

Unedited Advance Text



WORKSHOP REPORT

DEVELOPMENT OF STANDARDS AND GUIDELINES FOR ACTIVITIES IN THE AREA

PRETORIA, SOUTH AFRICA 13-15 MAY 2019

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1. Background and Workshop Objectives

In February 2019, during Part I of the 25th Session of the International Seabed Authority (“ISA” or “the Authority”), a number of discussion documents¹ were presented to and discussed by the Council of the Authority relating to common themes arising from stakeholder submissions on the Draft Regulations on Exploitation of Mineral Resources in the Area² (“Draft Exploitation Regulations”). One key component of this discussion related to the content and development of standards and guidelines to support the implementation of the Draft Exploitation Regulations. During its consideration of this matter, the ISA Council resolved that the Legal and Technical Commission (“the Commission”) would examine critical issues with respect to the provisional list³ of standards and guidelines and make subsequent recommendations to the Council. In order to assist the work of the Commission in making these recommendations, the Council welcomed the proposal to host a workshop on standards and guidelines in Pretoria, South Africa from the 13- 15 May 2019.⁴ The Commission developed a Terms of Reference⁵ for the workshop, with the aim to bring experts from a wide range of professional backgrounds to assist in reviewing and prioritising the list and identifying the process for the development of standards and guidelines, including suggested timelines.

The workshop was hosted by the Authority in partnership with the Government of the Republic of South Africa and the Foreign & Commonwealth Office of the United Kingdom, and was attended by approximately eighty-five governmental officials or experts (a list of participants is contained in Annex V to this report), and had two main objectives:

- a) To establish a prioritised list of standards and guidelines, with reference sources, that will be required to support the implementation of the exploitation regulations; and
- b) To develop a process for the development of the standards and guidelines.

The delivery of these objectives was achieved through a series of expert presentations, panel discussions and active working sessions to address specific questions. The workshop made significant progress toward the delivery of these objectives, including prioritization of the list of the standards and guidelines in line with different phases and process for the development of standards and guidelines. As requested by the Commission, the workshop also focused on “environmental standards”. In addition to the delivery of the above objectives, the workshop also:

- a) Outlined what is meant by a risk-based approach to regulation;
- b) Provided a better understanding of how different regulators approach the use, adoption and reference of standards in a national and international context, particularly in connection with natural resource and environmental regulation;
- c) Delivered an understanding of the parameters for the setting of standards and guidelines from an engineering and a science-based perspective;

¹ ISBA/25/C/2-13.

² The latest version issued by the Legal and Technical Commission in March 2019 is contained in ISBA/25/C/WP.1.

³ ISBA/25/C/3.

⁴ ISBA/25/C/17.

⁵ See annex I to this report.

- d) Provided the necessary groundwork for subsequent technical document development.

A drafting group, comprised of a subset of workshop participants, was convened from 16-17 May 2019 to compile and deliver a report of the workshop proceedings, and to capture the contents of presentations, discussions and suggestions, as well as a list of reference documents, flowcharted development processes and indicative timeframes for documentation delivery.

As noted on a number of occasions by the Authority and stakeholders, there exists a wealth of experience and documentation on standards and guidelines across parallel industries, as well as documentation, process and procedures developed under the Authority's three sets of Exploration Regulations.⁶ Equally, contractors engaged in exploration activities have considered and likely generated technical specifications and practices which should also be considered as valuable input into the development and delivery process. It is envisaged that the report of the workshop will be a valuable resource for the Commission to help it advance a work programme and recommendations to the Council in relation to the development of Standards and Guidelines. Additional information on the deliverables for the workshop can be found in the background note (Annex VI to this report).

⁶ Regulations on Prospecting and Exploration for Polymetallic Nodules in the Area (Annex, ISBA/19/C/17), Regulations on Prospecting and Exploration for Polymetallic Sulphides in the Area (Annex, ISBA/16/A/12/Rev.1), and Regulations on Prospecting and Exploration for Cobalt-rich Ferromanganese Crusts in the Area (Annex, ISBA/18/A/11).

2. Executive Summary: Key Points for Consideration (Drafting Group Report)

2.1 Introduction

The drafting group met from 16-17 May 2019 to discuss the feedback from the working and panel sessions with a view to capturing key points for further consideration by the Commission and the Council, as well as distilling the various outputs from workshop discussions.

The following key points for consideration have been put forward by the drafting group.

2.2 Terminology

The drafting group recognized that clarity in the language used and role of the standards and guidelines, including the distinction between those to be developed by the Authority and of other applicable international standards under the Draft Exploitation Regulations was required. To achieve a practical way forward, the drafting group recommended that the following understanding of these terms consistent with draft regulations 94 and 95 be used:

- a) **ISA “Standards”** are part of the Mining Code and are binding on Member States, Contractors and the Authority and should be distinguished from the common usage of the term “standard” in the international standardization system, e.g. International Standardization Organization (ISO) and other standard setting bodies or organizations. Draft regulation 94 establishes a process whereby “Standards” must be approved by Council.

The Exploitation Regulations, and subsequently adopted ISA Standards and Guidelines documents may make reference to “international standards”, which will continue to be set by the relevant competent standard-making bodies and organizations. The extent to which any international standards are mandatory must be clearly stated in the relevant Regulations (or Standards).

ISA Standards may include processes or one or more thresholds (e.g. early warning thresholds, environmental and performance thresholds, and ‘stop-work’ thresholds).

- b) **ISA “Guidelines”** identify a recommended path for implementing the Mining Code. They do not require approval of the Council but must be reported to Council, which may request that the Guideline be modified or withdrawn. The proposed process for the issuing of Guidelines is set out in draft regulation 95. While Guidelines are recommendatory and not mandatory in nature, adherence to their content or recommendations may be an indicative factor in demonstrating Contractor compliance with the regulations of the Authority.

2.3 Approaches to regulation

The drafting group noted that the regulatory framework should be developed on the basis of an outcome or results-based approach to regulation, particularly in connection with environmental regulation. Whilst also adopting an overarching risk-based approach to regulation (and consequently a better alignment and targeting of regulatory resources), an outcome-based approach defines the result required for a particular activity e.g. in setting environmental thresholds. An outcome-based approach prescribes for rigorous and contractually binding outcomes, while affording flexibility in the processes by which these outcomes are achieved. This approach incentivizes continuous improvement in technology

and encourages innovation and it avoids the tick box compliance culture that was identified as a contributing factor in, for example, the offshore petroleum Piper Alpha and Deepwater Horizon incidents.

The use of an outcome-based approach can include the use of prescriptive processes, procedural requirements or thresholds when appropriate to achieve the requirements under the regulations.

The above matters were discussed at some length during workshop proceedings. The drafting group suggested that the Authority document the above approaches for approval by Council,⁷ to provide clarity in their application under the regulatory framework, drawing on existing best practices in other regulatory environments, including those presented at the workshop.

2.4 List of documents and prioritisation

The drafting group reviewed the feedback from Workshop Sessions 1 and 4 which examined the list of documents attached to the Commission's original Terms of Reference and presented to participants in the form of an output table with an indicative order of priority.

