriptive regulations and their supporting recommendations and guidelines.

10. Standards, Protocols, Recommendations and Guidelines

10.1 Standards are a way of determining acceptable management. Two elements are essential to effective standards – content and credibility. Content must be relevant to needs and be practical and feasible (cost-effective) and based on best information and data available. Equally, and of particular relevance to DSM, flexible to improvement in knowledge and experience. Credibility requires a buy-in from stakeholders through consensus building.

10.2 Standards and protocols are useful in standardising processes and procedures and in achieving consistency across the contractor base. Standards (and standardization) are useful in setting the definition and benchmark for the expected levels of operational safety required for an effective regulatory regime as regards human health and safety and the protection of the marine environment. “Good” standards facilitate a common approach within

²⁹ These issues are highlighted by and form the basis of a number of recommendations in the Article 154 Review report.

³⁰ 16 December 2016. Available at https://www.eu-midas.net/sites/default/files/deliverables/D9.6_FINAL_lowres.pdf (accessed 25.01.2017).

an industry, assist in establishing the all-important level playing field and, certainly in the case of the oil and gas sector, lead to other efficiencies, such as in economies of scale.

10.3 Certain ISO (and other national, regional and international) standards may be of direct relevance and applicability to DSM activities. Benefits of such standards include their development through a consensus-based approach with the involvement of industry and that they are potentially auditable. The extent to which specific standards (such as ISO14001:2015³¹ and ISO 31000³² etc.) are appropriate for direct application within a DSM context or with appropriate modification requires detailed examination. Some international standards apply at an organization/entity level and their practical and effective application at an operating level also requires examination. There will be a need to consider, where applicable, the development (and implementation) of DSM-specific standards, and a participatory / consensus-based approach in their development.³³ However, the first overarching question is: what is needed and what type of “standards” are available, need adaption and / or need formulating and for what?³⁴

10.4 The working draft itself is also prescribing standards and protocols together with anticipated recommendations and Authority guidelines. However, the exact nature, status (legal) and what they are trying to achieve (in the context of Good Industry Practice) must be discussed. Is the intention for such standards to provide direction but also control over activities in the Area in providing possible measurable outcomes or target deliverables? Or, in the case of a “guidance document” (referred to on many occasions in the working draft), simply to provide clear(er) guidance on technical or administrative matters (e.g., the form of application documents); that is, to recommend ways of doing things.

10.5 For example, the EIA process. The outcome which will be prescribed for is the content of an environmental impact statement. However, guidelines can be prepared setting out recommended ways of conducting, say environmental risk assessment and generally accepted risk assessment methodologies, but the application of those risk assessment methodologies lies with the applicant.³⁵

10.6 Over-prescription can both stifle innovation and not reflect individual contractor operations. Where appropriate, specific contractual terms and conditions should be adopted to provide for appropriate contractor / site-specific measures.

³¹ ISO 14000:2015, *Environmental management*.

³² ISO 31000:2009, *Risk management – Principles and guidelines*.

³³ See, for example, Mining, Minerals and Sustainable Development, *Participation and Governance Structures*, October 2001.

³⁴ It is anticipated that the Berlin Workshop in March 2017 will look at this.

³⁵ The *Environmental Impact Assessment (Part IV Divisions 1 and 2) Administrative Procedures 2012* (at Clause 16 and in connection with “Recommended Conditions”) of Western Australia very usefully summarizes the point being made here: **“The EPA’s preference is to recommend outcome-based conditions. That is, conditions which focus on the ultimate objective that is to be achieved (in contrast to prescriptive conditions, with detailed requirements about “how” to achieve the objective). The aim of the outcome-based approach to condition-setting is to regulate “what” to achieve, not “how” to achieve it.”**

11. Strategic environmental planning and management

11.1 The tentative working draft as presented in Section III to this discussion paper is designed principally to regulate for the requirements on and conduct of applicants and contractors.

11.2 The revised draft legal framework for the Mining Code issued by the Commission in July 2015 anticipated the adoption of Strategic Environmental Impact Assessments and Strategic Environmental Management Plans (SEMPs) by the Authority. However, at a subsequent environmental management workshop in May 2016, a wealth of terminology and different layers of assessment and plans were introduced (SEAs, SEMPs, Regional Environmental Assessments and Regional Environmental Management Plans). The workshop neither provided for clear definitions nor a clear articulation of the need for the different levels of assessment and plans and how they would relate to one another. Consequently, there appears to be confusion across the stakeholder base as to needs, requirements and terminology and as to whether a set of regulations designed to define the legal relationship between contractors and the Authority is the appropriate instrument for the purpose of setting forth matters of policy.

11.3 That said, there does appear to be broad consensus, as a matter of policy, on the need for one “overarching strategic document” which would provide a context for the development of regional plans at an appropriate geographical and temporal scale (SEMPs). The precise content of these remains unclear.

11.4 An overarching document could, for example, present the environmental objectives for the Area to operationalize the policy goal of Article 145 of the Convention. It could also demonstrate how activities in the Area contribute to the common heritage of mankind and sustainable development (including the UN’s Sustainable Development Goals e.g. SDG 14), generally accepted biodiversity targets and provide an insight into the trade-offs between the 3 pillars of sustainable development.

11.5 As to SEMPs, work has already been undertaken in respect of an environmental management plan for the Clarion-Clipperton Zone³⁶ (and the designation of APEIs) together with scientific workshops in connection with the development of a plan for the Mid-Atlantic Ridge. The environmental management workshop to be held in Berlin in March 2017 will potentially explore the content of SEMPs, using the CCZ EMP as the base document for critical assessment. SEMPs will inform the development of environmental assessment and corresponding site-specific environmental management and monitoring plans.

11.6 As highlighted above, a clearer and inclusive process and procedure needs to be established with regard to the content, purpose, development and implementation of relevant strategic plans and documents.

12. Total package

12.1 As highlighted by the Commission in its covering note to the working draft Exploitation Regulations, whereas there is a “building block” approach to regulatory development, it is understood that “nothing is agreed until everything is agreed”.

³⁶ See Review of the implementation of the environmental management plan for the Clarion-Clipperton Fracture Zone, ISBA/22/LTC/12, 17 June 2016 regarding the status of the CCZ EMP and proposed actions.

12.2 In addition to the further development of the Exploitation Regulations (and Seabed Mining Directorate Regulations), other action areas (including priority deliverables) will affect the development of the Environmental Regulations, including a legal working group on responsibility and liability in the Area, further development of the payment regime in the Area (including environmental incentives) and subsequent workshops on environmental management in the Area.³⁷

12.3 Additionally, in February / March 2017, the Commission aims to formulate a clearer working methodology with regard to the development of the overall Mining Code. To this end, in July 2016, as part of stakeholder submissions to the working draft Exploitation Regulations, the Commission sought the views of stakeholders as to the best mechanism for regulatory development to ensure a transparent and inclusive approach.

13. Review of this working document and working draft Environmental Regulations

13.1 It would be helpful to the Authority, in due course, for any reader / reviewer of this discussion paper and tentative working draft, that the following questions be considered: -

- i. does the working draft follow a logical flow to the development of environmental assessment and management in the Area?
- ii. aside from specific drafting style and language (draft regulations will be presented to expert legislative draftsmen in due course), are the draft regulations clear and concise as to their intended need and requirement?
- iii. do any draft regulations appear superfluous or adding little value?
- iv. are the draft regulations within the legal parameters and authority of the Convention and the Agreement?
- v. is the structure and content of the working draft adequate / fit-for-purpose?
- vi. does the working draft (albeit incomplete in parts) achieve a “good” balance between being necessarily prescriptive but not overly prescriptive? That is, what level or detail of prescription is required at this stage?
- vii. from a technical viewpoint, are the obligations realistic and achievable?
- viii. from an economic / financial perspective, what are the implications for applicants / contractors and the regulatory structure?
- ix. whereas a detailed discussion over definitional content will be needed, at this stage of drafting, what other definitions could be relevant? Or are there too many definitions?
- x. is it sufficiently clear that the appropriate onus / burden of proof under these regulations in terms of risk assessment and management remains with the applicant as the proponent of exploitation activities?

³⁷ *Towards an ISA Environmental Management Strategy for the Area*, Berlin, March 2017.

Section II

Possible working structure for the “Environmental Regulations”

Title

Preamble

Part I – Introduction

1. Use of terms and scope

Part II – General matters

Section 1: General

2. The Authority’s environmental duties and objectives for the Area
3. Applicant for the purpose of these Regulations

Section 2: Guiding principles

4. General
5. Best Available Scientific Evidence
6. Ecosystem-based approach
7. Precautionary Approach
8. Best Environmental Practices
9. Promotion of access to Environmental Information
10. Consultation in Environmental assessment, Evaluation and management
11. Co-operation
12. Environmental Objectives: protection and conservation of the natural resources
13. Waste minimization

Section 3: Restrictions and prohibitions

14. Restriction on Mining Discharges
15. [Emergency Dumping]
16. Exclusion areas

Part III – Environmental Assessment

Section 1: General

17. Environmental assessment

Section 2: Environmental Baseline

18. Identification (delineation) of Environmental Impact Area
19. Environmental Baseline study

Section 3: Environmental scoping report

20. Environmental scoping report: preparation, review and opinion

Section 4: Environmental Risk Assessment and Evaluation

21. Risk assessment and evaluation of likely Environmental Impacts

Section 5: Alternatives, Mitigation and management measures

22. Alternatives, Mitigation and management measures

[Section 6: Matters to be taken into account in determining whether an activity (or component thereof) is likely to have a significant Environmental Impact]

Part IV – Preparation of Environmental Plans

Section 1: General

- 23. Applicant to comply with relevant guidelines and Regulations
- 24. Authority's right to request separate Environmental Plans by Mining Area
- 25. Notice in respect of application for approval of Plan of Work

Section 2: Environmental Impact Statement

- 26. Preparation of Environmental Impact Statement
- 27. Information requirements for the Environmental Impact Statement

Section 3: Environmental Management System

28. Requirements for Environmental Management System

Section 4: Environmental Management and Monitoring Plan

- 29. Preparation of Environmental Management and Monitoring Plan
- 30. Information requirements for the Environmental Management and Monitoring Plan

Section 5: Closure Plan

- 31. Purpose of Closure Plan
- 32. Information requirements for the Closure Plan

[Section 6: Emergency Response and Contingency Plan]

Part V – Preliminary review of the Environmental Plans by the Authority

33. Review of Application for Approval of a Plan of Work: Preliminary review by the Authority

Part VI – Publicity and Consultation

- 34. General
- 35. Public notification of application for approval of a Plan of Work and access to Environmental Plans
- 36. Review of the Environmental Plans by Interested Persons
- 37. Applicant's response to submissions by Interested Persons
- 38. Authority's review and report on submissions

Part VII – Consideration of the Environmental Plans by the Legal and Technical Commission

Section 1: General

39. General

Section 2: Process and procedure for recommendations relating to the evaluation of the Environmental Plans by the Commission

40. Facilitating involvement of Interested Persons in Environmental Evaluation

41. Matters to be taken into account by the Commission

Section 3: Amendments, modifications (Conditions) attaching to the Plan of Work in respect of Environmental Matters

42. Amendments and modifications of the Environmental Plans

Section 4: Delivery of a revised Environmental Management and Monitoring Plan and revised Closure Plan

43. Procedure for the delivery of the revised Environmental Management and Monitoring Plan and revised Closure Plan

Section 5: Environmental Performance Guarantee (“environmental bond”)

44. Provision for a Financial Guarantee or Security

Section 6: Commission’s recommendations to Council on its evaluation of the Environmental Plans and conditions

45. Factors to be considered by the Commission

46. Commission may obtain further advice

47. Evaluation Report to the Council

Part VIII – Modification and Periodic Review of the Environmental Plans [EMMP / Closure Plan]

48. Modification of the Environmental Plans

49. Substantive review of Environmental Performance

Part IX – Environmental Management and Monitoring

Section 1: Adaptive management approach

Section 2: Protection of the Marine Environment from Harmful Activities - Obligations on the Contractor

50. General

51. Adherence to Contract – Compliance with Environmental Management and Monitoring Plan and Closure Plan

52. Environmental Monitoring

53. Performance Assessment

54. Vulnerable Marine Ecosystems

55. Environmental Auditing

- 56. Pollution Control and Management of Waste
- 57. Vessel (installation) and equipment positioning

Section 3: Environmental Incidents: contingency plans and emergencies

- 58. Duty on Contractor to keep an Environmental Incidents Register
- 59. Risk of Incidents
- 60. Emergency Response and Contingency Plans

Section 4: Other

- 61. Unforeseen significant adverse change
- 62. Complaints
- 63. Training
- 64. Notifiable Events under an Exploitation Contract

Part X – Social and cultural Management

Part XI - Closure plans and post-closure monitoring

- 65. Suspension of / cessation of activities / care and maintenance (temporary suspension)
- 66. Post-closure Monitoring and management

Part XII – Compensatory measures

Section 1: Environmental Liability Trust Fund

- 67. Set-up of Environmental Liability Trust Fund
- 68. Purpose of the fund
- 69. Funding

Section 2: Other compensatory measures

- 70. Residual [significant] adverse change

Part XIII - Data and information management

Section 1: Obligations on Authority

Section 2: Obligations on Contractor

Part XIV - Compliance, Supervision, Enforcement [and Penalties]

Section 1: General

- 71. General
- 72. Power of Authority to direct Contractor to take action to prevent or minimize Environmental Impacts
- 73. Necessary measures to secure compliance

Section 2: Emergency Orders

74. Emergency Orders

Section 3: Area Environmental Protection Measure

75. Area Environmental Protection Measure

Section 4: Compliance (remediation?) Notice

Section 5: Power to take remedial action

76. Authority's power to recover costs in the event of remedial measures

Section 6: Penalties

Part XV – Annual reporting obligations

77. Annual Reporting by Contractors

Part XVI – Other administrative matters

78. Avoidance of duplication in procedures

79. Information discovery order

80. Public register

81. Review and amendment of these Regulations

Annexes to the Environmental Regulations

Annex I Environmental scoping report

Annex II Format / Content of an Environmental Impact Statement

Annex III Format / Content of an Environmental Management and Monitoring Plan

Annex IV Format / Content of a Closure Plan

Annex V Content of an Emergency Response and Contingency Plan

Annex VI **Standard Contract Terms:** Environmental management, monitoring and reporting: standard terms for inclusion in Exploitation Contract.

Section III

Tentative Working draft of the “Environmental Regulations”

Title

Regulations on [Exploration and] Exploitation for Mineral Resources in the Area (Environmental Matters).

Preamble

In accordance with the United Nations Convention on the Law of the Sea of 10 December 1982 (“the Convention”), the seabed and ocean floor and the subsoil thereof beyond the limits of national jurisdiction, as well as its resources, are the common heritage of mankind, the Exploration and Exploitation of which shall be carried out for the benefit of mankind as a whole, on whose behalf the International Seabed Authority acts. The objective of this set of Regulations is to provide for the effective protection for the Marine Environment from the harmful effects of Exploitation Activities in the Area, particularly, to: -

- (a) promote guiding principles to the development, management and regulation of activities in the Area as they impact the Marine Environment.
- (b) set-out a process and procedure for the conduct of environmental assessment in the Area by the Authority and by Applicants for the approval of a Plan of Work.
- (c) ensure that environmental matters are integrated into and evaluated as part of the decision-making process in assessing an application for the approval of a Plan of Work.
- (d) provide for the preparation, relevant processes and evaluation of certain environmental documents submitted as part of the application for the approval of a Plan of Work under regulation 4 of the Exploitation Regulations.
- (e) provide for the subsequent review and modification of Environmental Plans.
- (f) provide for the environmental monitoring and management of activities in the Area.
- (g) provide for appropriate compensatory measures, where applicable; and
- (h) ensure that appropriate, procedurally fair Consultation is promoted and implemented.

Part I – Introduction

Draft Regulation 1

Use of terms and scope

1. Terms used in the Convention shall have the same meaning in these Regulations. Where applicable, terms used in the Regulations and Standard Contract Terms on Exploitation for Mineral Resources in the Area shall have the same meaning in these Regulations.
2. In accordance with the Agreement relating to the Implementation of Part XI of the United Nations Convention on the Law of the Sea of 10 December 1982 (“the Agreement”), the provisions of the Agreement and Part XI of the Convention shall be interpreted and applied together as a single instrument. These Regulations and references in these Regulations to the Convention are to be interpreted and applied accordingly.
3. For the purposes of these Regulations:

[“Definitions”: a list of defined terms (indicative at this stage) can be found at Schedule 1 to this working draft. Definitions will advance as both the regulatory content evolves and / or a common approach toward terms based on internationally accepted definitions is established. The content of the draft should drive the formulation of definitions].

4. These Regulations are subject to the provisions of the Convention and the Agreement and other rules of international law not incompatible with the Convention.

Part II - General matters

Section 1: General

Draft Regulation 2

The Authority's environmental duties and objectives for the Area

1. The Authority shall, in accordance with the Convention and the Agreement, establish and keep under periodic review environmental rules, regulations and procedures, including its guidelines and recommendations, to ensure effective protection for the marine environment from harmful effects which may arise from activities in the Area.
2. Additionally, the Authority will undertake the necessary strategic assessment and management planning in accordance with its policy and in conjunction with Interested Persons and to develop Environmental Objectives for the effective protection of the Marine Environment in accordance with Article 145 of the Convention.
3. [Other?].

Draft Regulation 3

Applicant for the purpose of these Regulations

For the purpose of these Regulations an Applicant includes:

- (a) any entity under regulation 2 of the Exploitation Regulations applying for the approval of a Plan of Work; or
- (b) any entity holding an Exploitation Contract and where such entity proposes to conduct Exploitation Activities in a part of the Contract Area, being a proposed Mining Area, not previously subject to assessment and evaluation under these Regulations.

Section 2: Guiding principles

Draft Regulation 4

General

1. The object of these regulations is the effective protection of the Marine Environment from the harmful effect of activities in the Area having regard to the principles set out in this Section 2.
2. All persons engaged in or connected with activities in the Area, in connection with the assessment, management, administration and regulation of those activities, as the case may be, shall consider the guiding principles in this Section 2 according to the Authority's guidelines on the basis of Internationally Recognized Standards and practices.

Draft Regulation 5

Best Available Scientific Evidence

All risk assessment and risk management undertaken in connection with environmental assessment and the proper management and response measures taken under or in accordance with these Regulations, shall be based on Best Available Scientific Evidence.

Draft Regulation 6

Ecosystem-based approach

1. The ecosystem approach shall be considered with respect to the management of activities in the Area that have an Environmental Impact on the Marine Environment.

2. The ecosystem approach will be based on Best Available Scientific Evidence about the marine ecosystem and its dynamics in order to identify, manage and take necessary measures to minimize a risk of interference with the ecological balance of the Marine Environment, taking account of appropriate spatial and temporal scales.

Draft Regulation 7

Precautionary approach

All persons engaged in activities in the Area shall apply the Precautionary Approach, as reflected in Principle 15 of the Rio Declaration, to the assessment and management of risk of harm to the Marine Environment from Exploitation Activities in the Area and where scientific evidence concerning the scope and potential negative impact of the activity in question is insufficient but where there are plausible indications of potential risks of Serious Harm to the Marine Environment.

Draft Regulation 8

Best Environmental Practices

1. The best combination of environmental management and response measures shall be adopted in accordance with Good Industry Practice [and incorporating Best Available Techniques].
2. The development and application of environmental standards and protocols shall be continually reviewed in order that progressive improvements are made in the efficient and effective protection of the Marine Environment, including the reduction of Pollution and waste at source, as such improvements become relevant and practicable through technological development and advances in scientific knowledge, and are economically feasible.
3. Where the application of Best Environmental Practice does not deliver acceptable results, additional or alternative measures may be required and Best Environmental Practice redefined accordingly.

Draft Regulation 9

Promotion of access to Environmental Information

1. The Authority and Sponsoring States shall promote and develop procedures to ensure the practicable and timely provision of relevant Environmental Information to Interested Persons.
2. The Authority shall promote a uniform format for the reporting of data and information in order that comparable data may be shared more meaningfully.
3. In the drafting of documents, guidelines and plans under these Regulations, Environmental Information shall be concise and clear.

Draft Regulation 10

Consultation in Environmental assessment, Evaluation and management

1. The Authority shall promote accountability and transparency in the assessment, evaluation and management of Environmental Impacts from Exploitation Activities under these Regulations.
2. To ensure that evaluations made under these Regulations are made with the widest range of views and expert opinions, the Authority, through adequate procedures, shall encourage and promote Consultation with and between Interested Persons in environmental assessment and management under these Regulations, including, where

appropriate, the provision for open meetings of the Commission directly connected with environmental matters.

Draft Regulation 11

Co-operation

Applicants, Contractors, Sponsoring States and other Interested Persons shall cooperate with the Authority in the establishment and implementation of programmes to observe, measure, evaluate and analyze the impacts of Exploitation Activities on the Marine Environment and to share the findings and results of such programmes with the Authority for wider dissemination, and that such co-operation and collaboration extends to the implementation and further development of Best Environmental Practices in connection with activities in the Area.

Draft Regulation 12

Environmental Objectives: protection and conservation of the natural resources

1. In developing Environmental Objectives for the Area, the protection and conservation of the natural resources of the Area, including biological diversity and ecological integrity, shall be a fundamental consideration.
2. In the development and implementation of a financial mechanism, the Authority shall consider incentive structures, including market-based instruments, that facilitate delivery of relevant Environmental Objectives, Environmental Targets, promotes satisfactory Environmental Performance and supports technology development and innovation.

Draft Regulation 13

Waste minimization

In the conduct of activities in the Area, all reasonable and practicable measures in accordance with Good Industry Practice must be taken under a Plan of Work to minimize the generation of waste, whatever its source.

Section 3: Restrictions and prohibitions

Draft Regulation 14

Restriction on Mining Discharges³⁸

Commentary: “Mining Discharge” is defined under “Use of terms and scope” at Schedule 1 as “*the disposal, Dumping and Discharge into the Marine Environment of SWOE, made as an integral part of, or as a direct result of activities in the Area or from shipboard processing immediately above a mine site of minerals derived from that mine site. SWOE is defined as sediments, wastes and other effluents [which, for the avoidance of doubt shall include mine tailings and water evacuated from the Minerals during shipboard processing].*”

Para. 88 of the SDC Advisory Opinion states that *activities in the Area and shipboard processing* “are to be seen as part of the same kind of activities”.³⁹ The distinction is relevant in relation to activities aboard the mining vessel (shipboard processing versus normal ship operation) and thus a matter of jurisdictional competence between that of the

³⁸ Requires an assessment framework e.g. London Convention and Protocol: *Guidance for the Development of Action Lists and Action Levels for Dredged Material*.

³⁹ See also Article 17(2)(f), Annex III, UNCLOS.

Authority (and/ sponsoring State) in connection with activities in the Area and those related to the normal operation of ships under flag State jurisdiction. The *Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter, 1972 (and the 1996 London Protocol)* does not apply to the disposal of wastes or other matter directly arising from, or related to the exploration, exploitation and associated off-shore processing of seabed mineral resources.

Mining Discharges and their related risk assessment (and clear identification of the different sources / origins of waste) should be part of the environmental impact assessment process and their treatment / management detailed in the environmental management and monitoring plan (and closure plan) for evaluation by the Authority.

A clear picture of jurisdictional competence on matters relating to “dumping” and “discharges” is needed.

Equally, does SWOE need a clearer definition? That is, what needs to be regulated by the Authority / sponsoring States and what is / will be regulated by flag States?

Draft Regulation 15 below refers to “Emergency Dumping”. Again, there needs to be an understanding as to the Authority’s / sponsoring State’s jurisdictional competence / limits with regard to dumping.

1. No person [operator] engaged in activities in the Area may Discharge any SWOE into the Marine Environment where such Discharge is a Mining Discharge, except where the Discharge is permitted in accordance with the requirements of:
 - (a) these Regulations, including the recommendations of the Commission; and / or
 - (b) under an approved Plan of Work.
2. In connection with any Dumping or Discharge which is not a Mining Discharge, the provisions of [the Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter, done at London on 13 November 1972 and MARPOL] shall apply.

**[Draft Regulation 15
Emergency Dumping and Discharges]**

In connection with any vessel, installation and mining equipment connected with Exploitation Activities, the restriction on Dumping shall not apply where the safety of human life or of a vessel, installation and mining equipment in the Area is threatened by the complete destruction or total loss of the vessel, installation and mining equipment in the Area, or in any case which constitutes a danger to human life and if such Dumping appears to be the only way of averting the threat and if there is every probability that the damage consequent upon such dumping will be less than would otherwise occur. Such Dumping shall be so conducted as to minimize the likelihood of damage to human life or Serious Harm to the Marine Environment. The Authority shall in co-operation with relevant international organizations, including the International Maritime Organization, develop the necessary rules, regulations and procedures on Dumping and [other discharges] in the Area].

Draft Regulation 16

Exclusion areas

No activities shall be permitted in an area:

- (a) disapproved for Exploitation by the Council, in cases where Substantial Evidence indicates the risk of Serious Harm to the Marine Environment; and
- (b) otherwise designated by the Council as an area in respect of which no Exploitation Activities shall occur according to the relevant Strategic Environmental Management Plan developed by the Authority and approved by the Council.

Part III – Environmental assessment

Commentary: this Part III is a first attempt to regulate an environmental impact assessment process for exploitation activities in the Area. It will, where necessary, need to be supported by relevant and appropriate guidelines. Albeit this Part III follows a logical step process, environmental impact assessment is an iterative process.

Environmental assessment guidelines will need to be developed by Authority to provide advice to applicants, experts and the public generally about specific procedures, methodologies and the minimum requirements for environmental management which the Authority would expect to be met by applications it receives and considers during the environmental impact assessment process.

The guidelines should be informative and aim to deliver a consistent approach in developing an EIA programme and delivery. However, they should not be overly prescriptive as the onus remains on the applicant to develop comprehensive, location-specific EIAs.⁴⁰ That is, guidelines should ideally set minimum expectations of content and quality.

Additionally, it may be helpful to apply a benchmark or statement to the effect (at least at this stage until the full mining code is developed) that the Authority in developing any guidelines (or these regulations) shall not apply standards which are less stringent than an international reference standard.

For example, in connection with environmental impact assessment and management, a number of stakeholders referred to the applicability of IFC Performance Standards and the Equator principles. Indeed, the MMDA at Clause 10.2 states:

“Where Applicable Law and regulations on environmental and social impact assessment and management, and pollution prevention are less stringent than the IFC Performance Standards, the Company shall undertake its activities in a manner consistent with the IFC Performance Standards. To remove any doubt, the Company and the State recognize that the IFC Performance Standards outline processes to be followed enabling site-specific environmental compliance limits to be developed, where required.”

The definition of “Good Industry Practice” under the Exploitation Regulations does make reference to the IFC Performance Standards, but not to specific principles within those standards.

Section 1: General

Draft Regulation 17

Environmental assessment

1. An Applicant shall conduct, or has conducted, an Environmental Impact Assessment based on sound engineering and economic principles, conducted and prepared according to Good Industry Practice, establishing an Environmental Baseline of environmental conditions existing at [the date of the Application?], and assessing the Environmental Impacts of Exploitation Activities on the Marine Environment.

⁴⁰ The Gold Coast workshop in May 2016 highlighted that guidelines could deliver a certain ease of evaluation but there is a possible danger that it might become a “box-ticking exercise” (workshop report at para. 122).

2. Notwithstanding paragraph 2 above, Applicants may require the approval of the Authority (prior environmental impact assessment) before conducting any preliminary investigations in connection with an Environmental Impact Assessment in accordance with the Commission's recommendations.

Section 2: Environmental Baseline

Commentary: the Exploration Regulations require a contractor to undertake environmental studies in accordance with those regulations, taking account of the recommendations of the Commission. *Recommendations for the guidance of contractors for the assessment of the possible environmental impacts arising from exploration for marine minerals in the Area*,⁴¹ provides recommended baseline data requirements together with activities requiring environmental impact assessment, notably the testing of collection systems and equipment (test mining). As highlighted by para.19: "It is important to note that these baseline, monitoring and impact assessment studies are likely to be the primary inputs to the environmental impact assessment for commercial mining".

Albeit the recommendations highlight the timing⁴² of the submission of any "prior EIA" for test mining, no detailed procedure to date has been established for the review / approval mechanism of such prior EIA. The Commission noted at its 22nd Session that an environmental inception (scoping) report (EIR) had been received;⁴³ however, there is no defined process or procedure to review such EIR and thus review the adequacy of an intended EIA.

There is currently a gap in the exploration regulatory regime with regard to a clear defined process to handle EIRs and Prior EIAs for say test mining (an important component of the process to determine the impacts of commercial mining activities). The LTC's Recommendations (or guidelines prepared by the Secretariat) should incorporate such a process. This process could include a parallel scoping process (between a contractor and the Authority) resulting in the production of an EIR initially. Alternatively, these regulations could prescribe for the necessary process and procedures given the fundamental link between exploration and exploitation.

Draft Regulation 18

Identification (delineation) of Environmental Impact Area⁴⁴

Commentary: this will be challenging not least as regards indirect (secondary) impacts e.g. the plume. While a provisional impact area(s) could be identified, it is thought that the environmental assessment process itself will modify the area boundaries (iterative

⁴¹ ISBA/19/LTC/8, 1 March 2013. See also *Standardization of Environmental Data and Information: development of guidelines*, Proceedings of the International Seabed Authority's Workshop held in Kingston, Jamaica, 25-29 June 2001.

⁴² "The contractor will submit to the Authority a plan for such testing, including the details for monitoring the environment, at least one year before testing begins and at least three months in advance of the annual session of the Authority", LTC Recommendations at para. 52.

⁴³ See *Report of the Chair of the Legal and Technical Commission on the work of the Commission at its session in 2016*, ISBA/22/C/17, 13 July 2016 at para. 21.

⁴⁴ The word "area" has been used rather than "zone" so as not to confuse language with preservation reference zones and impact reference zones, being environmental management tools.

process). Technical assistance will be required in formulating the correct wording for this regulation, unless this should be dealt with more appropriately in relevant guidelines.

Technical thresholds will also be relevant in defining this area. For example, in connection with plumes and determining the boundary between areas where the plume has an impact and the boundary point at which any impact can be discounted.⁴⁵

An Applicant shall determine the geographical limits of the Environmental Impact Area(s) of the Marine Environment likely to be affected by Exploitation Activities, including the Direct Impact Area and Indirect Impact Area, according to the Authority's guidelines. Such impact areas shall be modified as necessary during the Environmental Impact Assessment process conducted by the Applicant.

Draft Regulation 19 **Environmental Baseline study**

Commentary: the Commission's recommendations relating to environmental assessment contain guidance relating to environmental baseline studies. However, what constitutes an "adequate" or "good" baseline? Ideally, from a legal (criteria) perspective, formulating criteria (on a sound scientific basis) would facilitate clearer expectations on baseline / data needs and requirements, though specific recommendations should be formulated (and be resource-specific). Whether these criteria should be addressed in these regulations or reflected in relevant recommendations / guidelines, requires consideration.

Furthermore, do current LTC Recommendation(s) provide for clear expectations as to baseline data needs for exploitation?

In terms of characterizing the areas likely to be impacted there is merit in looking at (and implementing) "marine evidence plans". These have been developed in the United Kingdom by the MMO. Aside from facilitating informed decision-making they aim to add value by enhancing the consistency and direction of marine research; to encourage integration of research efforts this maximizing resources and to provide clarity on the focus for planned and future research. Given the critical need for adequate baseline data, the development of marine evidence plans could give much needed direction to inform the baseline characterization process and, with stakeholder input, provide the necessary of confidence in baseline data.

Recommendation: Authority to review and consider the use of marine evidence plans as a more formal and informed process to directing information needs and requirements.

1. An Applicant shall establish an adequate Environmental Baseline of the Environmental Impact Area against which to assess the likely Environmental Impacts and to determine the necessary measures, management objectives and responses for the effective protection of the Marine Environment from Exploitation Activities.

⁴⁵ Also known as the "mixing zone boundary". Water quality thresholds / targets will be needed and a consideration of the spatial extent / limitations on plumes.

2. An adequate Environmental Baseline study shall be conducted in accordance with the recommendations of the Commission. In determining the adequacy of an Environmental Baseline study [report / assessment], the following criteria shall be used, that:
 - a. the data collected is representative data and the number of samples collected are proportionate to the size of the likely Environmental Impact Area and the variability, spatial and temporal, in natural conditions and characteristics (intensity of sampling).
 - b. the data has been collected using standardized approaches based on Internationally Recognized Standards and protocols.
 - c. the area is accurately mapped using Geographic Information System mapping.
 - d. that any uncertainties in Environmental Baseline information are within generally accepted parameters.
 - e. is capable, within reasonable technical and economic constraints, of providing sufficient information for an Environmental Risk Assessment; and
 - f. the Environmental Baseline study has been conducted and prepared in all material respects with the recommendations of the Commission and in Consultation with Interested Persons, particularly Appropriately Qualified Experts.

Section 3: Environmental scoping report

Commentary: a “typical” EIA process would involve an initial screening of a proposal with a regulator to determine whether an assessment is needed or the level of assessment required for a particular project. This working draft does not currently anticipate nor provide a procedure for a “screening opinion” by the Authority i.e. as to whether / what level of an environmental impact assessment is required for specific Exploitation Activities. That is, the expectation is that a comprehensive EIA will be required. As activities in the Area develop and mature, specific activities (impacts) *may* be excluded from the scope of an EIA following an appropriate screening procedure and as a result of known impacts considered as not requiring EIA.⁴⁶

The next level of the EIA process is one of “scoping”. This will aim to identify the relevant impacts for assessment and is effectively the “terms of reference” for an EIA. It has merit in its potential to reduce the length of an EIA / EIS such that the focus is on significant matters and not insignificant issues thus narrowing the scope of a EIA/ EIS. It also has merit for an applicant / contractor in providing a degree of certainty as to the scope of its EIA activity and, as a result of any relevant stakeholder input, add credibility to the EIA process.

This scoping regulation is drafted as a non-mandatory requirement and subject for further stakeholder discussion as to its merits and appeal, pros and cons. Given the current uncertainties surrounding DSM impacts, the effectiveness of such a scoping mechanism should contribute to, and not weaken, a comprehensive EIA process. The content of the Environmental Impact Statement itself (together with guidelines (to be developed)) will set out the expectations of the EIA deliverable.

Note: there are many generic references to “the Authority” in this Part III. The functions to

⁴⁶ Note: the Commission's *Recommendations for the guidance of contractors for the assessment of the possible environmental impacts arising from exploration for polymetallic nodules in the Area* ISBA/16/LTC/7 does provide (in an exploration context) certain activities as requiring / not requiring prior EIA.

be performed relate principally to the Secretariat function (Environmental / EIA unit) which will need to take an active role in the EIA process in tandem with an applicant / contractor / sponsoring State, including EIA scoping.

Draft Regulation 20

Environmental scoping report: preparation, review and opinion

1. An Applicant may submit a draft Environmental Scoping Report to the Authority for its consideration and shall be prepared in accordance with the Authority's guidelines and in the format prescribed by Annex III.
2. An Environmental Scoping Report shall include the following information: -
 - (a) description of the proposed activities and its environmental objectives.
 - (b) description of the methodology applied to conduct the scoping.
 - (c) identification of the likely Environmental Impact Area.
 - (d) description of the existing status of the Marine Environment in the Environmental Impact Area.
 - (e) identification (preliminary) of the anticipated environmental, social and cultural impacts, including potential Cumulative Impacts, in the potentially affected area(s).
 - (f) indication of possible alternatives to the proposed activities, including location alternatives and scale alternatives.
 - (g) identification and use of Mitigation measures.
 - (h) description of the most appropriate procedure to plan and develop the Exploitation Activities.
 - (i) description of the process of Consultation with Interested Persons.
 - (j) description of the nature and scope of investigations and studies required in order to identify and predict the Environmental Impacts.
 - (k) identify the Appropriately Qualified Experts to provide a review of the scope, methodologies, findings and / or conclusions of the investigations and studies.
 - (l) describe the nature and scope of further investigations and studies required in order to identify and predict the Environmental Impacts.
 - (m) a timeline for completion.
3. The Authority may, within 60 days of the receipt of the report, request the Applicant to provide further information or to conduct further investigations regarding the report. The Applicant shall supply the Authority such information within 60 days of the date of the Authority's request or within such time as agreed between the Authority and the Applicant having regard to the nature of the request and the need for further investigations.
4. The Authority may seek the opinion of Appropriately Qualified Experts in respect of the draft Environmental Scoping Report.
5. The Authority and the Applicant shall, as necessary, prepare a revised Environmental Scoping Report which the Authority shall publish to its website for a period of 60 days and invite comments from Interested Persons.
6. The Commission shall then consider the revised Environmental Scoping Report and submissions received from Interested Persons at its next available meeting and may either:
 - (a) request further information from the Applicant;
 - (b) propose any reasonable amendments to the revised Environmental Scoping Report; and / or

- (c) provide its opinion to the Applicant that it is satisfied with the revised Environmental Scoping Report.
- 7. Where an Environmental Scoping Report is prepared and the Commission has given its opinion in respect of such report, the Authority shall not be obliged to reach any regulatory decision unless and until the Applicant has submitted an Environmental Impact Statement in accordance with these Regulations and the Exploitation Regulations, containing all of the information required by the Environmental Scoping Report.

Section 4: Environmental Risk Assessment and evaluation

Commentary: risk assessment (and management) are fundamental to the effective implementation of the Environmental Regulations / EIA process.

The purpose of this regulation is to outline a broad need for and the components of risk assessment. It is not intended to be overly prescriptive. Guidelines will deal more appropriately with relevant guidance on appropriate risk assessment methodologies (and incorporated into an overall EIA process guideline). Work has already been performed in this area and can be built and expanded upon as necessary for activities in the Area.⁴⁷

Question: Environmental risk assessment or Ecological risk assessment?

Draft Regulation 21

Environmental Risk Assessment and evaluation of likely Environmental impacts

1. An Environmental Risk Assessment shall be undertaken by an Applicant in accordance with this regulation and the Authority's guideline document. The Environmental Risk Assessment shall be carried out in a scientifically sound manner and adopt internationally recognized risk assessment techniques.
2. An Environmental Risk Assessment shall:
 - a) identify all potential risks to the Marine Environment, including those which appear to be insignificant risks.
 - b) be based on Best Available Scientific Evidence and the application of the precautionary approach.
 - c) include an assessment of the scale, likelihood and consequences and thus the risk of Serious Harm to the Marine Environment.
 - d) rank such possible risks in accordance with the Authority's guidance document as follows:
 - i. a potential significant risk;
 - ii. an uncertain risk;
 - iii. an insignificant risk.
3. Where a risk is identified as a potential significant risk or uncertain risk, further and appropriate sampling, data collection and monitoring may be required by the Authority so that more realistic assumptions and measurements can be made with a view to a more quantitative risk assessment and re-classification of risk categories.
4. Risks classified as potential significant risks are to be assessed as to whether they are Acceptable without further Mitigation.