Examination of document list

Flowing from participant discussions examining the list of proposed documents attached to the original Terms of Reference, the drafting group made the following observations for consideration by the Commission:

The list should be reviewed further by the Commission with clear rationale provided for each document including a proposal regarding whether the document should be an ISA Standard or Guideline.

There may be opportunity to rationalise document requirements as listed in the output table. Certain documents may duplicate the content of existing mechanisms or could sensibly be incorporated into other documents, for example those relating to environmental impact assessment or the environmental impact statement.

There is a possibility in causing confusion when developing Standards and Guidelines that reference internationally accepted standards or principles and it may be more appropriate for these to be directly referenced in the Draft Exploitation Regulations.

Certain proposed document content may be more appropriately addressed by improving upon existing definitions in the Draft Exploitation Regulations.

Participants in the meeting observed that there is a wealth of existing resources and reference sources developed by other industries that face similar issues. It is suggested that given the cost and complexity of developing new Standards and Guidelines, that the Commission draw on these materials during their drafting to the greatest extent possible. To facilitate this work, it is suggested that the Commission, in conjunction with the Secretariat, undertake a "gap analysis" of existing and relevant standards and

⁷ Under Article 162(1), the Council is empowered to establish, in conformity with the Convention and the general policies established by the Assembly, the specific policies to be pursued by the Authority on any question or matter within the competence of the Authority.

guidelines to determine which, if any are transferable, and/or where they can be adapted to the needs of the Authority, and where new Standards and Guidelines should be developed.

Phasing of documents

The drafting group noted that workshop participants generally accepted the 3-phase / sequencing approach to document development proposed in the background note (see Annex VI to this report), namely:

- a) **Phase 1** Standards and Guidelines are those deemed needed to be in place by the time of the adoption of the Draft Exploitation Regulations (expected in July 2020): these are considered to be part of the core regulatory package to be adopted. The potential Standards and Guidelines allocated to Phase 1 are listed in an output table within Annex III to this report;
- b) **Phase 2** Standards and Guidelines are those deemed needed prior to the receipt of and consideration of an application of a plan of work for exploitation; and
- c) **Phase 3** Standards and Guidelines are those deemed needed before commercial mining activities commence in the Area.

The drafting group stressed that the three phases are related to timing (and immediate need) rather than relative importance of each document. Equally, the phases are based on an understanding as to when each document would need to be completed in order to feed into the next stages of work. It was also acknowledged that the production of documents from multiple phases may run in parallel, depending on the resources required and the complexities in developing each document.

The workshop agreed on the list of Standards and Guidelines to be developed during Phase 1, as follows:

[Note that grey shading = a questionable need for the document (e.g. tools already exist, or the document could be rolled into something else, e.g. EIA/EIS); Underlined = the document may not be necessary and all that may be required is a review by the Commission of the definitions in the Draft Exploitation Regulations]

Phase 1, Priority 1 – To be developed prior to regulations being adopted (8)

- Guidelines (generic) for a risk-based approach to the development and assessment of environmental thresholds and indicators
- Guidelines for the preparation and assessment of an application for the approval of a plan of work for exploitation (*Standard?*)
- Guidelines on the expected scope and standard of baseline data collection
- Guidelines for environmental impact assessment and preparation of an environmental impact statement
- Guidelines for access to environmental data and information
- Guidelines for the form and calculation of an environmental performance guarantee
- Guidelines for procedures for stakeholder participation
- Guidelines on tools and techniques for hazard identification and risk assessment

Phase 1, Priority 2 - To be developed prior to regulations being adopted (8)

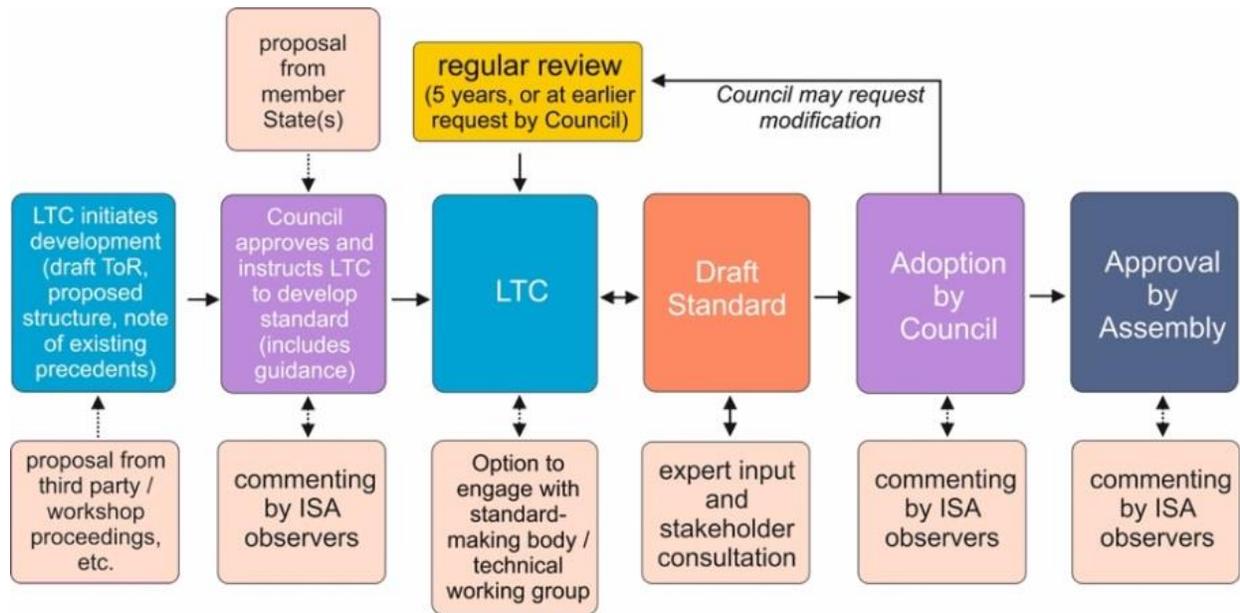
- Guidelines for the application and assessment for use of an exploitation contract as security
- Guidelines for insurance requirements under an exploitation contract and placing of insurance risk
- Guidelines for the process modifying a plan of work and on the meaning of material change
- Guidelines for the preparation and implementation of an emergency response and contingency plan
- Guidelines for the application and assessment on the transfer of rights and obligations under an exploitation contract
- Guidelines for the development and application of environmental management systems
- Guidelines for the application of good industry practice
- Guidelines on criteria for determining the date of commercial production

A revised output table, including suggested phasing and sequencing is presented at Annex III to this report for consideration by the Commission.