⁴⁷ For example: NIWA *Environmental risk assessment of discharges of sediment during prospecting and exploration for seabed minerals*, January 2014. See also NIWA *Preparing Environmental Impact Assessments: provisional guidelines for offshore mining and drilling in New Zealand*, September 2014.

5. Uncertain risks shall, where practicable, be re-classified as either potential significant risks or insignificant risks.
6. Insignificant risks shall also be documented in the Environmental Impact Statement.
7. The burden of proof is on an Applicant to demonstrate that the risk of the Environmental Impacts, and consequential Mitigation and management thereof, will meet the Environmental Objectives of the Authority and that the Plan of Work is environmentally Acceptable.

Section 5: Alternatives, Mitigation and management measures

Draft Regulation 22

Alternatives, Mitigation and management measures

1. An Applicant shall, based on the Environment Risk Assessment under Section 4 above, assess and determine: -
 - (a) the alternative risk prevention or management responses for potential significant risks that have been identified, quantified and qualified.
 - (b) the management measures and responses for the potential significant risk including:-
 - i. [the Best Practicable Environmental Option].
 - ii. the management measures to be applied and their predicted long-term impact.
 - iii. assessment of the Residual Environmental Impact, if any, following the successful implementation of the management measures.
 - iv. the timeframe and schedule for the implementation of the management measures.
 - v. the responsibilities for the implementation and long-term management of the measures (Closure Plan?).
 - vi. the monitoring programmes to be implemented to provide information and data to assess the success of the implementation of the management measures contemplated above.

Section 6: Matters to be taken into account in determining whether an activity (or component thereof) is likely to have a significant Environmental Impact

Commentary: should these regulations provide appropriate criteria for determining the “significance” of the impact of an activity or is this better left to a guidance document, covering say risk assessment and the individual components of exploitation activities? Equally, can any impact thresholds or acceptable impact criteria be established at this stage? Or should this be a consideration for any strategic assessment process which duly informs project-level EIAs?

Many national jurisdictions do provide a list of criteria against which to assess whether a proposal has a significant effect on the environment. For example, Western Australia prescribes for a “significance test”. Under that regime, the EPA will take the following matters into consideration:⁴⁸

- (a) values, sensitivity and quality of the environment which is likely to be impacted;

⁴⁸ See *Environmental Impact Assessment (Part IV Divisions 1 and 2) Administrative Procedures 2012* at clause 7.

- (b) extent (intensity, duration, magnitude and geographic footprint) of the likely impacts;
- (c) consequence of the likely impacts (or change);
- (d) resilience of the environment to cope with the impacts or change;
- (e) cumulative impact with other projects;
- (f) level of confidence in the prediction of impacts and the success of proposed mitigation;
- (g) objects of the Act, policies, guidelines, procedures and standards against which a proposal can be assessed;
- (h) presence of strategic planning policy framework;
- (i) presence of other statutory decision-making processes which regulate the mitigation of the potential effects on the environment to meet the EPA's objectives and principles for EIA; and
- (j) public concern about the likely effect of the proposal, if implemented, on the environment.

(The above matters do however relate to whether a particular proposal, that has been referred to the EPA, should be assessed).

Part IV – Preparation of Environmental Plans

Section 1: General

Draft Regulation 23

Applicant to comply with relevant guidelines and Regulations

An Application for approval of a Plan of Work for Exploitation shall be accompanied by the environmental documents listed in regulation 4(4)(b), (e), (g) and (h) of the Exploitation Regulations and be prepared in accordance with these Regulations and the Authority's guidelines.

Draft Regulation 24

Authority's right to request separate Environmental Plans by Mining Area

Commentary: requires development of criteria based on characteristics relating to the physical, chemical, ecosystem, habitat and communities (receiving environment), scale of activities, proximity of areas etc. Where these are sufficiently similar, the Authority could permit a single set of plans (with each mining area described under separate chapter headings) with the onus on the applicant to demonstrate "sufficiently similar" in accordance with guidelines.⁴⁹

Note: whatever approach is taken with regard to separate plans, a robust environmental impact assessment process is the primary requirement.

1. The Authority may, according to its application guidelines, accept a single set of Environmental Plans from an Applicant in respect of proposed mining activities at different locations within a proposed Plan of Work or may request separate Environmental Plans for each Mining Area detailed in a proposed Plan of Work.
2. Where the Authority requires further information to determine the form of the application, the Authority shall within 30 days after the Application is made and by notice in writing require the Applicant to furnish such further information in writing.

Draft Regulation 25

Notice in respect of application for approval of Plan of Work

The Authority, in accordance with regulation 35, shall within 30 days of receipt of an application for approval of a Plan of Work for Exploitation, cause public notice of the Application on the Authority's website together with an outline of the evaluation process of the Environmental Plans, including the opportunity for Interested Persons to make submissions in accordance with these Regulations.

Section 2: Environmental Impact Statement

Commentary: Annex II will include the ISA EIS template as soon as this is finalized.⁵⁰ While that template will prescribe the detailed categories of data and information, this regulation should prescribe for the core components of the EIS. Furthermore, while the

⁴⁹ This should however become clear during any scoping process and discussions with the Authority as to specific requirements.

⁵⁰ Further work was undertaken on the EIS template at the Gold Coast workshop in May 2016. A further review of the template is also an agenda item at the Berlin workshop in March 2017.

template shows the detailed categories, the level of detail required for each is unclear, including the appropriate methods and standards used / to be used to acquire data. The ISA will need to develop guidelines (or a best practice EIA manual) providing clear expectations for each item category.

Draft Regulation 26

Preparation of Environmental Impact Statement

1. An Applicant shall prepare an Environmental Impact Statement in accordance with this Section 2.
2. The Environmental Impact Statement shall be in the form prescribed by the Authority at Annex II to these Regulations and shall:
 - (a) be in accordance with the Authority's guidelines.
 - (b) be based on the Environment Impact Assessment conducted according to Part III of these Regulations and, where applicable, in accordance with the Environmental scoping report under regulation 20 above.
 - (c) be in accordance with the objectives and measures of the Authority's relevant Strategic Environmental Management Plan.
 - (d) be prepared in accordance with Good Industry Practice and with regard to the guiding principles under Part II Section 2 of these Regulations.
 - (e) be prepared in plain language, being an official language of the Sponsoring State(s) together with, where applicable, an official English language version.
 - (f) provide relevant and sufficient information, as corresponds to the scale and potential magnitude of the Exploitation Activities and the associated Environmental Impacts, to assess the likely impacts, including Cumulative Impacts, of the proposed Exploitation Activities in the Environmental Impact Area together with the necessary information to support conclusions and findings.
 - (g) be accompanied by the report of Appropriately Qualified Experts verifying its contents and assessing its conclusions.
 - (h) include a non-technical summary of the main conclusions and information provided to facilitate understanding of the nature of the activity by Interested Persons.
3. An Environmental Impact Statement will be subject to a review process involving Interested Persons under Part VI of these Regulations.

Draft Regulation 32

Information requirements for the Environmental Impact Statement

Commentary: The information requirements stipulated in this draft regulation need to be cross checked against the EIS template in due course. It is usual practice in most national jurisdictions to prescribe for the minimum information requirements in secondary legislation such as regulations together with the preparation of industry-specific guidelines.

1. An Environmental Impact Statement shall include the following contents:

- (a) a description of the proposed Exploitation Activities covered by the Plan of Work including the location, phasing, duration and intensity of the proposed activities and Environmental Objectives.
- (b) an outline of the possible alternative locations for, or methods for undertaking the activity that may Mitigate any adverse effects studied by the Applicant, including the main reasons for the Applicant's choice of location and method, taking into account the technical and economic feasibility and Environmental Impacts of any such alternatives.
- (c) a description of the initial Environmental Baseline reference point against which predicted impacts are to be compared [and a prediction of the future environmental baseline reference point in the absence of the proposed Exploitation Activities].
- (d) identification of the Environmental Impact Area.
- (e) an assessment of the Marine Environment likely to be impacted by the proposed Exploitation Activities as follows: -
 - i. Direct Impacts.
 - ii. Indirect Impacts.
 - iii. Cumulative Impacts.
 - iv. Short-term, medium-term and long-term effects.
 - v. Permanent and temporary effects.
 - vi. Positive and negative effects.
- (f) a risk assessment of the nature, extent, duration, probability and significance of the identified potential environmental, social and cultural impacts of the proposed Exploitation Activities, including Cumulative Impacts under (e) above and evaluated in accordance with regulation 21.
- (g) a description of the methods and data used to forecast the Environmental Impacts of the proposed Exploitation Activities including, where applicable, reference to the standards and protocols recommended and/or adopted by the Authority.
- (h) a determination of the appropriate Mitigation measures that are technically and economically feasible for each potentially significant adverse impact of the proposed Exploitation Activities to prevent, reduce and offset such impacts.
- (i) identification of the management and Monitoring measures, including appropriate Environmental Targets (environmental indicators⁵¹), to both Monitor the effectiveness of the Mitigation measures and to detect unforeseen Environmental Impacts and that could provide early warning of Unforeseen Serious Harm to the Marine Environment resulting from the Exploitation Activities as well as to deal promptly and effectively with likely Incidents.
- (j) details of the quantity, nature and source of proposed Mining Discharges during the period of the Exploitation Activities.

⁵¹ Environmental indicators would include setting targets / benchmarks for the physical, chemical or biological characteristics of the area to be impacted and appropriate monitoring against those benchmarks in IRZs and PRZs and action points determined. As knowledge of impacts and consequential effects advance, the nature and level of the activity can be used to set appropriate benchmarks.

- (k) identification of unavoidable Environmental Impacts and likely biological response.
 - (l) consideration of the effects of the proposed Exploitation Activities on other users of the Marine Environment, including third parties undertaking or proposing to undertake Exploitation Activities in the adjacent areas.
 - (m) details of the Consultation process followed with Interested Persons during the course of the Environmental Impact Assessment, a summary of issues raised and how such issues, if any, have been addressed.
 - (n) details of the social impacts, socio-economic development factors and impacts, if any, on the cultural heritage.
 - (o) details of the environmental policy and Environmental Management System adopted or to be adopted by the Applicant at the entity and operating levels.
 - (p) details of the knowledge gaps and report on the adequacy of predictive methods, underlying assumptions and uncertainties encountered in compiling the necessary information, including details of any evaluation based on theoretical approaches or research methods generally accepted in the scientific community.
 - (q) in connection with any incomplete or unavailable information in evaluating a reasonably foreseeable significant Environmental Impact:
 - i. identify further research or studies that are being undertaken and associated timeline for completion; and / or
 - ii. where such information is not obtainable without excessive cost or the means to obtain it are not known, make a statement that such information is incomplete or not available and the reasons.
 - (r) demonstrate how, where applicable, the Precautionary Approach has been interpreted and applied in the conduct of an Environmental Impact Assessment and in the preparation of the Environmental Impact Statement, the rationale for its application and, where applicable, the precautionary measures proposed.
 - (s) discussion of the methodologies used with reference to scientific, technical and other information in support of the information requirements above.
 - (t) identification of further research or studies that are being undertaken and associated timeline for completion.
 - (u) statement on how the objectives and requirements of the relevant Strategic Environmental Management Plan will be addressed.
 - (v) identification of impacts regulated by other bodies or agencies, including Sponsoring States and flag States and the details of any approval or compliance requirements satisfied or to be satisfied.
2. The Environmental Impact Statement shall provide for the full and fair discussion of the potential Environmental Impacts. Such impacts shall be discussed in proportion to their significance. Where an Applicant considers an impact to be of no significance, there should be sufficient information to evidence such conclusion or a brief discussion as to why further research is not warranted.

Section 3: Environmental Management System

<p>Commentary: this regulation sets the benchmark for an Environmental Management System equivalent to the principles of ISO 14001:2015 but will allow for the consideration</p>

of equivalent systems e.g. the EU Eco-Management and Audit Scheme (EMAS). The Authority may wish to list other acceptable national / regional equivalents for clarity.

Aside from an EMS being of an international standard, it should be capable of implementation at the operational / site-specific level, including that of agents and sub-contractors of a contractor.

Draft Regulation 28

Requirements for Environmental Management System

1. An Applicant shall demonstrate to the satisfaction of the Authority that it has adopted or will adopt and use an Environmental Management System that is in accordance with this regulation and the principles of Internationally Recognized Standards.
2. Environmental Management Systems shall be designed to achieve and maintain:
 - a. the Environmental Targets and the effective protection of the Marine Environment from the impacts of mining activities and Pollution as identified in an Environmental Management and Monitoring Plan and Closure Plan.
 - b. a continuous improvement in Environmental Performance.
 - c. the delivery of the objectives and measures of the relevant Strategic Environmental Management Plan.
3. Where an Applicant possesses or proposes to implement an Environmental Management System which is not equivalent to the principles of ISO 14001:2015, the Authority may, but shall not be obliged, to consider any alternative Environmental Management System provided that such system(s):
 - a. are in accordance with Good Industry Practice and Internationally Recognized Standards.
 - b. are capable of delivering site-specific environmental objectives and Environmental Targets in an Environmental Management and Monitoring Plan.
 - c. are capable of cost-effective, independent auditing by recognized and accredited international or national organizations; and
 - d. permit effective reporting to the Authority in connection with Environmental Performance.
4. The Authority may require verification by an Appropriately Qualified Expert that the Environmental Management System used or to be used by an Applicant is in accordance with the principles under paragraph 3. above.

Section 4: Environmental Management and Monitoring Plan

Commentary: The purpose of an EMMP is two-fold. First, it provides direction and focus to a contractor's environmental management of its exploitation operations. It is based on the outcomes of the EIA process (which must be dynamic as new learnings emerge). There should ideally be a standardization, and thus comparability, in assessment and monitoring. Secondly, it also provides a reference point for the Authority, as regulator, for inspection and enforcement purposes. An approved EMMP will form part of the Plan of Work and will be annexed to an Exploitation Contract.

There are 3 implementation stages of an EMMP: mitigation measures, monitoring the

impacts of potential significance or uncertainty and an evaluation (and revision) process being a product of monitoring and assessment. This is particularly crucial for monitoring cumulative impacts which may be uncertain or unknown at the time of the completion of the initial EIS / EMMP. The need for a regular (and prescribed review period) of an EMMP is paramount as is an Authority / sponsoring State-driven independent auditing process.

Timing of delivery: draft regulation 4(5) of the Exploitation Regulations states: “*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.*” This has drawn some concern in the stakeholder community that (i) an EMMP may not be in place prior to the commencement of mining activities and (ii) that an EMMP is not then subject to same level of public scrutiny as an EIS.

The draft wording above is to reflect a reality: that while an initial / draft EMMP may be prepared based on the EIA/EIS, it may be some time before a revised EMMP can be delivered as technology is further developed, constructed and further assessments conducted, including the likely full-scale testing of equipment prior to the commencement of commercial mining activities. (The same is equally true of a Closure Plan, though the finalization of this Plan will be some way down the line).

Furthermore, the regulations need to recognize the commercial realities. Investors / institutions are unlikely to commit funds for the bankable feasibility stage and construction until there is an approved Plan of Work in place.

This working draft (and the Exploitation Regulations will need to be harmonized accordingly) provides that no exploitation activities⁵² will commence until approved plans are in place (see Draft Regulation 43(3)). One of the conditions attaching to any recommendation by the Commission / approval by the Council of a Plan of Work will be the delivery and approval of a revised EMMP / revised Closure Plan. It should be recognized that while the EMMP is a crucial document, much of its initial content will be derived from the EIA/EIS which will be the subject of detailed review and scrutiny.

Such a process follows land-based practices.

Questions

- Current drafting is on the basis of a single EMMP. However, is this correct or will there be a series of sub-plans (collectively an EMMP) dealing with specific components of the marine environment?
- Where environmental impacts have the potential to effect areas beyond the boundary of a Contract Area / Mining Area, what permissions should the Authority grant to a contractor to collect environmental data (monitoring) beyond its contract area? Or should there simply be an obligation placed on contractors to co-operate in both the collection of data and the reasonable placing of monitoring stations outside a contract area etc.?

⁵² The definition of “Exploitation Activities” may need to be revisited / a definition of “Mining Activities” included so that it is made clear which activities may not commence until the necessary plans are in place. That is, “Exploitation Activities” includes “construction” and “other preparatory steps” which may not have environmental impact and need to progress.

Draft Regulation 29

Preparation of Environmental Management and Monitoring Plan

1. An Applicant shall prepare an *initial* Environmental Management and Monitoring Plan in accordance with this Section 4.
2. An Environmental Management and Monitoring Plan shall be in the form prescribed by the Authority at Annex III to these Regulations and shall:
 - (a) be in accordance with the Authority's guidelines.
 - (b) be based on the Environment Impact Assessment conducted according to Part III of these Regulations.
 - (c) be in accordance with the Authority's relevant Strategic Environmental Management Plan.
 - (d) be prepared in accordance with Good Industry Practice and with regard to the guiding principles under Part II Section 2 of these Regulations.
 - (e) be prepared in plain language, being an official language of the Sponsoring State(s) together, where applicable, an official English language version.
 - (f) be verified by the report of Appropriately Qualified Experts approved by the Authority.
 - (g) include a non-technical summary of the main conclusions and information provided to facilitate understanding by Interested Persons.
3. The *initial* Environmental Management and Monitoring Plan will be subject to a review process by Interested Persons under Part VI below.
4. Where the Commission permits delivery of a final Environmental Management and Monitoring Plan at a date later to that of the original application under regulation 4(5) of the Exploitation Regulations, the Applicant shall deliver such final plan to the Authority at least 6 calendar months prior to the commencement of mining activities in the relevant Mining Area.

Draft Regulation 30

Information requirements for the Environmental Management and Monitoring Plan

1. An Environmental Management and Monitoring Plan shall include the following contents:
 - (a) a description of the Marine Environment likely to be affected by the proposed Exploitation Activities.
 - (b) the environmental objectives.
 - (c) details of the Environmental Management System and the Applicant's environmental policy.
 - (d) an assessment of the potential impacts of the proposed Exploitation Activities on the Marine Environment, including socio-economic conditions and cultural heritage, where applicable.
 - (e) a summary of the assessment of the significance of the potential Environmental Impacts and the proposed Mitigation measures and management control procedures and responses to minimise adverse Environmental Impacts consistent with the Environmental Impact Assessment and Environmental Targets.
 - (f) the planned Monitoring programme and performance assessment of the Environmental Management and Monitoring Plan, including environmental objectives set and the necessary risk assessment and management techniques to achieving the desired outcomes.

- (g) the location, and planned monitoring and management of Preservation Reference Zones and Impact Reference Zones.
- (h) a training programme for all persons engaged or to be engaged in activities in the Area by or on behalf of the Applicant.
- (i) details of the plan for review and environmental audit.
- (j) [other].

Section 5: Closure Plan

Draft Regulation 31

Purpose of Closure Plan

1. A Closure Plan shall set out the responsibilities of a contractor for the decommissioning and closure of activities in a Mining Area, including the post closure management and monitoring of Residual and Natural Environmental Effects. Closure also includes a temporary suspension in mining activities, such as the placing of an operation on care and maintenance.
2. The objective of a Closure Plan is to ensure that:
 - (a) at the date of cessation or suspension of mining activities in a Mining Area, a management and Monitoring plan is in place for the period prescribed in the Closure Plan.
 - (b) considerations relating to any such cessation or closure are made and a process is in place throughout the life of the mining activities.
 - (c) that the risks relating to Environmental Impacts are quantified, assessed and managed including the gathering of information relevant to such closure or suspension.
 - (d) the necessary health and safety requirements are complied with.
 - (e) Residual Environmental Effects are identified and quantified.
 - (f) any Restoration or rehabilitation commitments will be fulfilled in accordance with predetermined criteria or standards.
 - (g) the mining activities are closed or suspended efficiently and cost-effectively; and
 - (h) Good Industry Practices are identified and developed for the benefit of future mining activities, the industry and mankind as a whole.