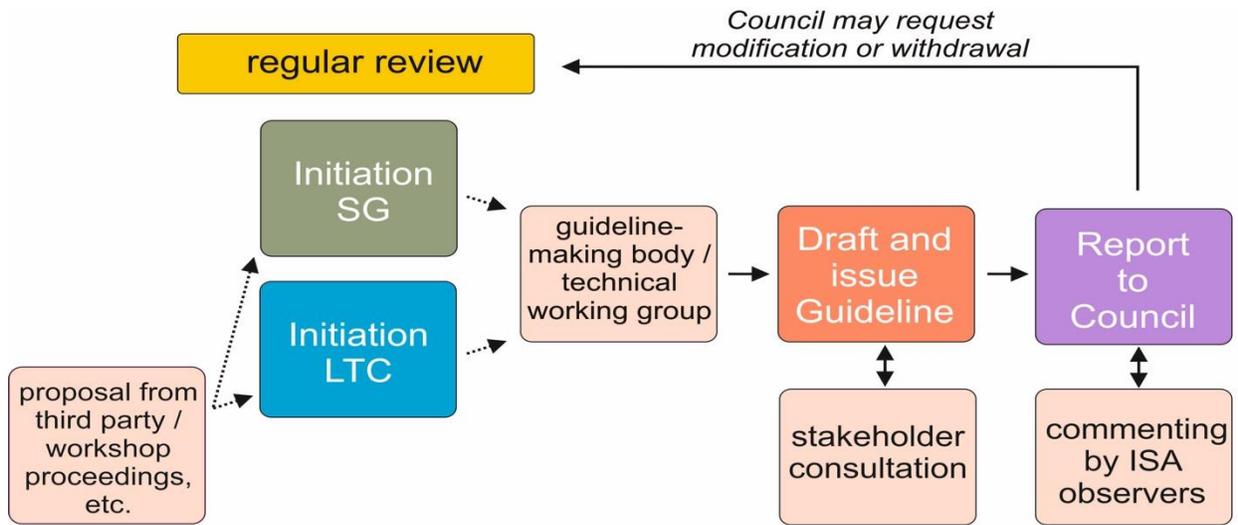
2.5 Process(es) for document development

Workshop Session 2 proposed the following flowcharts for the a) Standards and b) Guidelines development processes respectively:

a) Flowchart for Standards Development Process (Outcome of Workshop Session 2)



b) Flowchart for Guidelines Development Process (Outcome of Workshop Session 2)

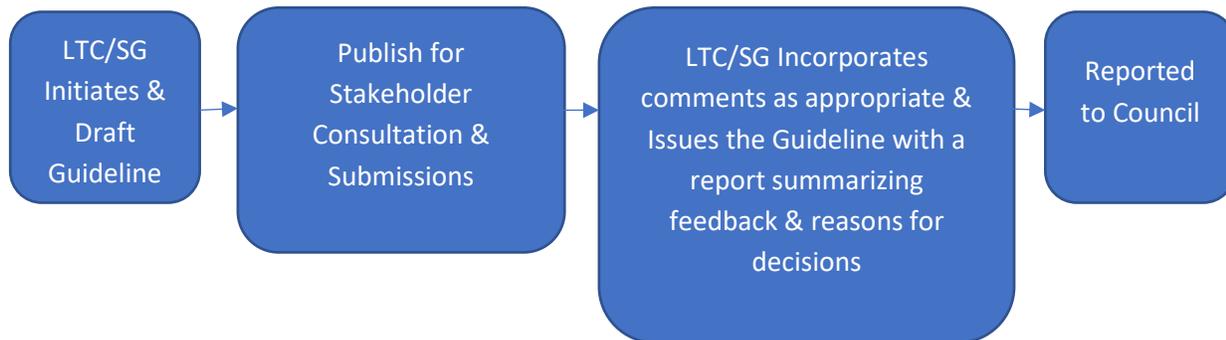


On the final day of the meeting, members of the drafting group developed simplified flowcharts as the suggested processes for Standard and Guideline development respectively (most members were still present; however, the conveners of Workshop Session 2 had departed). Concerns were later raised by the conveners that these revised flow charts did not accurately reflect all of the elements proposed during the workshop session. The other drafting group members thought it important that the simplified flow charts be included. For completeness, both sets of charts have been reproduced for consideration.

c) Simplified Standard Setting Process (Drafting Group recommendation)



d) Simplified Guideline Setting Process (Drafting Group recommendation)



A key principle to the development process is one of transparency. All the above flowcharts identify a requirement for stakeholder review of draft content in support of this.

The workshop shared the view that the review of Standards and Guidelines under the regulatory framework is important (within 5 years for Standards or as requested by Council).

2.6 Working methodology

In the case of both Standard and Guideline development, at any stage, the Commission has the discretion to, where appropriate, consult another commission, any competent organ of the United Nations or of its specialized agencies or any international organizations with competence in the subject-matter of such consultation⁸. The Commission is required to make recommendations to the Council on the protection of the marine environment, taking into account the views of recognized experts in that field.⁹ The Commission shall exercise its functions in accordance with such guidelines and directives as the Council may adopt.¹⁰

It was recommended that the Commission explore the use of Technical Working Groups as part of the development framework for Standards and Guidelines. It was recommended that the Authority not aim to achieve such development by workshops only. There was support for developing remote conferencing methods and working group exchanges in the drafting process. Workshops could be the concluding elements of the drafting process, wherein authors will be brought together for the final session. Where established, such Technical Working Groups could operate under terms of reference established by the Commission and report back their conclusions to the Commission for its consideration.

2.7 Environmental Standards and Guidelines

Participants agreed that for existing and available international standards and guidelines that may be relevant, it would be useful to assess the following:

- The methods used to develop them;

⁸ Paragraph 13, Article 163, UNCLOS.

⁹ Paragraph 2 (e), Article 165, UNCLOS.

¹⁰ Paragraph 9, Article 163, UNCLOS.

- Their objectives and whether or not they can be adapted to suit the needs of the Authority and projects within the international seabed area;
- Their ability to help meet environmental objectives.

The following overarching considerations were identified for developing Environmental Standards and Guidelines:

- That Environmental Standards (including) thresholds should be technically achievable;
- Some Standards and Guidelines will need to be resource-specific;
- That key to ensuring the success of an outcome-based approach is the definition of the environmental goals and objectives.

The participants of the working groups agreed that due to the sequencing of the Draft Exploitation Regulations and timing of expiry of exploration licenses, the work detailed above should focus initially on developing Environmental Standards and associated Guidance for exploitation of polymetallic nodules. Workshops and/or Technical Working Groups focusing on other resource types should be convened sequentially and build on the work previously delivered, where applicable.

The working groups agreed that it is essential to collate and publish a live bibliography of relevant existing standards and guidelines, possibly including relevant national standards/guidelines and standards/guidelines identified by interested stakeholders, in advance of a suggested workshop / technical working group meeting.

2.8 Summary of key issues for consideration by the Commission and the Council

The drafting group suggested that the following key issues should be considered by the Commission and the Council:

Issue 1: Terminology

That the Commission and Council endorse the working definition of Standards, Guidelines and international standards.

Issue 2: Policy approaches to regulation

That the Commission and Council note the use of the outcome-based approach used to develop and implement requirements under the Draft Exploitation Regulations.

Issue 3: Revised output table

That the Commission considers the recommendations of the workshop with respect of phasing and classification of the list of documents at Annex III and makes relevant recommendations to the Council on adopting or modifying this list as necessary.

That the Commission reviews the list of Standards and Guidelines to be developed during Phase 1 and make a recommendation to the Council on the work plan, including working methodology and timelines.

That the Commission in conjunction with the Secretariat review existing materials developed by third parties and consider which elements can be adapted for use in the Mining Code.

Issue 4: Process for development

That the Commission considers the suggested flowcharts for the development of the Standards and Guidelines and makes recommendations to the Council on the process for such development.

Issue 5: Methodology for development

That the Commission considers the use of Technical Working Groups to facilitate the drafting of Guidelines and Standards and to draft Terms of Reference /Rules of Procedure for such working groups suggested in section 2.6 above.

Issue 6: Environmental Standards and Guidelines

That the Secretariat develops, collates and publishes a live bibliography of relevant national and international standards and guidelines from analogous industries, which Technical Working Groups and the Commission could use as key reference material.

That the Council recommend to the Commission the establishment of one or more Technical Working Groups to assist the Commission to establish high-level environmental goals, objectives and principles to be taken into account when developing mining-related Environmental Standards and Guidelines, noting that there may already be plans in place to define the environmental goals, objectives and principles through the Regional Environmental Management Plan process(es) envisaged by the Authority.

That a workshop be held, or a series of Technical Working Groups be established to assist the Commission to develop a suite of applicable environmental Standards and Guidelines.

3. Summary of Output from Workshop Sessions and Panel Discussions

3.1 Panel Discussion (Day 1): Sharing experiences of national and other approaches to using standards and guidelines in natural resources or environmental regulations

The workshop began with a scene-setting panel discussion involving a number of national legislation experts from around the globe.

Setepane Mohale, *Chief Director, Mineral Promotion and International Coordination, Department of Mineral Resources of the Republic of South Africa* (panel member), noted the need to balance the cost of compliance and non-compliance. The cost of compliance can be a deterrent for investment, in particular in cases where costs outweigh the possible benefit. Therefore, there must be a cost for non-compliance, otherwise regulatory tools are meaningless. Ms. Mohale also referred to the need for concurrent rehabilitation, making sure that whatever regulations set in place, there is still a means to be accountable, considering the fact that there is often no juristic person to be accountable. She also drew attention to the need to have stakeholder involvement in the monitoring thereof but also in the initial stages of the mining activities. As for automation of reporting, she stated that it would be important to be realistic as self-marking occurs in every industry. The manner in which the data is collected and audited is also important.

Sergio Hernandez, *Executive Director, Great Suppliers of the mining Industry Association, Chile* (panel member), noted that the ocean life is very important for the future of humanity. He suggested that an agreement should be signed after a complete marine scientific research. Complete information with respect to life in the deep sea is needed. In standards and guidelines, equal treatment is important. Royalties must be distributed progressively to mankind as there are no taxes in this regard and the financing of the ISA should be addressed.

Harald Brekke, *Project Coordinator/Senior Geologist Norwegian Petroleum Directorate* (panel member) noted that the main objective of standards and guidelines must be to have the contractors do what is required from them. Similar to the qualification system in Norway for new entrants, ISA might need to consider adopting such a mechanism as it will be damaging if an entrant is not performing and such damage can last for many years after. Apart from having effective control, there is no court system in the ISA to settle disputes. There are court disputes in Norway on an ongoing basis. The ruling principles in terms of how guidance should be formed are very important at this point.

Kenneth Wong, *Legal Officer, Continental Shelf Division (JLC), Global Affairs Canada* (chair of the panel) noted that checks and balances are an interesting element to deal with, as in Canada there are natural checks and balances as there are provincial and federal levels. He agreed that a dispute settlement process is important.

David Carlin, *Science Director, Centre for Environment, Fisheries & Aquaculture Science of UK* (panel member) noted that from experience, partnership is critical and essential in establishing common objectives. Objectives in respect of Guidelines and Standards are important. There should be clarity on the risks, such as the methods on mineral extraction, the different technologies that can be used including those are available and are in development. It is important to try and understand what the environmental risks are in these developments. It is equally important to own these risks and be

responsible for them. Partnership is important in this sense but then these risks should be portioned to their individual owners.

Conclusion of the Panel discussion

Kenneth Wong questioned how much one should adopt certainty taking into account the need to adapt. He also noted the challenge of balancing many competing objectives, such as balancing economic development with the environment.

Setepane Mohale noted that the regulator cannot know the pace of technology and hence cannot be too prescriptive, as this would lead to retarding innovation. It is very important to think about where the administration of the activity will be held. Spending time identifying who the stakeholders are is necessary. Have to actively bring in all the players. In respect of the issues around certainty, very importantly there needs to provision made for the review of guidelines should an incident occur (such as in mining, South Africa still has many mining incidents. A review should be made available to the regulations, should an incident occur). It needs to be results based what is happening on the ground.

Sergio Hernandez was of the opinion that in respect of written rules and guidelines, the ISA should guide itself on clear written rules while guidelines should be used as an exemption. There is a need for certainty. The mining code should be written in totality.

Harald Brekke was of the opinion that in the beginning the reviews, there should be an automatic review after one year and as times goes by the reviews can be done within a longer time period, but he expressed that it is important that information is at all times made available.

3.2 Workshop Session 1 (Day 1): World Café Discussions on developing a prioritized list of standards and guidelines

During the World Café session, all participants were assigned to 8 tables (working groups) to discuss 4 break-out topics. Two moderators were assigned for each break-out topic. The first moderator was assigned to discuss their topic with tables 1-4 and the second moderator with tables 5-8, for 30 minutes each. Each group of two moderators made oral reports in the following plenary session.

Break-out 1

Questions: (i) Examine the draft list of documents and identify those which lend themselves to the development of standards. (ii) What additions or deletions should be made to the ISBA/25/C/3 list, with a particular focus on a comprehensive list of “environmental standards?”

During the World Café session, discussions focused on understanding the definitions of a standard vs. a guideline and the way these terms are used in the current version of the draft regulations. Instead of treating standards as mandatory and guideline as recommendatory, both terms were treated as recommendatory. As a result, the question and the discussion for at least 4 of the 8 tables, in effect became “Examine the draft list of documents and identify those of which lend themselves to the development of standards or guidelines”.

Discussions took place for the items listed in Annex III to this report up to item 36 of the 51-item list. Of these, five received a “no” (no Standard or Guideline was necessary) and the rest received a yes (i.e. a Guideline or Standard was deemed needed). These responses were sometimes qualified with rationale

provided. In general, after looking at the relevant draft regulation and/or other associated reference sources, the consensus was that Contractors would benefit from further guidance in order to self-assess whether they are in compliance. Definitions sometimes proved to be controversial. Participants came to an agreement that guidelines on the interpretation of the terms may be useful.

The following general comments were made:

- One group considered that a number of these guidelines would refer to existing standards, whether international, regional or possibly national ones.
- Another group felt that some parts of the same guidelines could be adopted as standards and other parts as guidelines

A number of guidelines were proposed to be developed as Standards, the main reason being consistency. Detailed comments with respect to which Guidelines were proposed to be adopted as Standards, as well as other comments are contained in the output table of Annex III.

Break-out 2

Question: What existing resources exist that might be useful reference or source material for each of the items on the ISBA/25/C/3 list?