Draft Regulation 32

Information requirements for the Closure Plan

1. An Applicant shall prepare an *initial* Closure Plan in the format prescribed by Annex IV to these Regulations, be in accordance with the Authority's guidelines and the relevant Strategic Environmental Management Plan.
2. A Closure Plan shall contain:
 - (a) a description of decommissioning on the cessation of or suspension in mining activities.
 - (b) the environmental objectives for any such cessation or suspension.
 - (c) the on-going plan for the management and monitoring of the Marine Environment after such cessation or suspension.
 - (d) the management and monitoring of the Marine Environment following the temporary suspension of mining activities.
 - (e) the technical and economic feasibility of any restorative measures and rehabilitation of the affected area.

3. A Closure Plan shall specify the period during which the plan will be required. An Applicant shall determine such period in consultation with the Authority. The period shall be determined by reference to a specified day, on achieving a specified event or Environmental Target or compliance with specified standards.
4. The initial Closure Plan will be subject to a review process by Interested Persons under Part VI below.
5. The initial Closure Plan shall be reviewed and revised in accordance with Parts VIII and XII below during the term of the Exploitation Contract.

Section 6: Emergency Response and Contingency Plan

- *[In accordance with Exploitation Regulations but see Annex V]*

Part V - Preliminary review of the Environmental Plans by the Authority

Commentary: the provision below is a procedural safeguard to ensure that an application is compliant with the Authority's RRP's. In practice the Authority (Secretariat) should work in parallel with an Applicant (and sponsoring States) so that when an application is made it has already been subject to scrutiny by the Authority.

Draft Regulation 33

Review of Application for Approval of a Plan of Work: Preliminary review by the Authority

1. The Authority shall review the Environmental Plans within 60 days of receipt of an application for approval of a Plan of Work and ensure that they conform to and have been prepared in accordance with these Regulations and the Authority's guidelines and that an Applicant has made all reasonable efforts to provide the information required.
2. The Authority may require the Applicant to provide any further information that it considers relevant to the plan(s) or where the Authority finds that the plan(s) do not conform to these Regulations, it shall notify the Applicant, indicating its reasons for any amendments to the plan(s). The Applicant may, within 45 days, re-submit modified plan(s) to the Authority.
3. The Authority may request the opinion of Appropriately Qualified Experts in connection with the submitted plans provided that such request is dealt with timeously and will not unduly delay the processing of the application for approval of a Plan of Work, is made with the knowledge of the Applicant and a copy of any opinion is supplied to the Applicant and made publicly available.

Part VI - Publicity and Consultation

Commentary: while the process below anticipates a formal and structured consultation process by the Authority, an Applicant should have undertaken appropriate levels of consultation with the “public” including experts during the EIA process. Details of such consultation should be reflected in the EIS.

This Part VI presents one option for consideration. The practicalities, logistics, cost and consequential effectiveness of a review process must be evaluated.

Question: Who pays for public participation? Should the Authority establish a fund to facilitate this?

Draft Regulation 34

General

1. Prior to the Commission’s assessment of Applicants under regulation 8 of the Exploitation Regulations, the Authority shall ensure in accordance with its guidelines and pursuant to this Part VI, that an early and effective Consultation process is undertaken with Interested Persons on the possible effects of Exploitation Activities in the Area on the Marine Environment.
2. Such Consultation shall include:
 - (a) the opportunity for Interested Persons to be consulted in the environmental evaluation process and to whom comments, opinions or questions may be addressed.
 - (b) that when evaluation is made under these Regulations, due account is taken of the outcome of such Consultation with Interested Persons; and
 - (c) that the Authority informs Interested Persons about the evaluation made, the reasons for any recommendations and the matters taken into consideration in making the evaluation including information relating to the Consultation process.

Draft Regulation 35

Public notification of application for approval of a Plan of Work and access to Environmental Plans

1. The Authority shall, by way of a notice on its website and through other electronic media, make known that an application for approval of Plan of Work including the Environmental Plans has been made to the Authority.
2. Such notice will: -
 - (a) provide details of the Applicant.
 - (b) a statement of the nature, size and location of the proposed Exploitation Activities.
 - (c) invite Interested Persons to submit comments in writing in and in accordance with the review procedures reflected in this Part VI to these Regulations and the Authority’s guideline on a Consultation process.
 - (d) outline such process, including timelines.
 - (e) prescribe the format of any submissions by Interested Persons to facilitate efficiency in the review of such submissions by the Authority.
 - (f) provide information on access to copies of the plans and to other Environmental Information relevant to the plans.

- (g) state that all submissions by Interested Persons will be made publicly available, unless a request for confidentiality is made.
- (h) provide relevant address and contact details for any submission.

Draft Regulation 36

Review of the Environmental Plans by Interested Persons

1. Where the Authority is satisfied that the plans are complete and satisfactory in accordance with Part V to these Regulations, the plans together with other relevant Environmental Information will be made available for public inspection at the Authority's website for a period of 60 Days. During this period, comments, opinions, questions may be submitted by Interested Persons to the Secretary-General on behalf of the Commission.
2. The Authority shall, in its reasonable opinion, determine whether the submission or representation made is relevant to the plans according to its guidelines. If the Authority concludes that the submission or representation is not relevant to the Application, it need not have any further regard to such submission.
3. An Applicant shall, at any time during the review period, make known to the Authority any material changes to the plans as the result of new knowledge or information. The Authority shall evaluate such changes and, where appropriate, make such information publicly available.

Draft Regulation 37

Applicant's response to submissions by Interested Persons

1. Following the close of the Consultation period, the Authority shall provide a copy of all relevant submissions to the Applicant.
2. In consultation with the Authority, the Applicant may make an arrangement to address the submission either directly with Interested Persons or to provide the Authority with such information as is reasonably required to adequately address the relevant submission. In either case, the Applicant shall take such action as is necessary to address the relevant submission made within 60 days of the date of the determination by the Authority.
3. The Applicant may clarify, review or modify its Application for approval of a Plan of Work to address issues raised by Interested Persons.

Draft Regulation 38

Authority's review and report on submissions

1. The Authority shall review the relevant submissions from Interested Persons together with the responses to such submissions and any modified plans submitted by the Applicant.
2. The Authority shall prepare an assessment report for the Commission containing:
 - (a) an overview of the Application and a summary of pertinent issues including an assessment of the Environmental Impacts and associated management and Mitigation measures.
 - (b) an assessment of the adequacy of Environmental Baseline information.
 - (c) an outline of the methodologies used by the Applicant, including its Environmental Risk Assessment methodology.

- (d) an outline of any uncertainties in the plans relating to lack of information or knowledge and how the precautionary approach has been applied by the Applicant together with any proposed precautionary measures.
 - (e) an outline of the public review process conducted and a list of submissions received, categorized by stakeholder category.
 - (f) detail the issues raised by Interested Persons and the Applicant's responses and information provided.
 - (g) advice or opinions received from Appropriately Qualified Experts engaged by the Authority.
 - (h) details of any proposed amendments to the application for approval of a Plan of Work following Consultation process.
3. The Authority shall complete the assessment report for the Commission at least 30 days prior to the next meeting of the Commission and shall make such report publicly available.

Part VII - Consideration of the Environmental Plans by the Legal and Technical Commission

Section 1: General

Draft Regulation 39

General

The Commission shall examine and consider applications in accordance with regulation 7 of the Exploitation Regulations. For the purposes of this Part VII, such examination shall include the following documents: -

- (a) the assessment report prepared by the Authority [Secretariat] under regulation 38 above.
- (b) the Applicant's Environmental Impact Statement(s).
- (c) the Applicant's *initial* Environmental Management and Monitoring Plan.
- (d) the Applicant's *initial* Closure Plan.
- (e) the Emergency Response and Contingency Plan.
- (f) the submissions received following the review of the plans by Interested Persons under Part VI to these Regulations; and
- (g) other relevant information in connection with the plans in (b) to (e) above, including any advice received from Appropriately Qualified Experts.

Section 2: Process and procedure for recommendations relating to the evaluation of the Environmental Plans by the Commission

Draft Regulation 40

Facilitating involvement of Interested Persons in environmental decision-making

Commentary: The Authority will need to develop appropriate rules of procedure for open meetings, the conduct of such meetings and who should attend such meetings. In terms of logistics and practicalities, observers to the Authority, representatives from Member States & Sponsoring States, the Applicant and Appropriately Qualified Experts involved in the preparation of the plans or providing opinions, should have access. The procedure should also govern the exclusion of confidential matters from open discussion. Equally, the procedure should afford an applicant a fair opportunity to respond to questions and points raised by the Commission and by others attending a meeting / hearing. Access to Environmental Information and the plans is a pre-requisite under the data management and data sharing mechanism / strategy.

The Authority shall make diligent efforts to involve affected parties in the evaluation process relating to the Environmental Plans and related Environmental Information pertaining to the Plan of Work and the Area, including timely access to relevant Environmental Information and timely notification of open meetings to be held by the Commission in respect of Environmental Evaluation.

Draft Regulation 41

Matters to be taken into account by the Commission

Commentary: it is self-evident from the complexity of evaluating a Plan of Work for exploitation, that there will need be to be a re-think of the operational practices (including appropriate skill sets and resourcing) of the Secretariat, the Commission and the Council.⁵³ How long will a Plan of Work take to complete? How long will a Plan of Work take to evaluate, assess and review? How many Plans of Work will be under evaluation at any one time? (And how will this translate into monitoring, compliance and enforcement?). What benchmarks can be set from land-based / O&G regimes?

Inherent in these regulations is an adequately staffed Secretariat and flexibility in the timings and meetings of the Commission⁵⁴: the substance of the regulations needs to drive the form and functioning of the Authority.

Timelines are of significance in the application process and will need to be assessed, revised and harmonized across all sets of regulations in due course.

The Commission, in considering an Applicant's financial capability and technical capability and other matters prescribed by regulation 8 of the Exploitation Regulations, in particular that a Plan of Work provides for the effective protection of the Marine Environment, shall take account of the following in relation to an Evaluation of the adequacy of the Environmental Plans submitted as part of such Plan of Work and its implementation: -

- (a) the Rules of the Authority.
- (b) the guiding principles listed in Part II, Section 2 to these Regulations.
- (c) the relevant Strategic Environmental Management Plan.
- (d) the Environmental Impacts, Direct and Indirect, spatial and temporal, including Cumulative Impacts (from the proposed Mining Area itself and in combination with other mining activities).
- (e) the importance of protecting biological diversity and marine ecosystems.
- (f) the importance of protecting Vulnerable Marine Ecosystems and habitats.
- (g) the social impacts and cultural heritage.
- (h) current knowledge (Best Available Scientific Evidence), technology and the adoption of Best Environmental Practices.
- (i) the use and application of Internationally Recognized Standards, protocols and methodologies.
- (j) Good Industry Practice in relation to Exploitation Activities in the area.
- (k) the effect of measures, either in whole or part, to Mitigate any adverse effects on the Marine Environment.
- (l) submissions made by a Sponsoring State(s).
- (m) the relevant submissions made in respect of the Environmental Plans by Interested Persons and any resulting modifications to the plans.

⁵³ The Article 154 highlights these matters particularly in connection with Recommendation Nos. 5, 10, 17, 18, 25, and 26.

⁵⁴ Recommendation No. 18 of the Article 154 review speaks specifically to the operational practice of the Commission and alternative ways of working.

- (n) any advice or reports sought from Appropriately Qualified Experts in respect of the plans to verify, clarify or substantiate the information provided, methodology used or conclusions drawn by the Applicant.
- (o) other users of the marine environment, including adjacent third party Exploration or Exploitation Activities.
- (p) any uncertainties or inadequacies in the data or information available, the application of the Precautionary Approach and relevant precautionary measures.
- (q) the use, where applicable, of an Adaptive Management approach.
- (r) the capacity of the Applicant to Monitor key environmental parameters and ecosystem components so as to identify any adverse effects of mining activities and to provide for the modification of management and operating procedures as may be necessary in the light of the results of Monitoring or increased knowledge of the receiving Marine Environment.
- (s) the adequacy of Environmental Management Systems to deliver the environmental objectives and Environmental Targets.
- (t) the technology and procedures necessary to provide for safe operations and compliance with the terms of the Environmental Management and Monitoring Plan and the Closure Plan.
- (u) the capacity of the Applicant to respond effectively to Incidents, particularly those with potential environmental effects in accordance with the Emergency Response and Contingency Plan.
- (v) where applicable, the previous environmental record of responsibility of the Applicant.
- (w) any further information supplied by the Applicant prior to and during the period of the Commission's evaluation; and
- (x) the recommended modification or amendment of the Plan of Work in accordance with regulation 9 of the Exploitation Regulations and Section 3 below and the extent to which such amendments and modifications (the conditions) will contribute toward Best Environmental Practices, the Precautionary Approach, Mitigation Measures, the Environmental Performance of the Applicant and the objectives of the Convention.

Section 3: Amendments, modifications (the conditions) attaching to the Plan of Work in respect of Environmental Matters

Draft Regulation 42

Amendments and modifications of the Environmental Plans

1. The Commission may, in accordance with regulation 9 of the Exploitation Regulations, request an Applicant to amend or modify its Application or propose specific amendments for consideration by the Applicant with respect to such matters as contemplated by these Regulations or as considered necessary or expedient for the purposes of the effective protection of the Marine Environment in accordance with Good Industry Practice, having due regard to the state of development of activities in the Area.
2. The Commission shall give due regard to the reasonableness of any proposed amendment or modification (the condition(s)) and the technical and economic constraints of such amendment or modification.
3. Following the Commission's evaluation of the adequacy of the Environmental Plans, the Commission shall consider the following in connection regulation 41(w) above, unless such conditions have already been proposed by the Applicant and evaluated by the Commission: -

- (a) obtain and maintain a specific category or specific amount of insurance.
 - (b) specific tests and / or environmental Monitoring to be conducted and specific reporting on the results of such tests and / or Monitoring.
 - (c) the appointment of an observer to monitor the Exploitation Activities and their effects on the Marine Environment.
 - (d) the provision of an Environmental Performance Guarantee in accordance with regulation 44 below.
 - (e) specific Environmental Performance objectives and / or specific Environmental Targets.
 - (f) specific conditions on Mining Discharges.
 - (g) specific environmental auditing and verification requirements conducted by Appropriately Qualified Experts.
 - (h) the duration of any proposed amendments and timing of their review.
 - (i) where applicable, conditions relating to an Adaptive Management approach under Part IX Section 1 to these Regulations.
 - (j) the timing of any proposed review of the Environmental Plans.
 - (k) the delivery of, where applicable, a revised Environmental Management and Monitoring Plan and revised Closure Plan in accordance with regulation 43 below.
4. Where the Commission proposes any amendment to or conditions on the Environmental Plans, the Commission shall provide the Applicant a brief justification and rationale for such proposed amendment.

Section 4: Delivery of a revised Environmental Management and Monitoring Plan and revised Closure Plan

Draft Regulation 43

Procedure for the delivery of the revised Environmental Management and Monitoring Plan and revised Closure Plan

1. The Commission shall agree the date for the delivery of the revised Environmental Management and Monitoring Plan and revised Closure Plan together with the details of any further work to be performed by an Applicant or Contractor. Such date shall not exceed the period under regulation 29(4) above.
2. Within 30 days of receiving the final plans, the Authority shall: -
 - (a) determine the plans meet the criteria and requirements determined by the Council, based on the Commission's recommendations, and is approved.
 - (b) advise the Applicant that amendments are required; and / or
 - (c) advise the Applicant of a timeframe extension for further evaluation of the plan including possible assessment by Appropriately Qualified Expert(s); and / or
 - (d) place the final plans on its website for a period of 30 days and invite any comments from Interested Persons in connection with the final plans.
3. A Contractor shall not commence mining activities in the Contract Area until such time that the Authority has approved, in writing, the revised Environmental Management and Monitoring Plan(s) and revised Closure Plan(s).

Section 5: Environmental Performance Guarantee (“environmental bond”)

<p>Commentary: the rationale for an environmental performance guarantee (or so-called “environmental bond”) requires further elaboration. In a land-based context, such a bond</p>

aims to secure compliance for remediation, rehabilitation, removal of equipment etc. In the context of mining activities in the Area, vessels and equipment are mobile and the technical feasibility of restoration of the seafloor is not considered viable (currently).

However, there will be a need for monitoring impacts in the longer-term following the cessation (or suspension) of mining activities relating to loss of habitat, recolonization in preservation areas, impact of sedimentation and the potential for restoration, to the extent practicable, of any unexpected adverse impacts. Equally, for what period should, say, post closure monitoring obligations be the responsibility of a contractor versus responsibility under say the environmental liability trust fund?

Note: the rationale and content in this regulation has yet to be fully articulated across the stakeholder base. While in principle the provision of a bond is prudent and good practice under land-based regimes, the full payment regime package is under discussion⁵⁵ (together with the related development of the rules relating to responsibility and liability in the Area). Consideration of other market-related instruments / economic incentives is required and the mix as to what best suits the Area regime, discussed and adopted.

Draft Regulation 44

Provision for a Financial Guarantee or Security

1. The Council, based on the recommendations of the Commission and Good Industry Practice, may require an Applicant to lodge with the Authority a Financial Guarantee or Security (the Environmental Performance Guarantee) in favour of the Authority, the repayment of which is conditional on a Contractor taking specified action within a prescribed period to achieve compliance under these regulations including implementation of the Closure Plan.
2. The Council shall impose a condition requiring provision of an Environmental Performance Guarantee where such imposition is justified in view of:
 - (a) the degree of risk of Serious Harm to the Marine Environment associated with the mining activities contemplated under the Plan of Work.
 - (b) the likelihood of action being required by the Authority to make good any resulting damage to the Marine Environment.
 - (c) to secure fulfilment of the post closure monitoring obligations of a Contractor detailed in the Closure Plan; or
 - (d) in connection with Emergency Orders under Part XV to these Regulations.
3. A Contractor shall make provision for an Environmental Performance Guarantee by no later than [the Effective Date / Prior to the commencement of mining activities in the Contract Area], save that where the Commission recommends and the Council approves, the quantum of an Environmental Performance Guarantee may be provided by way of instalment over a specified period.
4. The quantum of an Environmental Performance Guarantee contemplated by this regulation shall be an amount that in the reasonable opinion of the Authority reflects the total of the likely costs (including those relating to contingency measures under regulation 80), expenses, loss and damage that may be incurred as a result of failure by a

⁵⁵ See Conference Report on the Deep Seabed Mining Payment Regime Workshop (San Diego, 17-18 May 2016). Available at <https://www.isa.org.jm/files/documents/EN/Pubs/2016/DSM-ConfRep.pdf>.

Contractor to satisfy the conditions of discharge or repayment of the Environmental Performance Guarantee and shall continue to be sufficient to ensure that all steps in the Closure Plan can be completed in a satisfactory manner should the Contractor fail to implement the Closure Plan.

5. The Environmental Performance Guarantee shall be in a form approved by the Authority according to regulation 10 of the Exploitation Regulations and on such terms and conditions approved by the Council according to the Authority's guidelines.
6. The quantum of the Environmental Performance Guarantee shall be reviewed and, where applicable, recalculated: -
 - (a) annually by the Contractor and based on any change(s) to the Environmental Management and Monitoring Plan and Closure Plan; and
 - (b) by the Authority and the Contractor at the time of the review of the Closure Plan under regulation 68.
7. A Contractor shall be obliged, where applicable, to adjust the quantum of the Environmental Performance Guarantee within 30 days of a review date [or where there has been a fundamental change in the financial capability of a contractor to fulfil the requirements of these regulations] and to execute and lodge with the Authority a variation in the existing or new Environmental Performance Guarantee.
8. Where a Contractor fails to satisfy the conditions of discharge or repayment of an Environmental Performance Guarantee, the Council may determine that either whole or part of the Environmental Performance Guarantee is forfeited to the Environmental Liability Trust Fund.
9. Where the Authority or Contractor cannot agree on the quantum of the Environmental Performance Guarantee within a reasonable period, either party may apply for an administrative review under regulation 57 of the Exploitation Regulations,
10. The Environmental Performance Guarantee shall be released by the Authority on the expiration of [5] years after the expiry or termination of the Exploitation Contract provided that a Contractor has fulfilled the obligations in the final Closure Plan. To this end, the Authority may request a report from an Appropriately Qualified Expert that the obligations in the final Closure Plan have been satisfactorily fulfilled.
11. Where an Environmental Performance Guarantee is required by the Council under this regulation, a Contractor may not commence any mining activities unless it has provided for an Environmental Performance Guarantee in a form acceptable to the Authority and any conditions which guarantees the availability of sufficient funds for the due fulfilment of its obligation under the Exploitation Contract.
12. The provision of an Environmental Performance Guarantee by a Contractor does not limit the responsibility and liability of a Contractor according to the Rules of the Authority.

Section 6: Commission's recommendations to the Council on its evaluation of the Environmental Plans and conditions

Draft Regulation 45

Factors to be considered by the Commission

1. The Commission, in accordance with the Authority's evaluation criteria, and having taken due account of the matters to be taken into account under regulation 41, shall consider whether the Applicant: -
 - (a) has undertaken an Environmental Impact Assessment in accordance with these Regulations and the Authority's guidelines and Good Industry Practice, based on

- an adequate Environmental Baseline Study and internationally recognized risk assessment methodologies.
- (b) has demonstrated that the planned mining activities will not cause foreseeable Serious Harm to Vulnerable Marine Ecosystems and that plans are in place to deal with any Unforeseen Serious Harm.
 - (c) has or will have access to and prior to the commencement of mining activities, the necessary technology, management practices and procedures to provide for the effective protection of the Marine Environment, including evidence of Best Available Technologies.
 - (d) has adequately described areas of scientific uncertainty in connection with the Environmental Impacts and that plans are in place to acquire further data within reasonable technical and financial constraints
 - (e) has provided evidence that the precautionary approach has been, and will continue to be, integrated into the Applicant's risk assessment and management processes and determination of Protective Measures.
 - (f) has the necessary access to insurance products that are appropriate to the financing of exposure to environmental risk.
 - (g) has the financial capacity and technical capability: -
 - i. to Monitor key environmental indicators and ecosystem components so as to identify, assess, manage and Mitigate the Environmental Impacts of mining activities, particularly in the event that environmental Monitoring and protocols indicate that Unforeseen Serious Harm on the Marine Environment are developing or there is a risk of such effects developing.
 - ii. to respond effectively to Incidents, particularly those that might cause Serious Harm to the Marine Environment, including compliance with Emergency Orders.
2. The Commission shall apply the guiding principles under Part II Section 2 in the conduct of its Evaluation under this regulation.

Draft Regulation 46

Commission may obtain further advice

1. Following the consideration of the matters under regulation 45 above, and prior to the preparation of an Evaluation Report to the Council, the Commission, in accordance with its Rules of Procedure and in discussion with the Applicant, may, on any matter under the Commission's consideration: -
 - (a) seek the views or opinions of Appropriately Qualified Experts; and / or
 - (b) seek the views of any persons directly affected by the proposed Plan of Work; and / or
 - (c) convene a further open meeting with Interested Persons to facilitate a further exchange of views and opinions on specific matters; and / or
 - (d) commission an independent review by a panel of Appropriately Qualified Experts.
2. Where, in the Commission's reasonable opinion, there is a material difference of opinion concerning:
 - (a) the basis for, or validity of scientific information, including its degree of certainty relating to an Environmental Impact; and / or
 - (b) the basis for, and effectiveness of any proposed management and Mitigation measures and responses; and / or

- (c) the application of and criteria for an Adaptive Management approach,
- and such difference of opinion relates to an environmental component of an Application that is of key significance to the outcome of the Commission's Evaluation, the Commission shall refer the matter for an independent review under paragraph 1(d) above. The Commission shall be obliged to take into account the findings of the independent review in its Evaluation of the Plan of Work.

Draft Regulation 47

Evaluation Report to the Council

1. The Commission, in the case of each recommendation on Plan of Work made to the Council in accordance with regulation 11 of the Exploitation Regulations, shall prepare and include an Evaluation Report⁵⁶ for the Council based on the Commission's Evaluation of the Environmental Plans containing, *inter alia*:
 - a) a statement on its opinion as to the adequacy of the Environmental Plans and the main reasons for its recommendations and conclusions.
 - b) an outline of the matters and information that the Commission took into consideration in evaluating the plans.
 - c) details of the Consultation processes undertaken by and between the Applicant, sponsoring States and the Commission with Interested Persons, including the dates and times of the open meetings held by the Commission and the results of such Consultations with a summary of the issues raised.
 - d) details of the alternatives considered by the Applicant and the Commission's response.
 - e) the main Environmental Impacts of the proposed Plan of Work, including an assessment of Cumulative Impacts.
 - f) any adverse Environmental Impacts that cannot be avoided should the Plan of Work be implemented.
 - g) a description of the measures that will be taken by the Applicant to Mitigate the principal adverse effects of the mining activities and an assessment as to whether all practicable measures to Mitigate harm to the Marine Environment have been considered, within reasonable technical and economic constraints.
 - h) an outline of the Monitoring that will be conducted by the Applicant.
 - i) a description of the main areas of uncertainty and consequential environmental risk in the Plan of Work relating to scientific uncertainty, knowledge and information gaps.
 - j) details of any further studies, research and reporting proposed by the Applicant in consultation with the Commission to reduce the uncertainties and environmental risk under (i) above.
 - k) a summary of the opinions or findings of Appropriately Qualified Experts or panel of such experts engaged by the Authority or the Commission.
 - l) a statement on how the Precautionary Approach has been applied by the Applicant in the preparation of its Plan of Work and by the Commission in its Evaluation of the Plan of Work, including the rationale for, and any precautionary measures proposed as a result of, its application.
 - m) details of the Commission's recommendations on the modification(s) or amendment(s) to the Environmental Plans.

⁵⁶ Under Article 165(2)(b) of the Convention, the Commission is obliged to "base its recommendations solely on the grounds stated in Annex III and shall *report fully* thereon to the Council".

2. The Authority shall forward a copy of the Commission's Evaluation Report to the Applicant.
3. The Applicant may, within 30 days request the Commission to annex any comments relating to the Commission's Evaluation Report, including comments relevant to: -
 - (a) any errors.
 - (b) the technical and economic feasibility of any modifications or amendments recommended by the Commission.
 - (c) the results of any further research or findings by the Applicant; and
 - (d) any other relevant information the Applicant considers relevant to the report.
4. The Authority shall make the Evaluation Report, together with any comments made by an Applicant under paragraph 3 above, publicly available on its website.

For consideration: as part of the responses to the Authority's stakeholder survey in 2014, one stakeholder suggested the use of the US EPA's rating criteria for rating the impact of an action and the adequacy of an EIS.⁵⁷ These provide high level but easily understood evaluation criteria for non-technical readers. These could be of relevance to the Authority. An example of the criteria wording is as follows:

Rating the Environmental Impact of the Action

- **LO (Lack of Objections):** The review has not identified any potential [marine] environmental impacts requiring substantive changes to the preferred alternative. The review may have disclosed opportunities for application of mitigation measures that could be accomplished with no more than minor changes to the proposed action.
- **EC (Environmental Concerns):** The review has identified [marine] environmental impacts that should be avoided in order to fully protect the environment. Corrective measures may require changes to the preferred alternative or application of mitigation measures that can reduce the environmental impact.
- **EO (Environmental Objections):** The review has identified significant [marine] environmental impacts that should be avoided in order to adequately protect the environment. Corrective measures may require substantial changes to the preferred alternative or consideration of some other project alternative (including the no action alternative or a new alternative).
- **EU (Environmentally Unsatisfactory):** The review has identified adverse environmental impacts that are of sufficient magnitude that EPA believes the proposed action must not proceed as proposed. The basis for an environmentally unsatisfactory determination consists of identification of environmentally objectionable impacts as defined above and one or more of the following conditions: [].

Rating the adequacy of the EIS

- (Adequate)
- (Insufficient Information)
- (Inadequate)

⁵⁷ See <https://www.epa.gov/nepa/environmental-impact-statement-rating-system-criteria>.

Part VIII – Modification and Periodic Review of the Environmental Plans [EMMP / Closure Plan]

Commentary: an assessment must be made as to what the triggers are / is for changes to EMMPs and Closure Plans i.e. Material Changes, once the original (or revised) plans have been approved. Guidelines should be produced and a process developed. Ideally, the change should be assessed against relevant criteria, including the significance of the proposed change and any consultations held. The drafting of this Part VIII presents a starting point for discussion.

What process and procedure needs to be adopted for any “material changes” to a Plan of Work that impacts the environmental plans?

Equally, what of the original EIA as the basis for the EMMP / Closure Plans? An EIA process is iterative.

Draft Regulation 48

Modification of the Environmental Plans

1. A Contractor shall not modify the Environmental Plans forming part of a Plan of Work, except in accordance with regulation 18 of the Exploitation Regulations and this Part VIII.
2. The Authority may, in consultation with a Contractor, vary or amend the Environmental Plans where there is a Material Change relating to, arising from or as a consequence of:
 - (a) a proposed change in the scale or intensity of mining activities.
 - (b) Environmental Incidents.
 - (c) a required improvement in Environmental Performance.
 - (d) Environmental audits; and
 - (e) the impact of mining activities on the Marine Environment as the direct result of increased scientific knowledge, information or experience, including that arising from the testing of collecting systems prior to the commencement of commercial mining activities.

Draft Regulation 49

Substantive review of Environmental Performance

1. The Authority and the Contractor shall undertake a review of activities under a Plan of Work in accordance with regulation 19 of the Exploitation Regulations and paragraph 2 below.
2. Within 6 months of the start of the 2nd, 5th and 10th years following the date of commencement of mining activities under an Exploitation Contract, or at such other times and intervals agreed with the Commission at the time of the Application, the Contractor shall submit a substantive review of its Environmental Performance in accordance with the Authority's guideline document. The review report shall contain the following minimum information:
 - a) an assessment of Environmental Performance against the environmental objectives and Environmental Targets.
 - b) the spatial extent of the Direct and Indirect Impacts associated with the Exploitation Activities to date.
 - c) the efficiency and effectiveness of the amendments (conditions) imposed on Exploitation Activities, together with an assessment of any variation to such

- amendments as may be necessary to ensure the effective protection of the Marine Environment.
- d) any recommendations as to variations in Monitoring and / or Mitigation measures to ensure that effective environmental Monitoring and Mitigation Measures are maintained under the Environmental Management and Monitoring Plan.
 - e) details of any significant or unacceptable changes to the Marine Environment that have occurred or are likely to occur and that were not predicted originally in the Environmental Impact Statement, including likely Cumulative Impacts.
 - f) details of any Incidents.
 - g) where applicable, details of Adaptive Management measures taken in the light of new knowledge, information and experience.
 - h) details of any Consultation held with Interested Persons and other users of the Marine Environment.
 - i) details of any new scientific information or knowledge and investigations undertaken or studies made.
 - j) details of any environmental audits conducted in the prior period.
 - k) [other].
3. The Authority shall make publicly available the findings and recommendations resulting from a review of Environment Performance, including any proposed modification(s) to the Plan of Work, which, to the extent such modification(s) is a Material Change to a Plan of Work, shall be approved in accordance with regulation 18 of the Exploitation Regulations.

Part IX – Environmental Management and Monitoring

Commentary: This Part X is very tentative and requires a detailed discussion / more thought as to specifics. Equally, some of these provisions will more appropriately be reflected as part of the terms of the standard exploitation contract (or both). As identified by the Article 154 Review, recommendation no. 3: *Future contracts should be prescriptive with standard terms and conditions and detailed plans of work that set clear objectives, which can be monitored and enforced.* Annex VI also contains suggested clauses for the standard contract (again, tentative). While general adherence to the operational plans (EMMP, Closure Plan, Emergency Response and Procedures Plan) will be required (see Section 2.2 Standard Clauses for Exploitation Contract), what specifics (objectives, targets, thresholds etc.) will need to be prescribed for at the application stage is fundamental.

Section 1: Adaptive Management Approach

Commentary: the application of an adaptive management approach was discussed at the Gold Coast workshop in May 2016 but no definitive conclusions as to its suitability and / or content reached.⁵⁸ AM requires a dedicated working group to explore the issues connected with its implementation. It would appear, as one generally accepted implementation of the precautionary approach and sound, good environmental management, that AM should be applied in a deep sea mining context. AM is one tool in combination with other environmental management responsibilities and practices anticipated under these regulations. A number of questions arise:

- When will AM will be applied (active) – what are the criteria?
- What will trigger an adaptive management response (exceeding an environmental threshold? Unexpected adverse impacts?)
- What level of information is needed to apply such an approach?
- What is its potential impact on the approval process?
- What is its potential impact on commercial mining operations?
- What is its likelihood of success in mitigating environmental impacts?
- What are the timeframes for an adaptive management response?
- What is the reporting / approval process for AM responses?
- What are the implications for the Authority / other contractors?

Once this approach has been fully discussed (including that in connection with the Authority's role), appropriate regulation(s), principles and criteria for the application of AM and related guidance can be drafted.

⁵⁸ See New Zealand Government, *New Zealand's experiences with adaptive management for seabed mining projects: A submission to the International Seabed Authority to support the development of a regulatory framework for the exploitation of seabed minerals*, January 2016. See also Canadian Environmental Assessment Agency, Operational Policy Statement, *Adaptive Management Measures under the Canadian Environmental Assessment Act*, 2009.

Section 2: Protection of the Marine Environment from Harmful Activities - Obligations on the Contractor

Draft Regulation 50

General

1. A Contractor must not undertake an activity in the Area that Pollutes, or might Pollute the Marine Environment unless the Contractor takes all reasonable and practicable measures to prevent or minimize any resulting harm to the Marine Environment.
2. A Contractor shall undertake activities in the Area in accordance with the Rules of the Authority and shall take all reasonable and practicable measures to prevent or minimise any harm to the Marine Environment having due regard to:
 - (a) the nature of the activity and the sensitivity of the receiving Marine Environment.
 - (b) the current state of technical knowledge and the likelihood of success of the measures that could be taken.
 - (c) the economic implications of the measures that could be taken; and
 - (d) Good Industry Practice.
3. The Authority, Contractors and Sponsoring States shall promote continuous advancements in standards, protocols and guidance in the light of new knowledge, information and experience, to ensure continuous improvement in marine Protection Measures.

Draft Regulation 51

Adherence to Contract – Compliance with Environmental Management and Monitoring Plan and Closure Plan

1. A Contractor shall during the course of its Exploitation Activities consider, investigate, assess and communicate the effects of its Exploitation Activities on the Marine Environment and shall manage all such effects in accordance with the Environmental Management and Monitoring Plan and Closure Plan approved under these Regulations and with due regard to Good Industry Practice.
2. The Mitigation measures contained in the Environmental Management and Monitoring Plan shall be implemented at the correct time, in the correct way and at the correct place.
3. The Authority may require, at any time and with reasonable notice to a Contractor, require a Contractor to provide a certificate of compliance, certified by an Appropriately Qualified Expert approved by the Authority in respect of the following information:
 - a. the extent to which the conditions of the approval of the Environmental Plans have or have not been complied with;
 - b. the details of any failure to comply with the conditions and the reasons for any such failure.
 - c. any action taken, or to be taken, that will prevent the recurrence of such failure, if any.
4. A Contractor shall maintain the currency and adequacy of the Environmental Management and Monitoring Plan and Closure Plan during the term of the Exploitation Contract by reference to Best Environmental Practices.

Draft Regulation
Environmental Monitoring 52

Commentary: specific monitoring and reporting guidelines (including relevant technical standards, monitoring areas and stations (incl. IRZs / PRZs) are required. E.g. OSPAR *Guidelines for Monitoring the Environmental Impact of Offshore Oil and Gas Activities*.

1. A Contractor shall implement and carry out Monitoring in accordance with the Environmental Management and Monitoring Plan and any conditions specified in such plan or Exploitation Contract.
2. A Contractor shall, on the commencement of mining activities, ensure that it has in place the necessary procedures to ensure that all Monitoring data is routinely reviewed and assessed.
3. A Contractor shall ensure that the reporting requirements of the Exploitation Contract are complied with including the provision of all Monitoring reports to the Authority within the specified period.

Draft Regulation
Performance Assessment 53

The Authority will require regular performance assessment, and reporting on a Contractor's Exploitation Activities and their associated Environmental Effects in accordance with the Rules of the Authority and to verify progress against the Plan of Work. The Authority will set out the required content and format of such reporting, including the provision of a template to achieve consistency in reporting format. All Information provided in respect of such reports shall be treated as Environmental Information and shall be made publicly available order to promote accountability and demonstrate transparency to mankind.

Draft Regulation 54
Vulnerable Marine Ecosystems

Commentary: the wording in this regulation is taken directly from regulation 31(4) of the PN Exploration Regulations. Such procedures as anticipated by this regulation have yet to be formulated including the criteria / characteristics for defining Vulnerable Marine Ecosystems.

The Commission shall develop and implement procedures for determining, on the basis of the Best Available Scientific Evidence and technical information, whether proposed Exploitation Activities in the Area would have serious harmful effects on Vulnerable Marine Ecosystems and ensure that, if it is determined that certain proposed Exploitation Activities would have serious harmful effects on Vulnerable Marine Ecosystems, those activities are managed to prevent such effects or not authorized to proceed.

Draft Regulation
Environmental Auditing 55

1. The Commission may recommend as a condition of approval of the Environmental Plans that a Contractor procure, at intervals to be specified, an environmental audit and compliance programme, being a comprehensive evaluation of the Environmental

Performance and compliance of a Contractor, conducted by an Appropriately Qualified Expert. Such evaluation shall include an evaluation of the management practices, production processes, technical systems adopted or used by a Contractor. OR

2. The Contractor shall within a period of [90] days after [2] years from the date of this Contract and each subsequent [2] year period, deliver to the Authority, an environmental audit and assessment conducted by an Appropriately Qualified Expert for the purposes of determining the Contractor's compliance with the Environmental Management and Monitoring Plan and the state of its Environmental Management System. If any such audit and assessment identifies any failure to comply with the requirements of the Environmental Management and Monitoring Plan, the Contractor shall be obliged to remedy the situation at its own expense and within the timescale agreed between it and the Authority. The Authority may stipulate additional conditions that in its reasonable opinion are necessary in the circumstances to secure deliver of the approved Environmental Management and Monitoring Plan.

Draft Regulation 56

Pollution Control and Management of Waste

1. A Contractor shall, in accordance with the Rules of the Authority and other relevant rules of international law, prevent, minimize and control Pollution and the production of waste in accordance with [the Rules of the Authority].
2. All and any Mining Discharges shall be discharged of in accordance with the Environmental Management and Monitoring Plan.