During the discussion, participants referred to a variety of experiences and documentation on standards and guidelines adopted by an international organization or by national States and across parallel industries (including offshore oil and gas and land-based mining), as well as documentation, processes and procedures developed under the Authority's three sets of Exploration Regulations. National legislation adopted by Sponsoring States or other members of the Authority in relation to seabed mining, whether under national jurisdiction or in the Area, will also be a very useful resource. Equally, Contractors engaged in exploration activities have considered and likely generated technical specifications and practices which should be also considered as valuable input into the development and delivery process.

All reference sources submitted within the course of this workshop are now available on the webpage of the workshop, through the link below:

<https://www.isa.org.jm/workshop/workshop-development-standards-and-guidelines-mining-code#Refs>

Break-out 3

Question: What are the indicators that a document will be mandatory or recommendatory?

Participants agreed that it is important for all stakeholders and organs of the Authority to be clear which documents are mandatory (i.e. legally binding) and which are recommendatory-only. To avoid confusion, it was stressed that the regime should consistently use the term 'Guidelines' to refer to recommendatory documents, and 'Standards' to refer to mandatory documents, and should avoid hybrids or mis-use of terms (see output of drafting group above).

The following were suggested as indicators that a document should be 'mandatory': where its purpose is to:

- a) Ensure a level playing field for Contractors;
- b) Set performance outcome thresholds for contractors;

- c) Ensure effective protection of the marine environment; or
- d) Set rules for the format of data / reports from Contractors (“standardization”), which the Authority needs to receive in a consistent way, in order to function effectively.

Some participants considered that the Authority should begin with a presumption that a subject should be covered by a mandatory document and shift its nature to a recommendatory document only where that presumption is otherwise rebutted by certain indicators.

An indicator that a document should be recommendatory, rather than mandatory, might be that it is providing a suggested (but not the only) way to achieve compliance with a regulation or contractual requirement. Working groups commented that this type of recommendatory document could perform a ‘due diligence’ role, i.e. a contractor can take comfort that adherence to the process or methodology set out in that recommendatory document will result in compliance with the relevant requirement.

The following factors were not necessarily considered relevant indicators for determining whether a document was mandatory or recommendatory:

- a) Where the subject is controversial (and a recommendatory document may be easier to agree than a mandatory document);
- b) Where the matter is urgent and warrants immediate guidance (and a recommendatory document may be quicker to develop than a mandatory document); or
- c) Where the document may require periodic updating to reflect new knowledge (and amending a recommendatory document may be easier than for a mandatory document).

It was also discussed that if the regime includes Contractor-led documents, for example setting out industry best practice, these should be recommendatory-only.

Some participants considered that at this nascent stage of the industry, it may be prudent to develop Guidelines (non-mandatory documents) in the first instance and that as more is learned as the industry moves forward, that the majority of Standards could be developed at a later stage.

Some working group participants queried whether there is a need for the Authority to concern itself with recommendatory documents (at this stage).

Break-out 4

Task: Review the suggested prioritized order of the items on the ISBA/25/C/3 list and suggest any amendments.

The phased development of Standards and Guidelines was considered by workshop participants during workshop session 1 and then again during the plenary workshop session 4. During workshop session 1, which involved a “world café” type discussion, the participants were asked to review the suggested prioritized order of the items on ISBA/25/C/3 and suggest amendments (see Annex III). During the discussions, queries arose regarding whether or not a number of the Standards/Guidelines were required to be developed. These have been highlighted in the revised output tables in Annex III.

With respect to 7 (safety management systems), 8 (safe operation), 9 (maritime security), 43 (labor) and 44 (safety assessment), participants queried whether these were first of all duplications within the list of possible standards/guidelines. Furthermore, participants queried the need for these items to be

addressed by the Authority as they appeared to relate to matters covered by other international organizations. The only caveat was with respect to 8 (safe operations), and the extent to which this is addressing mining operations as opposed to normal vessel operations.

With respect to 10 (mapping), it was felt that these were, or would be, covered by other proposed Standards/Guidelines e.g. EIA and baseline.

With respect to 15 (risk assessment), 17 (environmental management systems), 29 (accounting principles) participants felt that other tools to address these issues are available and therefore an Authority-specific Standard/Guideline may not be required.

In discussion on 25 (reasonable regard), some participants raised concerns over issuing a Standard/Guideline that purported to define a term used throughout UNCLOS. It was noted that any such Standard/Guideline would need to be clearly marked as being relevant only to the specific context of the ISA regulations.

With respect to 28 (records and samples), participants queried what further information would be needed above the guidance already provided by the Authority in the context of exploration.

With respect to proposed Standards/Guidelines 30 to 37 – Definitions – it was felt that a Standard or Guideline may not be necessary, and it was recommended that the definitions in the draft regulations be reviewed by the Commission. These have been highlighted in the table in Annex III. With respect to 21 (Closure) participants felt that this should be split into two parts, with a Standard/Guideline for the preparation of closure plans being completed in Phase 2, and a Standard/Guideline for post closure monitoring and evaluation being completed in Phase 3.

3.3 Workshop Session 2 (Day 2): Designing a process(es) for technical standard and guideline development

This working session focused on designing a process(es) for technical standard and guideline development, with a view to answering the following questions as raised in the TOR of the workshop: Who initiates the process? Who develops the content of the standards and guidelines? What could be the recommended content of such standards and guidelines (can a template be developed)? Who reviews the content (including the process for review)? And who approves the content?

Discussion was conducted in two working groups on the questions above.

Who initiates and who approves the process?

Participants at the workshop groups agreed that the roles and responsibilities outlined in UNCLOS must be respected, and that ownership of the process for the development of ISA Standards and Guidelines lies with the Authority, and primarily with the Commission. The groups worked on the basis of the current proposal in the draft regulations for Standards to be legally binding documents adopted requiring adoption by Council (draft regulation 94), and for Guidelines to be recommendatory — i.e. only documents issued by the Commission or the Secretary-General (draft regulation 95).

Working groups commented that where new Standards are to be developed, clear reasons why they are required and terms of reference for their development, as well as ideas on their design and contents, must be put forward for Council approval before proceeding with their development. Working Groups

agreed that this process is likely to be initiated by the Commission (at this stage, selecting topics based on the list of Standards and Guidelines included in the Draft Exploitation Regulations). It was also discussed that all stakeholders of the Authority should be provided with the opportunity to initiate/suggest ideas/needs for Standards and Guidelines, including contractors and Member States.

Participants held the view that the Commission should at the outset develop a list of Standards and Guidelines for immediate development and for Council approval. This workshop was considered a first step towards development of this list.

There is already a process in draft regulation 94 which highlights who should initiate and who should approve applicable Standards. Working Groups agreed that the Council should be the appropriate approving organ, with subsequent Assembly oversight. The process for Guideline development is outlined in draft regulation 95, and there appeared to be agreement that according to this regulation, (recommendatory) Guidelines would not have to be officially adopted by Council. However, they must be reported to Council, and Council can request modification or withdrawal, if deemed incompatible with the intent and purpose of the Rules of the Authority.