What other specific obligations, if any, are required here – over and above adherence to and compliance with an Environmental Management and Monitoring Plan? E.g. Air quality, noise, vibration management and control? Management of Benthic and Surface Plumes?

Draft Regulation 57

Vessel (installation) and equipment positioning

1. All vessels (and installations) shall be fitted with an electronic monitoring system. Such system shall record the date, time and position of all mining activities.
2. The Authority [or Sponsoring State] shall issue a compliance notice to a Contractor under regulation 55 of the Exploitation Regulations, where it reasonably suspects from the data transmitted to it by such system that unapproved mining activities are occurring.

Section 3: Environmental Incidents: contingency plans and emergencies

Commentary

See Section 24 of Standard Contract Terms and definition of "Incident" means *a situation where activities in the Area result in....2. serious harm to the Marine Environment or to other existing legitimate sea uses, whether accidental or not, or a situation in which such serious harm to the Marine Environment is a reasonably foreseeable consequence of the situation.*

Other than the Authority, it is considered that sponsoring States and flag States will have specific duties and responsibilities here. Those States will also have to ensure that measures put in place to limit the consequences of any hazards and where such measures are insufficient, operations should not be allowed to commence by the Authority.

Draft Regulation 58

Duty on Contractor to keep an Environmental Incidents Register

1. A Contractor shall keep and maintain an Environmental Incidents Register associated with Exploitation Activities in the Contract Area. Such register shall be maintained on the mining vessel and transmitted to the Authority within 5 working days of any request in writing by a duly authorized official of the Authority.
2. A Contractor shall record the following information in such register:
 - a. the date, time and duration of the Incident and / or when the Incident was identified.
 - b. the severity of the Incident [*according to a particular scale*].
 - c. the location of the mining vessel and mining equipment and the nature of mining activities taking place, at the time that the incident occurred.
 - d. the cause or likely cause of the Incident and any factors, such as weather conditions, natural conditions that may have influenced its severity.
 - e. the nature and timing of any measures implemented by the Contractor to remedy or mitigate any adverse effects, if any, associated with the Incident.
 - f. the steps to be taken in future to prevent the recurrence of similar Incidents; and
 - g. any other relevant information.

Draft Regulation 59

Risk of Incidents

The wording below is derived from the preamble to the EU directive on the safety of offshore oil and gas operations.⁵⁹ It may have some merit. The MIDAS project has looked into this issue of “as low as reasonably practicable”. But its context needs consideration. ALRP seems more often applied to a health and safety context, than the environment. It is also subjective. It may be appropriate to formulate as an environmental policy objective?

A Contractor shall reduce the risk of Incidents as low as reasonably practicable to the point where the cost of further risk reduction would be grossly disproportionate to the benefits of such reduction. The reasonable practicability of risk reduction measures should be kept under review in the light of new knowledge and technology developments. In assessing whether the time, cost and effort would be grossly disproportionate to the benefits of further reducing the risk, regard should be had to best practice risk levels compatible with the operations being conducted.

Draft Regulation 60

Emergency Response and Contingency Plans (to be harmonized with the Exploitation regulations).

1. Contractors shall maintain the currency and adequacy of their Emergency Response and Contingency Plan(s) that are site-specific, based on the on the identification of potential Incidents and in accordance with Good Industry Practice.

⁵⁹ Directive 2013/30/EU of the European Parliament and of the Council of 12 June 2013 on safety of offshore oil and gas operations and amending Directive 2004/35/EC.

2. Contractors shall maintain such resources⁶⁰ and procedures as are necessary for the prompt execution and implementation of the Emergency Response and Contingency Plans and any Emergency Orders issued by the Authority.
3. Contractors shall proactively manage their activities, including, where necessary, the ability to suspend mining operations without any intervention by the Authority.
4. Contractors shall ensure that the plan to prevent Incidents is appropriately monitored and, as the case may be, revised throughout the conduct of activities in the Area so as to ensure a high level of protection to the Marine Environment at all times. *[Reports and independent verification process? + reporting to other persons with jurisdictional competence for the relevant activity that may give rise to an Incident]*.
5. Contractors, the Authority and Sponsoring States shall consult in relation to the exchange of knowledge, information and experience relating to Incidents or potential Incidents and to use such knowledge and information to prepare and revise standards and operating guidelines to control hazards throughout the mining life cycle.
6. Where the Authority becomes aware and in the light of new knowledge, information and experience, that plans are inadequate or insufficient to protect the Marine Environment, the Authority shall consult with a contractor or contractors with a view to the revision of such plans, having due regard to the technical and economic constraints of any proposed changes to the plans (proportionate measures). *[This wording may be more useful in a general context rather than specific to the ERCP]*.
7. The Authority shall [in accordance with the Seabed Mining Directorate Regulations] develop annual plans for the effective oversight, including inspection, of the major hazards and the effectiveness of the Emergency Procedures and Contingency Plan.
8. The Authority shall promote and facilitate in the development and implementation of regional emergency response and contingency plans and shall co-operate with and draw on the advice of other relevant international organizations and with Member States who are Coastal States accordingly.

Section 4: Other

Draft Regulation 61

Unforeseen Serious Harm

[What protocols if any should be established here? Or dealt with as part of the Environmental Management and Monitoring Plan / Emergency Response and Contingency Plan?].

Draft Regulation 62

Complaints

1. A Contractor shall record any complaints received in connection with its activities in the Area in the Environmental Incident Register required under regulation 58.
2. Where such complaint relates to or is associated with a Contractor's non-compliance under the Rules of the Authority, the Contractor shall advise the Authority promptly, and no later than 5 working days after the receipt of any complaint, and shall provide detail of any investigation undertaken by the Contractor or other persons into such complaint, including the measures taken to remedy such non-compliance. The Authority may request such information as is reasonably required to determine any case of non-

⁶⁰ What emergency response resources and equipment should there be in place?

compliance by a Contractor or direct that further investigation be undertaken by the Contractor within a period to be agreed between the Authority and the Contractor.

Draft Regulation 63

Training

A Contractor shall provide such information, instruction, training and supervision as is necessary to ensure that its employees, sub-contractors and agents and any other persons engaged under its supervision, understand and are to comply with the Rules of the Authority in accordance with the undertakings set out in the Environmental Management and Monitoring Plan.

Draft Regulation 64

Notifiable Events under an Exploitation Contract

[Notification obligations and procedures: Threshold & operational triggers (Notifiable events) *[Section 25 of the standard contract provides for Notifiable Events. These need to be identified for the purposes of environmental matters and reflected in Section 25].*

Part X - Social and cultural management

Commentary: little attention or focus has been given to specific social and cultural considerations in the Area aside from technical assistance / capacity building and contribution to marine scientific research in the Area.

What other social and cultural management considerations are relevant and should be discussed / considered?

- Human remains and objects and sites of an archaeological or historical nature (*see Section 20 of standard exploitation contract*).
- Other social / cultural management aspects? Specific obligations relating to technical assistance or MSR (e.g. in APEIs)?

[*To be considered / completed as appropriate*].

Part XI - Closure plans and post-closure monitoring

Commentary: at the point of termination / expiry of an Exploitation Contract, a number of provisions / obligations will continue in full force and effect, including on-going liability, post closure monitoring etc.

In connection with the execution and delivery of the obligations arising under a Closure Plan, specifically those relating to post closure management and monitoring, is which person(s) will undertake these activities? Will a contractor continue to directly supervise the delivery of a closure plan or will this responsibility be transferred to a third party? If the latter is the case, should the Authority impose a prior approval mechanism for this?⁶¹

Draft Regulation 65

Suspension of / cessation of activities / care and maintenance (temporary suspension)

1. A Contractor shall, within [6] months of an expected cessation or anticipated temporary suspension of activities, or as soon as is reasonably practicable in the case of any unexpected cessation or suspension, submit for the approval of the Authority, a final Closure Plan which shall detail the post closure monitoring programme in accordance with the Authority's guideline document and relevant Strategic Environmental Management Plan.
2. The Authority shall review the final Closure Plan within 30 days of its receipt and shall:
 - (a) approve the final Closure Plan in writing;
 - (b) request further information from the Contractor; and /or
 - (c) suggest amendments to the final Closure Plan in the light of new knowledge, information or experience available to the Authority and based on Good Industry Practice; and
 - (d) review the quantum of any Environmental Performance Guarantee provided according to regulation 44.

Draft Regulation 66

Post-closure Monitoring and management

1. Upon cessation or temporary suspension of mining activities, a Contractor shall implement the final Closure Plan in accordance with the conditions of its implementation, including the required management and Monitoring of the areas defined by the plan [Mining Area / Preservation Reference Zone(s) / Impact Reference Zone(s) / Environmental Impact Area] and the delivery to the Authority of Monitoring reports, surveys and results, assessments and recommendations as agreed in the final Closure Plan.
2. The post-closure management and Monitoring obligations shall take place for a period after the cessation of mining activities, the length of which shall be agreed in the final

⁶¹ This question is posed as the South African *Mineral and Petroleum Resources Development Regulation* (23 April 2004) anticipate and stipulate the transfer of environmental liabilities to a competent person (including the responsibilities under an environmental management plan) and the requirements for such application to transfer respectively, including the qualifications of that competent person (see MPRD regulations 58 and 59). Is this something of relevance (potential) to activities in the Area?

Closure Plan [and / or, where applicable, according to the post-closure completion criteria listed in the final Closure Plan].

3. The Authority, in co-operation with the Sponsoring State, shall ensure that the final Closure Plan is implemented in accordance with its terms. *[Note: it would be usual, in land-based regimes for an inspection of a mining area to occur to ensure obligations have been fulfilled in regard to a Closure Plan. That is not practicable in a deep sea context. Aside from the submission of monitoring surveys and perhaps remote monitoring / surveillance technology, what other means are or should be available to the Authority / sponsoring State to ensure implementation and completion?].*

Part XII – Compensatory measures

Commentary: “compensatory measures” are aimed at providing environmental compensation for those areas of environmental impacts that cannot be avoided, remedied or mitigated or in the case of the Environmental Liability Trust Fund, to plug a potential environmental liability gap.

Section 1: Environmental Liability Trust Fund

Commentary: the concept of such a fund was mooted by the SDC Advisory Opinion to cover any environmental liability gap. The rationale for such a fund, its objectives and funding options will be a matter for further discussion (Legal Working Group on Responsibility and Liability and Payment Regime Workshop #3). Consequently, the wording below is provisional and discussion will benefit from precedents in other sectors (e.g. O&G) and the overall financial package under assessment.

Draft Regulation 67

Set-up of Environmental Liability Trust Fund

1. The Authority hereby establishes the Environmental Liability Trust Fund.
2. The rules and procedures of the fund will be established by the Finance Committee and subject to the approval of the Council.
3. The Authority shall, within 90 days of the end of a calendar year, prepare an audited statement of the income and expenditure of the Fund for distribution to the Members of the Authority.

Draft Regulation 68

Purpose of the Fund

The main purposes of the fund will be and in respect of which the Fund may be applied are:

- (a) the implementation of any necessary measures designed to prevent, limit or remediate any damage to the Area arising from activities in the Area, the costs of which cannot be recovered from a Contractor or sponsoring State, as the case may be.
- (b) the promotion of research into methods of marine mining engineering and practice by which environmental damage or impairment resulting from exploitation activities in the Area may be reduced.
- (c) for the purposes of education and training programmes in relation to the protection of the Marine Environment.
- (d) the funding of research into Best Available Techniques for restoration and rehabilitation of the Area.
- (e) the restoration and rehabilitation of the Area when technically and economically feasible.
- (f) the holding of any Environmental Performance Guarantee in trust.
- (g) [Other]

Draft Regulation 69

Funding

The fund will consist of the following money:

- (a) the prescribed [percentage / amount] of fees paid under the Rules of the Authority;
- (b) the prescribed percentage of any penalties paid under the Rules of the Authority;
- (c) the prescribed percentage of any amounts recovered by the Authority by negotiation or as a result of legal proceedings in respect of a contravention of the Rules of the Authority;
- (d) any money paid into the Fund at the direction of the Council, based on recommendations of the Finance Committee;
- (e) any income received by the Fund from the investment of money belonging to the Fund;
- (f) [any money paid required to be paid into the Fund by way of any Financial Guarantee or Security provided under the Rules of the Authority].

Commentary: *Seabed Mining Sustainability Fund.* The draft legal framework issued by the Commission in March 2015 (and based on submissions to the Stakeholder Survey conducted by the Authority in 2014) proposed the concept of such a fund. The idea received general support. However, an action proposed at that time was to draft a working paper articulating the concept and objectives of such a fund and possible funding mechanisms. This has not yet been actioned however the fund is / will be considered as a part of the payment regime discussion.

Equally, one aspect that needs to be considered is the potential overlap between this fund and the Environmental Liability Trust Fund (and equally the existing Endowment and Voluntary trust funds). Though the rationale for their set-up is different, there may be some overlap in terms of the use of the fund monies. As regards running and administrative expenses, establishing one fund is preferable.

The following regulatory wording has been drafted in connection with this fund, but it has not been reflected as a “formal” regulation until the full merits of such a fund have been discussed and a policy decision made.

Seabed Mining Sustainability Fund

Set-up of Seabed Mining Sustainability Fund

1. The Authority hereby establishes the Seabed Sustainability Fund (hereinafter ‘the fund’), to be funded by the seabed sustainability fund levy in accordance with regulation [] of the Exploitation Regulations.
2. The rules and procedures of the fund will be established by the Finance Committee and subject to the approval of the Council.

Objectives of the fund

1. The main objectives of the fund are: -
 - (a) to facilitate research into, and comprehensive studies of, marine ecosystems in the deep-sea and to improve the evidence base of the nature, distribution and sensitivity of marine environmental resources relevant to exploitation activities;

- (b) to increase the understanding of the effects, including cumulative impacts, of activities in the Area on the marine environment, including the physical loss of habitat, the physical alteration of the seabed, noise and their significance;
 - (c) the efficient and safe extraction of the resources and appropriate mitigation, monitoring and management programmes;
 - (d) the management and monitoring of areas of particular environmental interest and other marine spatial planning tools;
 - (e) to research and understand socio-economic issues associated with activities in the Area;
 - (f) to promote co-ordination and establishment of sustainable archives for the dissemination of research related to these aims to a wide range of interested parties;
 - (g) the development of technologies associated with the above;
 - (h) the provision of scientific and technical assistance to developing States in accordance with Article 202 of the Convention.
 - (i) to research into the technical and economic feasibility of restoration and rehabilitation techniques.
2. The Authority shall promote the institutional capacities of developing States, in connection with programmes established by the fund, in particular least developed, land-locked and small island developing States.
 3. The Authority shall, where practicable, co-operate with other international organizations or groups with similar funds and objectives in order that a collaborative and cost-effective approach may be obtained in delivering mutual objectives.
 4. The fund shall be held in trust in accordance with the Authority's rules and procedures.
 5. The fund shall be independently audited annually by an internationally recognized accounting and auditing practice.
 6. An annual report detailing the activities undertaken by the fund and against the objectives of the fund, together with audited financial statements of the amounts received and amounts disbursed, shall be published each year.
 7. The Council will undertake a strategic review, including a financial review, of the fund every 5 years. Where in the Council's reasonable opinion, based on recommendations of the Finance Committee and any interested parties, the fund has sufficient financial reserves to meet its immediate and foreseeable objectives, the Council may order a temporary suspension in the payment of the seabed sustainability fund levy.

Section 2: Other compensatory measures

Draft Regulation 70

Residual [*significant*] adverse change

- [Offsets]

[To be considered / discussed].

Part XIII - Data and information management

Section 1: Obligations on Authority

Section 2: Obligations on Contractor

- Handling & archiving of biological samples

[To be completed (or presented as a standard contract clause) in the light of the Authority's data management strategy together with any specific guidelines or recommendations relating to samples that are considered appropriate. Section 22 of the standard clauses for Exploitation Contract makes reference to "samples" but is a relatively basic provision].

Part XIV – Compliance, Supervision, Enforcement [and Penalties]

Commentary: under Article 153(4) of the Convention, the Authority is obliged to “exercise such control....as is necessary” in order to secure compliance with the rules of the Authority. Equally, States Parties are also obliged to assist the Authority by taking “all necessary measures” as part of its responsibility to ensure compliance.

Article 153(4) provides the Authority the right “to take at any time any measures” under Part XI and the right to inspect all installations.

Again, there are issues of jurisdictional competence and overlap here and a matrix setting out duties and responsibilities is required.

Under Article 165(2) there are a number of obligations placed on the Commission as regards programmes, supervision and inspection:

- (c) supervise (on the Council's request) activities in consultation / collaboration with a contractor “or States or States concerned” (sponsoring States?).
- (h) recommendations to the Council as regards monitoring programmes and co-ordinate the implementation of such programmes. **Note:** this is specifically in relation to “the risks or effects of *pollution* of the marine environment resulting from activities in the Area” (see also Article 209).
- (k) recommendations to issue emergency orders (including suspension or adjustment of operations) to prevent serious harm
- (m) recommendations as regards the “direction and supervision of a staff of inspectors”.

As to an inspection mechanism, regulation 54 of the Exploitation Regulations outlines the basic requirements on contractors as regards inspection. However, a full inspection regime needs to be considered in conjunction / collaboration with sponsoring States.

This Part XIV identifies certain “measures” that *could* be taken by the Authority. However, the role of the Authority and that of a sponsoring State, and the necessary co-operation / collaboration between them must be clearly mapped out in due course.

Questions:

- Under Article 165(3), “[t]he members of the Commission shall, upon request by any State Party or other party concerned, be accompanied by a representative of such State or other party concerned when carrying out their function of supervision and inspection.” What does this mean / imply? Who is “other party concerned”?
- In connection with “pollution” arising from seabed activities, Article 209(1) requires international rules, regulations and procedures to be established to prevent, reduce and control pollution for activities in the Area: by the Authority / Member States? (See also Article 215 stating that the enforcement of these rules are to be governed by Part XI). What is categorized as “pollution” for the purposes of Authority / Sponsoring State jurisdiction: noise? oil leaks from mining equipment? ore spills on transfer from a mining vessel to a transportation barge? (versus waste categorized as Mining Discharges).
- Under Article 209(2) States are also to adopt laws and regulations relating to pollution from activities in the Area (being no less effective than those under art.

209(1)) “undertaken by vessels, installations, structures and other devices flying their flag or of their registry or operating under their authority, as the case may be”. What are vessels, installations, structures and other devices contemplated here? Which regulatory body has jurisdiction over what tangible feature (or part thereof) and over category of pollution (and waste) arising from mining operations?

- Aside from the specific compliance and supervision measures prescribed by the Convention (e.g. emergency orders, supervision, inspection of installations etc.) how broad are the Authority’s powers in connection with other compliance measures? What “necessary measures” should be taken by a sponsoring State? This Part XIV outlines other potential measures / action to be taken by the Authority. However, the legal basis for these measures needs to be considered, together with measures that would more appropriately be taken by a sponsoring State (as anticipated by the Convention) in its duty to assist the Authority.

Section 1: General

Draft Regulation 71

General

The [Authority] shall, in co-operation with Sponsoring States, monitor, evaluate and supervise, including a right to inspect under regulation 54 of the Exploitation Regulations, the Exploitation Activities under an Exploitation Contract on a continuous basis and shall develop and implement such monitoring⁶² and supervision programmes, approved by the Council, to ensure the effective protection of the Marine Environment and the prevention, reduction and control of Pollution from such activities.