It was suggested that the Authority could learn from professional standard-setting bodies to develop its own procedures for Standard and Guideline development, in particular concerning the involvement of all relevant expertise and stakeholders. One working group also recommended that the Authority consider contracting-out the management of the Standard-developing process to professional standard-setting organizations. This process of outsourcing would not in any way reduce the Authority's ownership of the process and content, but would serve to ensure that procedural aspects (such as convening working groups, remote working technology, public consultations etc.) are managed by an independent third-party with the expertise on these types of procedures effectively – recognizing capacity challenges in this regard, within the Authority.

As a starting point, it was considered essential for the Authority to develop a manual or “handbook” for a development procedure – as proposed at the Berlin Workshop (2017).¹¹ Such a document could be based on existing codes of practice for the development of standards and guidelines and should reflect a number of overarching or guiding principles including inclusiveness, transparency, effectiveness, relevance and continuous improvement.

Members of the Working groups emphasized that, in developing ISA Standards, the Commission should research and investigate the availability of precedent instruments that already exist in other jurisdictions and industries, analyze their relevance, and propose adaptations for the ISA regime where relevant. This may enable some Standards to be developed more swiftly than others, where relevant precedents already exist.

It was repeatedly highlighted that the Commission should, throughout the Standard and Guideline development process, report to and follow instructions from the Council.

Recognizing the capacity constraints of the Commission, as well as the impossibility to house within the group the full expertise required for the development of all ISA Standards and Guidelines, it was recommended that the Commission should liaise with other organizations or establish “technical

¹¹ ISA technical Study No. 17, *Towards an ISA Environmental Management Strategy for the Area*.

working groups” or “correspondence groups”, perhaps chaired by State Parties, to assist with their development of technical Standards. It was noted that there is provision for such a process within draft regulation 94(1): “The Commission shall, taking into account the views of recognized experts, relevant Stakeholders and relevant existing internationally accepted standards, make recommendations to the Council on the adoption and revision of Standards relating to Exploitation activities in the Area...”. Article 165(1) (e) of UNCLOS is also relevant with regards to Environmental Standards in particular. Such technical working groups could, for example, operate remotely by the use of teleconferencing services as an alternative to workshops as a mechanism to progress the timely development of Standards and Guidelines.

Working groups commented that the composition and selection of such technical expertise should reflect the need for the right experts and should follow an open and transparent merits-based selection process. It was also advised that the Terms of Reference for the development of a Standard or Guideline, including any proposal for procuring third-party expertise, should receive prior review and approval by Council. This will also enable comments to be received at an early stage by observers of the Authority, enhancing process transparency and inclusivity.

It was noted that a major challenge faced by the Authority in Standard development may be timeliness, particularly given the need for Council instructions and approval (with Council meetings only twice a year). Furthermore, working group members noted that the Commission has limitations as regards capacity, time, resources and expertise. Several participants felt that, in addition to the Commission, and in recognition of its role as an organ of the Authority, the Council should play an active oversight role in the process of developing Standards and Guidelines.

Who reviews the content?

Participants agreed that the development process for Standards and Guidelines needs to incorporate open consultation with stakeholders, and the opportunity for expert independent review also. The Council should approve the review/reviewers. It is vital to have as wide a consultation as possible to ensure widespread agreement. Transparency is integral to the process of development.

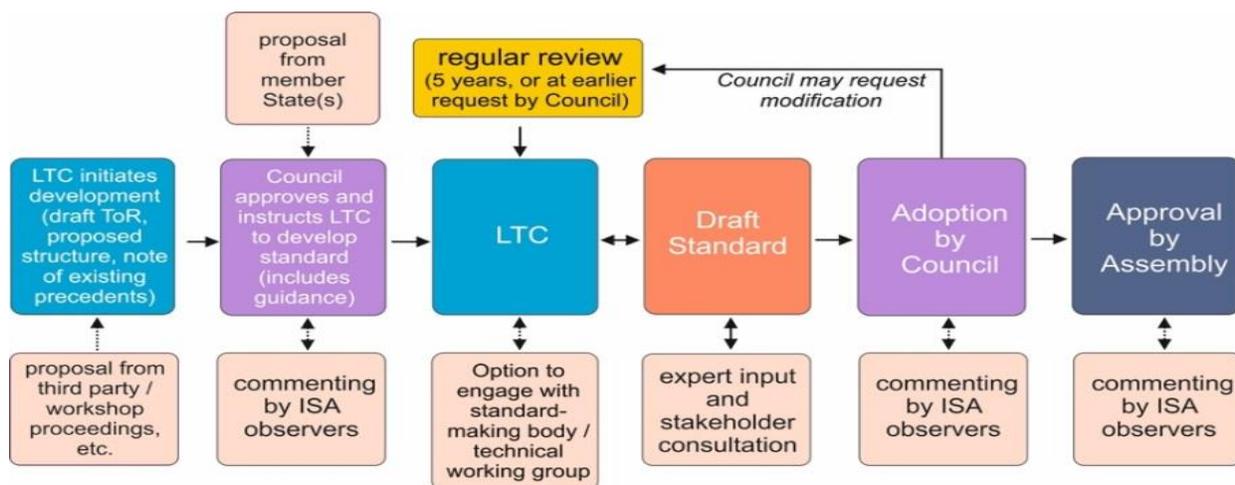


Figure 1: Workshop Session Output: Flowchart for Standards Development Process

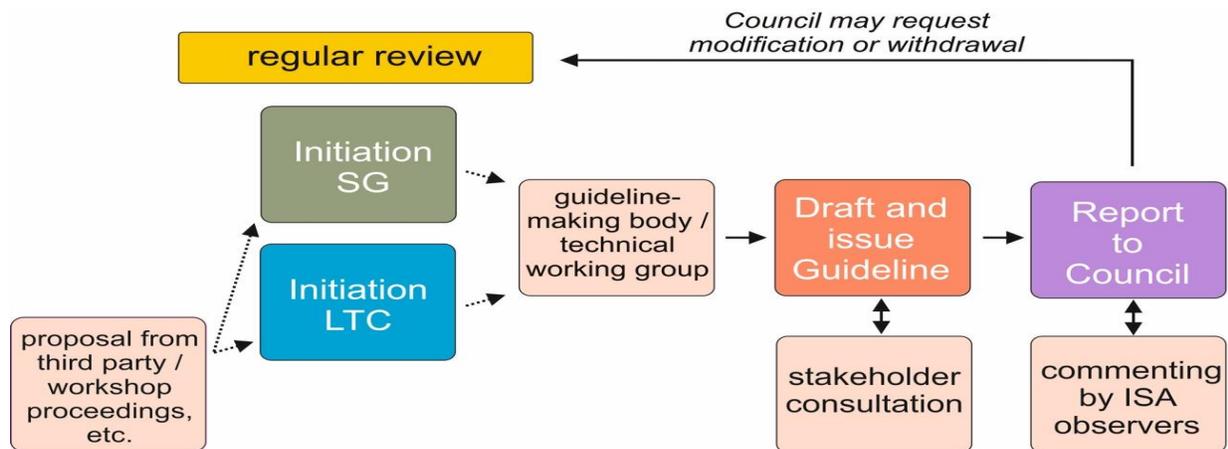


Figure 2: Workshop Session Output: Flowchart for Guidelines Development Process

3.4 Workshop Session 3 (Day 3): Designing the Environmental Standards

All participants were assigned to one of two working groups to discuss the need and design of Environmental Standards associated with deep seabed mining. The objective of the working groups was to try to work out a way forward for developing Environmental Standards and in so doing, the groups discussed the different categories of deep seabed mining activities, their impacts, knowledge of any existing international standards related to them and significant gaps.

The potential impacts of the use of collectors and the creation of sediment plumes were noted as being the largest concern, but many of the potential associated environmental effects are linked and should therefore not be addressed in isolation. It was agreed that some environmental assessment / monitoring needs could be contained within performance Standards which describe either the acceptable quality of the environment after a project has taken place or limit values of certain parameters during operation, for example maximum sedimentation rate, sediment composition or elutriate concentrations. These generally form a gradient of impact. Some examples of existing thresholds include: sedimentation thresholds (e.g. < 10 mm, as this is what causes harm to cold-water corals in the North Atlantic, Canada < 6.5 mm PNET [probable no effect threshold], Sabellaria reef response to sedimentation (UK)), German Sand mining < 10 mg/L suspended sediment (turbidity threshold). Wider-scale standards could be needed for spatial extent of plume impact (e.g. defining an area with more than a certain amount of sedimentation). Process standards tend to refer to the technical specificities that may be required to achieve the performance standards. Other environmental issues could be contained within Guidelines. However, it was recurrently stated that the legal status of Standards vs. Guidelines needs to be discussed further.

Workshop discussions centered Standards and Guidelines on a spatial basis (including all appropriate pressures, especially habitat removal, temperature, chemistry, pollution) and impacts associated with collector presence, e.g. substrate removal and the associated loss of biodiversity. Some participants noted that there are currently no thresholds for light usage underwater and the general rule was to use lighting as required for safety or operational reasons, but at the lowest levels possible to so as to minimize disturbance to marine life. Others saw a need to develop performance thresholds for light

usage (e.g. remotely-operated vehicle lights off during descent to avoid encouraging fish and other animals from the upper water column to follow the remotely-operated vehicle into deeper depths). Noise through the whole system will also have to be regulated; Standards could be used to delimit frequency avoidance etc., including vibration. This needs to be separated into different types and areas of noise. The ship's environmental footprint can be met by guidelines; inherent checks will be in place through industry efficiency needs, so this was not considered as a priority action.

It was discussed that there is a strong need to carry out further research on understanding the amount of change that would be considered ecologically significant and potentially harmful. It was felt that research priorities should also include understanding the likely impacts from leaky collection systems in midwaters and understanding the aggregation of pelagic fauna around vessels.

Some participants were of the view that Environmental Standards should form part of an integrated and flexible impact assessment, monitoring and mitigation within the deep seabed mining regime. Thus, Environmental Standards should be focused on achieving a certain level of performance, but not prescribe specific process methodologies so as not to constrain innovation and provide maximum flexibility and incentive to contractors and other parties to develop robust methods to meet such Environmental Standards. Such an approach would promote an outcome-focused approach to regulation as opposed to a more prescriptive approach, which in certain circumstances has proven to be less successful. However, others saw Environmental Standards in the form of prescriptive performance standards as being strict requirements which mining operators have to abide by. Performance standards are usually legally binding and set a mandatory benchmark to assess specific projects. In that sense they define the line between non-significant and significant impacts.

It was noted that there are some examples of existing international environmental standards and guidelines that could potentially be applicable to the various phases of the mining cycle. Those associated with the dredging sector and shipping were identified (noting that the difference in environments (depth) meant it may not be directly comparable). Other potential comparators and resources mentioned included the International Finance Corporation (IFC), Biodiversity Standard 6, International Maritime Organization (IMO), 2018 Hawaii workshop, decommissioning guidelines, the MIDAS project on combined effects of toxicity and current ISA guidelines (LTC Recommendations for the guidance of contractors). The working groups noted that much of the relevant existing information available would not need to be rewritten in their entirety, but aspects of difference to deep seabed mining activities would need attention (gap analysis).

Participants agreed that for existing and available international standards and guidelines that may be relevant, it would be useful to assess the following:

- The methods used to develop them;
- Their objectives and whether or not they can be adapted to suit the needs of the Authority and projects within the international seabed area;
- Their ability to help meet environmental objectives

Some of the participants proposed that there is also a need to take into consideration the many existing (and new) international engineering and technical equipment standards that would form part of standard operating procedures, and how they will relate to potential Environmental Standards, noting

that differing extraction technologies would have different (scales of) impacts. In this context, the principle of best available technology (BAT) was discussed. Taking BAT into account, there was, however, some consensus that any Environmental Standards (including) thresholds of course need to be technologically achievable. An understanding will be needed on thresholds associated with equipment failure discharge.

One of the working groups made the recommendation to establish follow-up technical working and/or correspondence groups either as intersessional groups facilitated by the ISA Secretariat or as technical groups specifically constituted to support the work of the Commission (see also results of Working Group 2 discussions). These groups would be established to focus on:

a) Environmental Goals and Objectives

To define the principles under which more detailed Environmental Standards and associated thresholds should be developed, linked to the requirements identified in Article 145 of UNCLOS and as referenced in ISA Draft Regulation 94;

b) Environmental Standards and Guidelines

- i. To define a series of Environmental Standards that are required to comply with the Environmental Goals and Objectives, derived from the impacts that deep seabed mining activities are likely to have on the environment and to establish at what level impacts may be considered acceptable;
- ii. Taking the Environmental Goals and Objectives as detailed in point 1 above into account, a workshop or series of technical working groups could be established to consider the different benthic and pelagic elements of impact from the deep seabed extraction process. It was felt that a workshop should include scientists, technologists/engineers, the ISA Secretariat, contractors and policy makers from national jurisdiction who have experience in developing and implementing standards.

Some Standards and Guidelines will need to be resource specific, and standards and guidelines will also be needed for Regional Environmental Management Plans. Technological development timelines may not align with the needs for Standards and Guidelines. In these cases, standards could still be applied but proxies allowed or frequent updating was suggested to allow adaptive management and reduction of scientific uncertainty. Balance is needed between the rigour of standards and the ease of updating.

The participants of the working groups agreed that due to the sequencing of the Draft Exploitation Regulations and timing of expiry of exploration licenses, the work detailed above should focus initially on developing Environmental Standards and associated guidance for polymetallic nodules. Workshops / technical working groups focusing on other resource types should be convened sequentially and build on the work delivered for other resource types where applicable.

The working groups agreed that further work, perhaps led by the ISA Secretariat and/or by the Commission, was essential to collate and publish a live bibliography of relevant standards, possibly also supplied by Member States of the Authority and interested stakeholders, in advance of the suggested workshop / technical working group meeting.