Draft Regulation 72

Power of Authority to direct Contractor to take action to prevent or minimize Environmental Impacts

Where, in the opinion of the Authority in consultation with a Sponsoring State, a Contractor is conducting Exploitation Activities in a way that results, or is likely to result in the breach of an Environmental Target under the Contractor’s Environmental Management and Monitoring Plan, the Authority may, by way of a compliance notice under regulation 55 of the Exploitation Regulations, direct that the Contractor take such action as is necessary to comply with the specified requirements of the notice to prevent or minimize damage to the Marine Environment. Such notice issued may impose any reasonable requirement on a Contractor which may include, as the circumstances dictate:

- a) a requirement to cease or not commence a specified activity for a specified period or until such time and date as the Authority and Contractor agree.
- b) a requirement to undertake a specified activity in a specified way, and within a specified period or at specified times or in specified circumstances.
- c) a requirement to take necessary measures to prevent or minimize any damage to the Marine Environment.
- d) a requirement to undertake specific tests or monitoring and to furnish the Authority with the results or report of such tests or monitoring.

⁶² Under Article 165(2)(h), the Commission are obliged to make recommendations to the Council as regards monitoring programmes and co-ordinate the implementation of such programmes.

Draft Regulation 73

Necessary measures to secure compliance

1. The Authority, in co-operation with a Sponsoring State, shall take necessary measures to secure Contractor compliance with the Rules of the Authority where specified actions or outcomes, identified by the reporting and Monitoring measures, on inspection by the Authority or Sponsoring State or by verifiable information from a third-party, are assessed as providing evidence of non-compliance, including, but not limited to:
 - (a) waste and pollution not being properly managed.
 - (b) Exploitation Activities being conducted outside the boundaries of an approved Plan of Work.
 - (c) Performance Assessments or reports not being submitted.
 - (d) Monitoring not being done in accordance with an Environmental Management and Monitoring Plan.
 - (e) mining methods being used which are likely to have significant impacts on the Marine Environment and where such methods were not assessed by an Environmental Impact Assessment.
 - (f) other material and un-notified deviation from the approved Plan of Work.
 - (g) [other].
2. Where it appears a Contractor is not in compliance with under paragraph 1 above, the Authority may issue a compliance notice according to regulation 55 of the Exploitation Regulations.

Section 2: Emergency Orders

Draft Regulation 74

Emergency Orders

Commentary: the wording in the next text box has been extracted *verbatim* from regulation 33 of the PN Exploration Regulations.

This entire wording needs a re-think as it is difficult to understand how the protocols and procedures will work in practice, particularly in relation to the remoteness of the activities (and what categories of incident the wording is attempting to address) as well as the involvement of many different levels / organs of the Authority.

An adequate Emergency Response and Contingency Plan (ERCP) (as anticipated by Section 6 *Standard clauses for exploration contract* and required as part of a Plan of Work for exploitation (regulation 4, Exploitation Regulations) is the pre-requisite here (together with an adequate safety and environmental management system). Section 24 of the standard exploitation contract terms (as currently drafted) obliges a contractor to implement the ERCP in connection with an Incident and to report to the Authority. An ERCP should also address other reporting protocols as necessary.

Annex V of the Exploitation Regulations needs further populating as to the minimum content and requirements of an ERCP in due consultation with other international organisations (e.g. IMO) not least as regards human health and safety aspects (e.g. search and rescue). (Annex III to this working draft populates some of the content of a "typical" ERCP to be dealt with under the Exploitation Regulations).

Additionally, and following appropriate consultation noted above, the Authority will need to

formulate an internal emergency response plan which should be duly approved by the Council and implemented by the yet to be established mining inspectorate.

As a consequence of an Incident, its circumstances will require investigation and whether the Incident is contractor / site-specific or has ramifications for other third party operations.

Regulation 33 Emergency orders

1. A contractor shall promptly report to the Secretary-General in writing, using the most effective means, any incident arising from activities which have caused, are causing or pose a threat of serious harm to the marine environment.

2. When the Secretary-General has been notified by a contractor *or otherwise becomes aware of an incident*⁶³ resulting from or caused by a contractor's activities in the Area that has caused, is causing or poses a threat of serious harm to the marine environment, the Secretary-General shall cause a general notification of the incident to be issued, shall notify in writing the contractor and the sponsoring State or States, and shall report immediately to the Legal and Technical Commission, to the Council and to all other members of the Authority. A copy of the report shall be circulated to competent international organizations and to concerned sub-regional, regional and global organizations and bodies. The Secretary-General shall monitor developments with respect to all such incidents and shall report on them as appropriate to the Commission, the Council and all other members of the Authority.

3. Pending any action by the Council, the Secretary-General shall take such immediate measures of a temporary nature as are practical and reasonable in the circumstances to prevent, contain and minimize serious harm or the threat of serious harm to the marine environment. Such temporary measures shall remain in effect for no longer than 90 days, or until the Council decides at its next regular session or a special session, what measures, if any, to take pursuant to paragraph 6 of this regulation.

4. After having received the report of the Secretary-General, the Commission shall determine, based on the evidence provided to it and taking into account the measures already taken by the contractor, which measures are necessary to respond effectively to the incident in order to prevent, contain and minimize serious harm or the threat of serious harm to the marine environment, and shall make its recommendations to the Council.

5. The Council shall consider the recommendations of the Commission.

6. The Council, taking into account the recommendations of the Commission, the report of the Secretary-General, any information provided by the contractor and any other relevant information, may issue emergency orders, which may include orders for the suspension or adjustment of operations, as may be reasonably necessary to prevent, contain and minimize serious harm or the threat of serious harm to the marine environment arising out of activities in the Area.

7. If a contractor does not promptly comply with an emergency order to prevent, contain and minimize serious harm or the threat of serious harm to the marine environment arising out of its activities in the Area, the Council shall take by itself or through arrangements with others on its behalf, such practical measures as are necessary to prevent, contain and minimize any such serious harm or threat of serious harm to the marine environment.

8. In order to enable the Council, when necessary, to take immediately the practical measures to prevent, contain and minimize the serious harm or threat of serious harm to the marine environment

⁶³ Could this wording anticipate information coming to the light of the Authority as a result of a whistleblower mechanism?

referred to in paragraph 7, the contractor, prior to the commencement of testing of collecting systems and processing operations, will provide the Council with a guarantee of its financial and technical capability to comply promptly with emergency orders or to assure that the Council can take such emergency measures. If the contractor does not provide the Council with such a guarantee, the sponsoring State or States shall, in response to a request by the Secretary-General and pursuant to articles 139 and 235 of the Convention, take necessary measures to ensure that the contractor provides such a guarantee or shall take measures to ensure that assistance is provided to the Authority in the discharge of its responsibilities under paragraph 7.

1. A Contractor shall promptly report to the Secretary-General in writing, using the most effective means, any Incident arising from activities which have caused, are causing or pose a threat of Serious Harm to the Marine Environment.
2. Where an activity carried out by a Contractor poses an immediate danger to human health or significantly increases the risk of an Incident, the Authority [and sponsoring States] shall ensure that the Contractor takes suitable measures by issuing an Emergency Order [including required improvements] which may include, if considered necessary, suspending the relevant activity until the danger or risk is adequately controlled. The Authority shall ensure that where such measures are taken, the Contractor notifies the Authority accordingly without delay and no later than 24 hours after taking those measures.
3. The Contractor shall comply with Emergency Orders issued by the [Council / Mining Inspectorate] to prevent, contain or minimize Serious Harm or the threat of Serious Harm to the Marine Environment, which may include orders to the Contractor to immediately suspend or adjust any activities in the Mining Area.
4. If a Contractor fails to comply with the Emergency Order, the Authority, may in its absolute discretion, take any reasonable action required by such order. The reasonable costs and expenses incurred by the Authority taking action under this regulation may be recovered by the Authority as a debt from the Contractor who failed to comply with the requirements of the order and shall, where provided, be set-off against the Environmental Performance Guarantee. Such costs and expenses shall be in addition to any monetary penalties which may be imposed on the Contractor pursuant to the terms of the Exploitation Contract.

Section 3: Area Environmental Protection Measure

Draft Regulation 75

Environmental Protection Measure

1. The Council may issue an Environmental Protection Measure for the purpose of securing compliance with the general duty to protect the Marine Environment from Serious Harm. Such Protection Measure may be issued generally and applicable to all contractors, a number of contractors or to a specific contractor.
2. The protection measure shall: -
 - (a) state the purpose for which it is intended.
 - (b) specify the Serious Harm that it is intended to prevent or minimize.
 - (c) the reasons for the protection measure including new information, knowledge or experience (*e.g. through Emergency Orders*).

- (d) the date and time by which the measure shall take effect, taking account of a period for reasonable compliance in the circumstances of the case.
 - (e) details of the duration of any measure issued under this regulation.
3. An Environmental Protection Measure may require a Contractor(s) to which it is issued to:-
- (a) discontinue or not commence a specified activity for the specified period.
 - (b) not to carry on a specified activity except as required under any special conditions of the measure.
 - (c) prepare a plan of action to prevent or minimize harm to the Marine Environment or to control Pollution or waste.
 - (d) conduct specific tests or environmental monitoring and reports of such tests or monitoring be evaluated before any specified activity commences or be allowed to continue.
4. Any Environmental Protection Measure shall remain in force for the period specified in the written notice or until such time as the order is withdrawn in writing by the Council.

Section 4: Compliance (remediation?) Notice

Commentary: the steps to be taken in respect of a Compliance notice are contained in draft regulation 55 of the Exploitation Regulations. There is currently no specific obligation for a Contractor to restore or rehabilitate the marine environment (but for this to be considered in an EMMP on the basis of (future) technical and economic feasibility).

In the light of the Netherland's paper addressed to the Council regarding compensatory measures, would it be prudent at this point to include some form of "remediation notice" allowing the Authority (Council) to direct the taking of remedial (restoration) or compensatory (offset) measures, where feasible or the payment of a sum in respect of such remediation or compensatory measures?

This question is perhaps best tackled following any preliminary thoughts flowing from a legal working group on responsibility and liability, payment regime workshop(s) etc.

Section 5: Power to take remedial action

Draft Regulation 76

Authority's power to recover costs in the event of remedial measures

If a Contractor fails to comply with a compliance notice, the Authority may take such necessary and reasonable measures to remedy any damage to the Marine Environment and / or to prevent any pollution of the Marine Environment pursuant to regulation 56 of the Exploitation Regulations.

Section 6: Penalties

Commentary: Annex VIII to the Exploitation Regulations (Schedule of Contract violations and monetary penalties should reflect / list relevant violations relating to environmental matters. These could include:

- Failure to report (Annual and other reporting)
- Notifiable events; failure to notify

- Environmental Incidents
- Not achieving / exceeding Environmental Targets & thresholds
- Relating to Environmental Performance (SMART objectives / targets)

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Part XV - Annual reporting obligations

Draft Regulation 77

Annual Reporting by Contractors

1. Contractors shall produce an annual report in accordance with Section 19 of Standard Clause of Exploitation Contract in addition to any other reporting obligations under these Regulations. For the purpose of these Regulations, such report shall include a summary of the Mitigation measures deployed and Monitoring undertaken in the previous 12 months and the results of such measures and Monitoring and an assessment of the Environmental Performance of the Contractor against the Environmental Objectives and Environmental Targets, including a review of environmental Incidents. *[template / format required in due course but regulation should specific minimum requirements. Environmental Management and Monitoring / Closure Plan should specific reporting specifics]*.
2. All and any Environmental Information contained in such annual report shall be made publicly available by the Contractor and the Authority.

[Note: the wording of this regulation may be better reflected in standard contract terms].

Part XVI – Other administrative matters

Draft Regulation 78

Avoidance of duplication in procedures

The Authority and Sponsoring States shall co-operate toward the avoidance of unnecessary duplication of procedures and compliance requirements under their respective rules, regulations and procedures.

Draft Regulation 79

Information discovery order

The Council may issue an information discovery order by written notice to any person engaged in or connected with activities in the Area in order to facilitate the administration and enforcement of these Regulations. The Council may issue such an order under this regulation where it reasonably suspects that the person to whom the order is issued has knowledge of or information required by the Authority for the proper execution of its duties.

Draft Regulation 80

Public register

The Authority shall maintain a public register containing, inter alia, the following information:

- (a) the recommendations made by the Commission in respect of the Environmental Plans.
- (b) the Environmental Plans considered under these Regulations, together with details of the amendments, modifications and conditions to a Plan of Work.
- (c) the result of any tests or monitoring or evaluation undertaken in compliance with the conditions prescribed in the approved Plan of Work.
- (d) the details and results of further environmental assessment work carried out in each Contract Area.
- (e) copies of each compliance notice issued by the Authority pursuant to regulation 55 of the Exploitation Regulations in respect of environmental matters and subsequent action and / or measures taken.
- (f) the details and results of environmental audits, inspection and compliance programmes.

Draft Regulation 81

Review and amendment of these Regulations

1. These Regulations shall be reviewed in accordance with regulation 59 of the Exploitation Regulations.
2. The Authority shall develop and implement a process and procedure whereby a period of Consultation will be held with Interested Persons relating to any proposed amendments to the provisions of these Regulations.

Annex I

Environmental Scoping Report

[Indicative only]

Contents

1. Introduction
 - a. Project Overview
2. Purpose of the Development
3. Viability of the Project
 - a. Applicants Credentials
 - b. Feasibility Investigations
 - c. Compatibility with ISA Strategies and Plans
 - d. Compliance with existing law, including the Rules of the Authority
4. Description of the Proposed Development
 - a. Location and size of Mining Area(s)
5. Development Timetable
6. Biophysical Environmental Setting and Issues
 - a. Marine Environment
 - b. Marine Setting
 - c. Marine Issues
 - i. Issues at the Surface
 - ii. Issues in the Water Column (Pelagic)
 - iii. Issues Above the Seafloor (Demersal/Midwater)
 - iv. Issues Associated with the Seafloor (Benthic)
 - d. Proposed Studies
 - e. Review of available scientific publications
7. Socio Economic Issues
 - a. Setting
 - b. Issues
 - c. Proposed Studies
8. Availability of Baseline Information and Data
9. Assessment of natural hazards
10. Levels of Certainty / Uncertainty in Data
11. Application of the Precautionary Approach
12. Assessment of Relevant Risks
13. Proposed Stakeholder Consultation, including other users of the Marine Environment
14. Site Selection / Alternatives Considered
15. Appropriately Qualified Experts

Annex II

Format / Content of an Environmental Impact Statement

[EIS template(s) to be inserted on finalization at Berlin workshop, March 2017].

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Annex III

Format / Content of an Environmental Management and Monitoring Plan

[See also NIWA guidelines re specifics on monitoring categories.

Consider IFC Performance Standard 6.

Consider separate sub-plans

An Environmental Management and Monitoring Plan must include [*indicative*]:

A. Introduction and Background

1. Executive Summary
2. Description of project
 - (a) location
 - (b) overview of activities and assessment of impacts (physical, chemical, biological).
 - (c) outline of technology to be deployed.
3. Environmental Objectives: a description of the Environmental Objectives and site-specific objectives for the plan for:
 - (a) the management of identified Environmental Impacts to prevent, mitigate and, where applicable, offset the impacts on Biodiversity in the Environmental Impact Area;
 - (b) applicable socio-economic conditions and factors;
 - (c) historical and cultural aspects, where applicable.
4. Environmental policy.
5. Implementation schedule.
6. Approval and other regulatory requirements:
 - (a) Authority.
 - (b) Sponsoring State.
 - (c) Flag State.
 - (d) Other.

B. Environmental Management

7. Aims and objectives.
8. Management and key personnel:
 - (a) a list of key personnel and points of contact, including but not limited to personnel with specific environmental management responsibilities under the plan.
9. Environmental Management System: details of the EMS, at company / entity and mining project levels.
10. Relationship with Strategic Environmental Management Plan.
 - (a) compliance with the relevant Strategic Environmental Management Plan of the Authority, including the designation of the Impact Reference Zones and Preservation Reference Zones in accordance with the design criteria and guidelines issued by the Authority [for the primary purposes of ensuring the preservation of and to facilitate the monitoring of biological communities potentially impacted by exploitation activities. Impact reference zones should be designated within the mining area(s) actually mined. Preservation reference zones should be designated to include some occurrence of [mineral resource category] in order to be as ecologically similar as possible to the impacted mining area(s), and be spatially removed from potential mining impacts].
11. Management procedures: including, but not limited to:
 - (a) continued identification of potential Environmental Impacts and associated

Environmental Risk Assessment.

- (b) development of an environmental programme for the management of Environmental Impacts.
 - (c) identification of roles and responsibilities, environmental and operations training requirements (environmental awareness programme), internal and external communication, documentation and document control.
 - (d) the management of and response to environmental Incidents, contingency planning, audit and review including standard operating procedures, as they relate to potential Environmental Impacts from: the mining vessel. mining equipment, waste management / policy, lighting, vessel and other operational noise, equipment loss at sea, hazardous substances management, mining operations, dealing with any spillages including of oil and hazardous substances and procedures for generally minimizing potential Environmental Impacts associated with mining activities.
- 12. Adaptive Management: requirements (process, procedure, response) for adaptive management approach, where applicable.
 - 13. Opportunities for the improved management and conservation of natural resources in the mining areas.
 - 14. Procedures to minimize greenhouse gas air emissions (as defined by the IPCC).
 - 15. Other procedures or actions necessary to comply with all of the conditions of the approval by the Authority and any other relevant regulatory or legislative requirements.
 - 16. Disposal of Mining Discharges.
 - 17. Relevant maps / co-ordinates identifying mining area(s), Environmental Impact Areas, Impact Reference Zones and Preservation Reference Zones, protected areas etc.
 - 18. Historical and cultural considerations and management where applicable.
 - 19. Socio-economic considerations and management.
 - 20. Details of Consultations proposed with Interested Persons, including: Fisheries, Shipping, Submarine cables, Marine scientific research, Coastal States, third party contractors.
 - 21. Cultural heritage
 - 22. Assessment of any restoration / rehabilitation of the Marine Environment and the likely effectiveness of such techniques based on the technical and economic feasibility.

C. Environmental Monitoring and Review

- 23. Aims and objectives.
- 24. Description of Monitoring programme, standards and protocols (e.g. BACI: Before, After, Control, Impact, for the execution of Monitoring programmes?).
- 25. Technology to be deployed:
- 26. Monitoring frequency of respective elements / components of the Marine Environment.
- 27. Monitoring procedures required to implement the Monitoring programme: Monitoring objectives, Monitoring requirements, corrective actions and control of monitoring records (split: prior to commencement of mining activities? During mining activities?)
- 28. Details of the environmental monitoring stations across the Environmental Impact Area.
- 29. Details of the quality control and management standards (assessment methodology) (based on Internationally Recognized Standards to support the delivery of good, objective and comparable data and information and equivalent to [e.g. ISO-9001/9002]).
- 30. Monitoring specifics e.g. water quality; sedimentation rates; sound; plume extent; etc. plus relevant Environmental Targets.
- 31. Monitoring of Mining Discharges.
- 32. Processes for Monitoring reviews and Environmental audits.
- 33. Further research and studies.

D. Environmental Reporting

34. Details of reporting requirements and timing.

35. Data sharing.

Appendices

Maps

Technical reports

Data sources

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Annex IV

Format / Content of a Closure Plan

A Closure Plan must include:

1. a description of the closure aims and objectives and how these relate to the mining activity and its environmental and social setting.
2. a plan with co-ordinates showing the area(s) subject to the closure objectives.
3. a summary of the relevant regulatory requirements, including conditions previously documented.
4. details of the closure implementation and timetable, including description of the decommissioning arrangements for vessels, plant and equipment.
5. arrangements for temporary closure / suspension in mining activities ('care and maintenance').
6. information relating to baseline conditions for Monitoring measures.
7. an updated Environmental Risk Assessment together with details of the identifiable Residual Environmental Effects.
8. details of post closure Monitoring: benthic ecology and seabed sediment surveys
9. details of the management measures to Mitigate the Residual Environmental Effects.
10. details of the persons or entity that will implement the management measures under 5. above and their qualification(s) and experience.
11. details of the quantum of the Financial Guarantee and Security provided under the Regulations / condition of approval.
12. reporting / handling of data and information post closure.
13. details of Consultations with Interested Persons.
14. details of any progressive remediation or rehabilitation, where applicable / directed by the Council.
15. [details of any compensatory measures agreed or proposed to achieve the agreed closure objectives].
16. [technical documents or reports to be annexed to Closure Plan].

Note: a Closure Plan will be a dynamic document and process. As data is collected during the life of a mining project, a Closure Plan will be updated and its objectives and implementation requirements refined.

Annex V

Content of an Emergency Response and Contingency Plan

The plan shall include:

1. the overall aims and objectives and arrangements for controlling the risk of Incidents.
2. relevant codes, standards and protocols.
3. organisational structure and personnel roles and responsibilities.
4. details of individuals authorized to initiate response mechanism(s)
5. details of control mechanisms in place during the course of normal operations.
6. details of the emergency response equipment.
7. details of the safety and Environmental Management System to be integrated into the overall management system of the Contractor.
8. description of the mining operations and equipment, including emergency response equipment.
9. description of all foreseeable Incidents and likelihood and consequences assessed and associated control measures.
10. the number of persons that can be present on the mining vessels at any time.
11. description of the arrangements to protect persons on the mining vessel, and to ensure their safe escape, evacuation and rescue.
12. details of arrangements for the maintenance of control systems to monitor the Marine Environment in the event of an Incident.
13. details of the safety and Environmental Management System.
14. details of the emergency response plan.
15. details of the known natural marine environmental conditions that may influence the efficiency of response equipment or the effectiveness of a response effort.
16. information and measures relating to the prevention of Incidents which could result in Serious Harm to the Marine Environment.
17. assessment of Pollution hazards and the measures to prevent or reduce such hazards.
18. assessment of Mining Discharges and measures to control such discharges.
19. details of the warning mechanism to the Authority and [other] together with the type of information to be contained in such warning.
20. details of arrangements for co-ordinating any emergency response.
21. details of training programmes for personnel.
22. description of monitoring of performance under plan.
23. details of audit and review processes.
24. [other hazards / harmful substances; oil spills, leaks etc. from normal operation of mining vessel].

Note: this plan is to be developed further under these Regulations and the Exploitation Regulations and in conjunction with other international organizations, sponsoring States and other entities with relevant jurisdictional competence as regards specific components of the plan.

Annex VI

Standard Contract Terms: Environmental management, monitoring and reporting

[See also comments under Part IX – Environmental Management and Monitoring]

The following standard terms and conditions shall be incorporated into Section(s) [] of the Standard Contract Terms annexed to the Exploitation Regulations:

xx. The Contractor shall at all times give effect to the Environmental Objectives of the Authority as regards the protection of the Marine Environment and, shall:

- (a) manage all aspects of the Exploitation Activities in accordance with the Environmental Management and Monitoring Plan and Closure Plan as an integral part of such Exploitation Activities.
- (b) [other]

xx. The Contractor shall, in the case of the temporary suspension of or cessation of mining activities, comply with the Closure Plan, and conditions attaching thereto, as required to management, monitor and where applicable Mitigate, any Residual Environmental Effects.

xx. The Contractor shall co-operate with other contractors, entities, national and international scientific research agencies, sponsoring States and other persons engaged in Exploration and Exploitation Activities in the Area, with a view to, and in respect of Environmental Impacts:

- (a) sharing, exchange and assessment of Environmental Information for the Area;
- (b) co-operating in research activities designed to identify gaps in scientific knowledge and the development of targeted and focused research programmes to address such gaps;
- (c) collaborating on the development and standardization of Best Available Techniques for Exploitation Activities;
- (d) undertaking joint Consultation and educational awareness programmes for Interested Persons relating to activities in the Area;
- (e) facilitating the implementation of contractor management and monitoring programmes to Mitigate the Environmental Impact of Exploitation Activities in the Area;
- (f) contributing to longer-term research programmes and management response strategies targeted at the management of any significant Residual Environmental Effects, including environmental rehabilitation and remediation techniques;
- (g) collaborating with the Authority and scientific community to identify and develop best practices, improve existing standards and protocols with regard to the collection, sampling, standardization, assessment and management of data and information; and
- (h) in conjunction with the Authority, promoting the advancement of marine scientific research in the Area for the benefit of mankind as a whole.

xx. The Contractor shall assure the readiness and effectiveness of resources, including equipment, under its Emergency Response and Contingency Plan and that response procedures are regularly tested in accordance with such Plan.

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Schedule 1

Use of terms and scope

“Acceptable” in relation to a risk, means a level of risk for which the time, cost or effort of further reducing it would be grossly disproportionate to the benefits of such reduction. In assessing whether the time, cost or effort would be grossly disproportionate to the benefits of further reducing the risk, regard shall be had to best practice risk levels compatible with the Exploitation Activities being undertaken.

“Adaptive Management” is a planned and systematic process for continuously improving environmental management practices by learning about their outcomes. Adaptive management provides flexibility to identify and implement new Mitigation measures or to modify existing ones during the life of a mining project.

[“Areas of Particular Environmental Interest” means areas designated for the protection of the deep sea environment, where mining activities are not permitted in accordance with an approved [Regional Environmental Management].

[“Benthic Plume” means a stream of water containing suspended particles of sea floor sediment, abraded manganese nodules and macerated benthic biota that emanates from the mining collector as a result of collector disturbance of the sea floor and spreads in a zone close to the sea floor].⁶⁴

[“Best Practicable Environmental Option” means, for a given set of Environmental Objectives, the option that provides the most benefits or least damage to the Marine Environment, as a whole, at acceptable cost, in the long term as well as the short term.]

“Best Available Scientific Evidence” means the best scientific information and data accessible and attainable that, in the particular circumstances, is of good quality and objective, within reasonable technical and economic constraints and based on Internationally Recognized scientific practices, standards, technologies, and methodologies.

“Best Available Techniques” means the latest stage of development, state of the art processes, of facilities or of methods of operation that indicate the practical suitability of a particular measure for the prevention, reduction and control of pollution and the protection of the Marine Environment from the harmful effects of Exploitation Activities.

“Best Environmental Practices” means the application of the most appropriate combination of environmental control measures and strategies, [including Best Available Techniques].

Commentary: the requirement for BEP and its application is paramount under a Plan of Work and must be assessed fully at the application stage and applied throughout the mining life cycle. Its application has temporal aspect and will change over time as scientific knowledge grows, technology advances and changes in social and economic factors. [The above definition has tentatively incorporated BAT, is this acceptable?].

⁶⁴ ISBA/19/LTC/8 at 30.

“Biodiversity” means the variability among living organisms from all sources including, inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part: this includes diversity within species, between species and of ecosystems.

Closure plan means a plan required to be produced and submitted to the Authority under these regulations.

“Consult” and “Consultation” means

- (a) provide appropriate access to up-to-date and comprehensive Environmental Information in accessible terminology and format.
- (b) provide reasonable opportunity for those consulted to raise enquiries and to make known their views.
- (c) record those views in written form and, where appropriate, provide that record to Interested Persons.
- (d) consider those views in the Authority’s administration and management of Exploitation Activities; and
- (e) continue or repeat these processes, as appropriate, if the subject matter of a prior Consultation substantially alters (including as a result of prior Consultation).

“Cumulative Impact(s)” is the impact on the Marine Environment resulting from the incremental impact of Exploitation Activities when added to other past, present or reasonably foreseeable activities in the Area and can include individually minor but collectively significant activities occurring over a period of time.

[“Cumulative Impact Assessment [see IFC’s Guidance Notes: *Performance Standards on Environmental and Social Sustainability*].

“Direct Impacts” means impacts caused as a direct result of Exploitation Activities, such as loss of habitat and populations owing to removal of substrates or other materials and occurring at the same time and location.

“Discharge” includes any release, disposal, spilling, leaking, pumping, emitting, or emptying, but does not include Dumping.

“Dumping” has the meaning set-out in Article 1(1)(5) of the Convention.

“Environmental Evaluation or Evaluation” means the evaluation of the Environmental Plans in accordance with these Regulations by the Authority on the basis of an assessment of the Environmental Impacts in connection with a Plan of Work submitted under the Exploitation Regulations.

“Environmental Effect” includes any positive or negative effect, any temporary or permanent effect, any past, present or future effect, any cumulative effect that arises over time or in combination with other effects, any potential effect of high probability and any potential effect of low probability that has a high potential impact.

“Emergency Response and Contingency Plan” means a planned course of action developed and documented by an Applicant and based on Good Industry Practice to respond quickly to and Mitigate the impact of Incidents or accidents that may arise and which may cause imminent danger of damage to the Marine Environment or human health and safety.

“Environmental Objective” is an overall environmental goal, consistent with an environmental policy, that the Authority sets to achieve.

“Emergency Order” means an environmental protection notice issued under these Regulations.

“Environmental Baseline” means the starting point (a certain date or state) against which the changes in the condition of a variable or a set of variables are measured.

“Environmental Impact Assessment” is the identification and systematic study of the baseline of existing environmental conditions, and identifying, predicting, evaluating the significance of and Mitigating the Environmental Impacts, taking into account interrelated socio-economic, historic, cultural and human health impacts, both beneficial and adverse, and in Consultation with Interested Persons. The results of such assessment to be compiled in a document known as the Environmental Impact Statement.⁶⁵

“Environmental Impact” means any likely impacts on the Marine Environment arising from the conduct of Exploitation Activities, including social, cultural and historic considerations and human health, being positive, negative, direct, indirect, temporary or permanent, or Cumulative Impacts arising over time or in combination with other mining impacts.

“Environmental Impact Area”⁶⁶ means that area of the Marine Environment where Environmental Impacts (Direct, Indirect, Cumulative and/or interactive) are likely to occur as a result of Exploitation Activities, including the Mining Area, adjacent, surrounding and far-field areas as documented in the Environmental Impact Statement.

Commentary: the Environmental Impact Area will need to be identified / assessed prior to the conduct of an environmental impact assessment. Further investigation during an EIA process may modify this area. Equally, consideration should be given to any social / cultural impacts as may modify such areas.

“Environmental Impact Statement” means a document, the content and format of which is prescribed by and to be approved under these Regulations to detail the likely Environmental Impact of Exploitation Activities based on an Environmental Impact Assessment.

“Environmental Liability Trust Fund” means a fund established by regulation [].

“Environmental Management and Monitoring Plan” means a plan to document the methods and procedures to be implemented in order to monitor, manage and Mitigate the Environmental Impacts identified in the Environmental Impact Statement.

“Environmental Management System” means that part of the overall management system applied by a Contractor that includes organizational structure, planning activities, responsibilities, practices, procedures, processes and resources for developing, implementing, achieving, reviewing and maintaining environmental policy, goals and Environmental Performance.

“Environmental Offset” means an action or actions taken in accordance with these Regulations, after all reasonable Mitigation measures have been applied, to compensate or counterbalance significant Residual Environmental Changes resulting from Exploitation Activities in the Area, by replacing or providing substitute resources or environments.

⁶⁵ See also ISBA/20/C/13 at 6.

⁶⁶ This also needs to be considered in the context of strategic planning and management by the Authority and the cumulative impact of aggregate exploitation operations.

“Environmental Performance” means the extent to which a Contractor has achieved the Environmental Objectives, Environmental Targets and other Monitoring and management deliverables under an Environmental Management and Monitoring Plan and Closure Plan.

“Environmental Plans” means collectively the Environmental Impact Statement, the Environmental Management and Monitoring Plan, the Closure Plan and the Emergency Response and Contingency Plan (as it relates to the Marine Environment) to be prepared and approved in accordance with these Regulations. [Note: harmonize with definition in Exploitation Regulations].

“Environmental Risk Assessment” means the risk process for evaluating the likelihood and consequence of Environmental Impacts using International Recognized Standards.

“Environmental Target” means a qualitative or quantitative statement on the desired condition of the different components of the Marine Environment in respect of the areas impacted by Exploitation Activities, established in accordance with these Regulations and the Authority’s guidelines⁶⁷ and, where practicable, be specific, measurable, achievable, realistic and time limited.

“Evaluation Report” is a report prepared by the Commission on the outcome of its consideration of environmental matters relating to a proposed Plan of Work, its evaluation of the adequacy of the Environmental Plans together with its recommendations to the Council.

“Exploitation Regulations” means the Regulations and Standard Contract Terms on Exploitation for Mineral Resources in the Area

“Impact Reference Zones” means areas used to Monitor the effect of activities in the Area on the Marine Environment; must be representative of the environmental characteristics (physical, chemical, biological) of the Mining Area.

“Indirect Impact” means impacts on the Marine Environment that are caused by Exploitation Activities, and are later in time or farther removed from a Mining Area but are still reasonably foreseeable [or as a result of a complex pathway (physical, chemical and biological)]. May be referred to as secondary impacts.

“Indirect Impact Area” means []. May be referred to as secondary impact area].

“Interested Person(s)” means a natural or juristic person or an association of persons that, in the opinion of the Authority, is directly affected by the carrying out of Exploitation Activities in the Area or who has relevant information or expertise.

“Marine Scientific Research” means, for the purposes of these Regulations, scientific activities undertaken in the Marine Environment to enhance scientific knowledge regarding the nature and natural processes of the seas and oceans, the seabed and subsoil thereof [conducted in accordance with international law].

“Material Change”⁶⁸ means a change, not being a minor or administrative change, to the basis on which the original report, document or plan, including a Plan of Work, was accepted or approved by the Authority including, inter alia, physical modifications, availability of new

⁶⁷ Annex IV of Directive 2008/56/EC of the European Parliament and of the Council of 17 June 2008 establishing a framework for community action in the field of marine environmental policy (Marine Strategy Framework Directive) provides an Indicative list of characteristics to be taken into account for setting environmental targets.

⁶⁸ Needs to be “harmonized” with draft regulation 18 of the Exploitation Regulations.

knowledge or technology and operational management changes, according to the Authority's guidelines.

"Mining Discharge" means the disposal, Dumping and Discharge into the Marine Environment of SWOE, made as an integral part of, or as a direct result of activities in the Area or from shipboard processing immediately above a Contract Area of minerals derived from a Mining Area.

"Mitigate" and "Mitigation" includes:⁶⁹

- a) avoiding an impact altogether by undertaking taking or not undertaking a certain activity or parts of an activity.
- b) minimizing impacts by limiting the degree or magnitude of the activity and its implementation.
- c) [rectifying the impact by repairing, rehabilitating or restoring the affected Marine Environment].⁷⁰
- d) reducing or eliminating the impact over time by preservation and maintenance operations during the life of the mining activity.
- e) Environmental Offset.

"Monitor" or "Monitoring" means the systematic sampling and assessment of the Marine Environment in order to observe, study, detect or measure the Environmental Effects against, where practicable, quantitative and qualitative Environmental Targets.

"Natural Resources of the Area" means [to be defined in the context of Article 145(b) of the Convention but excluding the Resources of the Area??].

"Natural environmental impact" means any environmental impact that may result from natural events or disasters.

"Pollution" shall have the same meaning as Article 1(4) of the Convention.

"Preservation Reference Zones" means areas representative of the Mining Area, but in which no mining shall occur and used to Monitor changes in the biological status of the Marine Environment caused by or likely to be caused by mining activities.

"Protection Measures" means the necessary measures taken or to be taken to Mitigate Environmental Impacts.

"Residual Environmental [Impact / Effect]" means the Environmental [Impact/Effect] remaining after the cessation, or suspension, of Exploitation Activities in the Mining Area.

"Restoration" includes the process of assisting the recovery and management of the ecological integrity of marine ecosystems affected by Exploitation Activities in the Area.

["Seabed Mining Sustainability Fund" means a fund established by the Authority under regulation []].

["Seabed Mining Sustainability Fund Levy" means a payment to be made by [] to the Seabed Sustainability Fund in accordance with the Exploitation Regulations].⁷¹

⁶⁹ See §1508.20 *Mitigation, Regulations for Implementing the Procedural Provisions of the National Environmental Policy Act*.

⁷⁰ Though restoration *may* be possible / plausible, it is considered highly uncertain as an effective measure currently. Further research is required.

“Sediment” means the organic and inorganic material extracted from the seabed by Exploitation Activities, and includes tailings.

[“Surface Plume” is a stream of water containing suspended particles of sea floor sediment, abraded manganese nodules and macerated benthic biota resulting from the separation, on board the mining vessel, of the nodules from the water carrier and spreads in a zone closer than Benthic Plume to the ocean surface].⁷²

“SWOE” means sediments, wastes and other effluents including mine tailings⁷³ and water evacuated from the Minerals during shipboard processing.

“Serious Harm to the marine environment” means any effect from activities in the Area on the Marine Environment which represents a Significant Adverse Change in the Marine Environment determined according to the rules, regulations and procedures adopted by the Authority, on the basis of Internationally Recognized Standards and practices.⁷⁴

“Significant Adverse Change” [*means important harmful changes in ecosystem diversity and integrity, the productivity of the biological communities within the Marine Environment; or the threat to human health through direct exposure to pollutants, or through consumption of exposed aquatic organisms; or important loss of aesthetic, recreational, scientific, or economic values*].⁷⁵

“Strategic Environmental Management Plan (Regional)” means a plan prepared by the Authority to manage, monitor, mitigate, assess and evaluate with the objective of the effective protection of the Marine Environment from Exploitation Activities within a defined area of the Area.

“Substantial Evidence” means Best Available Scientific Evidence consisting of relevant, adequate and well-informed studies and research conducted and assessed by Appropriately Qualified Experts qualified to evaluate Environmental Impacts and Effects in the Area and where it can reasonably be concluded by such experts, on the basis of such evidence and reasonable scientific confidence, there is a risk of Serious Harm to the Marine Environment.

“Unforeseen Serious Harm” means Serious Harm that is not reasonably foreseeable at the time of any evaluation by the Commission.

“Vulnerable Marine Ecosystem” means any marine ecosystem identified as such in accordance with the criteria and guidelines adopted by the Authority in accordance with these

⁷¹ Further work is required on the rationale for and consequential funding mechanism for this Fund.

⁷² ISBA/19/LTC/8 at 30.

⁷³ In the case of PN, this would include the spreading and deposition of sediments from mining activities at the seafloor.

⁷⁴ The operationalization of “serious harm” is a Priority Deliverable.

⁷⁵ The related criteria for SAC will need to be developed through an expert working group. To formulate a meaningful definition is too simplistic. The term is potentially resource and site-specific, depending on the criteria to be adopted. There is no scientific basis for “significant adverse change”. The resilience of marine ecosystem(s) to mining activities and the development of thresholds or tipping points (and indicators) are of much greater relevance to science. Other definitions exist e.g. *Council Regulation (EC) No 734/2008 of 15 July 2008 on the protection of vulnerable marine ecosystems in the high seas from the adverse impacts of bottom fishing gears*: “significant adverse impacts” means impacts (evaluated individually, in combination or cumulatively) which compromise ecosystem integrity in a manner that impairs the ability of affected populations to replace themselves and that degrades the long-term natural productivity of habitats, or causes on more than a temporary basis significant loss of species richness, habitat or community types

Regulations and based on internationally accepted principles.⁷⁶

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⁷⁶ Characteristics to be used in identifying vulnerable marine ecosystems have been defined in connection with other regimes e.g. including the UN FAO *International Guidelines for the Management of Deep-Sea Fisheries in the High Seas*, FAO 2009.

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