Recommendations: A working group of Member States to the Authority should convene a workshop to establish high-level environmental goals and objectives for deep-seabed mining, which can be taken into account when developing mining-related Environmental Standards and Guidelines. A workshop or a series of technical working groups should then be established to develop a suite of applicable Environmental Standards. The ISA Secretariat should develop, publish and maintain a live bibliography of relevant national and international standards and guidelines from analogous industries, which technical working groups and the Commission could use as key reference material.

3.5 Workshop Session 4 (Day 3): Revisit of the indicative timelines for delivery and resource need

The plenary discussion focused on prioritized list of standards and guidelines, and agreed on the list of Standards and Guidelines to be developed at the first phase, as follows:

[Note that grey shading = a questionable need for the document (e.g. tools already exist, or it could be rolled into something else, e.g. EIA/EIS), Underlined = it was felt that a document may not be necessary and all that may be required is a review by the Commission of the definitions in the Draft Exploitation Regulations]

Phase 1, Priority 1 – To be developed prior to regulations being adopted (8)

- Guidelines (generic) for a risk-based approach to the development and assessment of environmental thresholds and indicators
- Guidelines for the preparation and assessment of an application for the approval of a plan of work for exploitation (*Standard?*)
- Guidelines on the expected scope and standard of baseline data collection
- Guidelines for environmental impact assessment and preparation of an environmental impact statement
- Guidelines for access to environmental data and information
- Guidelines for the form and calculation of an environmental performance guarantee
- Guidelines for procedures for stakeholder participation
- Guidelines on tools and techniques for hazard identification and risk assessment

Phase 1, Priority 2 - To be developed prior to regulations being adopted (8)

- Guidelines for the application and assessment for use of an exploitation contract as security
- Guidelines for insurance requirements under an exploitation contract and placing of insurance risk
- Guidelines for the process modifying a plan of work and on the meaning of material change
- Guidelines for the preparation and implementation of an emergency response and contingency plan
- Guidelines for the application and assessment on the transfer of rights and obligations under an exploitation contract
- Guidelines for the development and application of environmental management systems
- Guidelines for the application of good industry practice
- Guidelines on criteria for determining the date of commercial production

3.6 Panel Discussion (Day 3): Pulling it all together

In a final panel discussion, a number of takeaways from workshop discussions emerged:

- The need for certainty and clarity in the regulatory framework to ensure both the Draft Exploitation Regulations and prioritized Standards and Guidelines are developed concurrently;
- The need for flexibility to allow for the development of the said Standards and Guidelines;
- The wide variety of sources and work that has been undertaken by organizations which are readily available and may be applicable in the development of Standards and Guidelines.
- The importance of input and partnerships in the development of the Standards and Guidelines, whether they be scientific, engineering, or industry-related;
- On the issue of timeliness, which Standards or Guidelines can be delegated to the Secretary-General, and what process will be employed to do so?
- The pressure of timeliness does not lead to the development of the Standards and Guidelines being rushed, especially where data is lacking;
- What avenues are there for input in the development of Standards and Guidelines, through the Council, Commission, or Secretariat, particularly if it is proposed by a non-ISA member and observer?
- Flexibility to review and update Standards and Guidelines cited in Draft Exploitation Regulations will allow for new data and technologies as well as improvements in best industrial and environmental practices;
- The principle of inclusivity and transparency in approach to the development of these Standards and Guidelines must be present to not only facilitate the ease of the process towards fruition, but at its conclusion, there would be legitimacy binding their adoption and implementation, and importantly, not leaving any member or stakeholder behind;
- Lack of industry association may be slowing down the development of the Standards and Guidelines, and a mechanism for the industry to work together should be established;
- Development of clear environmental goals and objectives should be a major priority;
- A conversation and dialogue must continue through the timeline discussed and methodologies proposed such as the workshops, so all views are considered in order to bear a legitimate product. And such views that are easily translatable and understood by all stakeholders whether a scientist, and engineer, or a policymaker;
- There is a realization that the method of work will need to evolve as we move to the next phase of the regulatory regime, e.g. working groups to be established under the advice and leadership of the LTC on basis of TORs prepared by the LTC.

4. Summary of Presentations

1) *Regulatory framework: Where are we now? Where do we need to be? How are we going to get there? (Incorporating terminology)*

Chris Brown, ISA Consultant, Legal Expert

A revised set of Draft Exploitation Regulations has been issued by the ISA's Legal & Technical Commission for consideration by the ISA Council (document ISBA/C/25/WP.1). The draft regulatory text will be negotiated by the ISA Council with a view to the adoption of the draft regulations by July 2020.

The presentation highlighted the significance of the ISA adopting a risk-based approach toward regulation. This approach will also facilitate a better alignment of regulatory compliance and enforcement resources. Certainty and predictability in the ISA's legal framework, including regulatory decision-making, are also key to the development and implementation of a stable regime. To this end, the ISA's policy approach to regulation should be documented. The legal framework should also incorporate an outcome or result-based approach to regulation, with the ISA setting the desired output or performance levels through quality standards, thresholds and trigger points, while allowing contractors the flexibility in delivering such outputs. This will promote innovation across the industry. An outline of the need for a mix of process and performance-related standards and relevant guidelines was presented, though it was acknowledged that the terminology required clarification.

The presentation further highlighted a need for a phased approach to document development in terms of critical need for say the application process, and what documents could be developed at a later stage, particularly where further data and information is required. Equally, there is little merit in reinventing the wheel where existing approaches and documentation in other regulatory fields can be drawn upon.

One important component of the regulatory development process is the need to ensure a level-playing field between mining operators; this requires consideration of the content and balance between the "standardization" of processes and procedures and that of individual contractor flexibility. It was also suggested that the dialogue between the ISA and the contractor base be enhanced to help advance the development process, including a better understanding of the technology (engineering) and science.

Presentation available at: <https://ran-s3.s3.amazonaws.com/isa.org.jm/s3fs-public/files/documents/cbrown.pdf>

2) *A risk-based approach to regulating extraction activities*

Becky Hitchin, Offshore Industries Advice Manager, Joint Nature Conservation Committee, UK

Risks are inherent in any consenting process and are here focused on an iterative EIA process that allows testing of assumptions enables novel technologies and reduces scientific uncertainty over time whilst enabling a level of activity that is proportionate to the risks. Definitions are needed around material change to understand the level of EIA required for applications and application modifications.

Regulatory processes from national and international bodies can provide examples of best practice to inform deep sea mining environmental consent processes and to reduce risk, particularly related to transparency, stakeholder participation, adaptive management, evidencing uncertainty, use of thresholds and creation of EIA documents. UK examples are given of decommissioning comparative assessments and 'survey deploy monitor' methods.

For deep-sea mining, major issues to consider include responsiveness of management regime to allow adaptive management, measurement of serious harm and process transparency as well as reducing uncertainty, especially concerning the evidence levels required for consent.

Presentation available at: <https://ran-s3.s3.amazonaws.com/isa.org.jm/s3fs-public/files/documents/bhitchin.pdf>

3) Regulators' use of standards, guidelines and other instruments based on the Norwegian experience

Harald Brekke, Project Coordinator/Senior Geologist Norwegian Petroleum Directorate

Norway's regulations for the petroleum industry are largely based on performance-based requirements and specify which level of safety and operational standards is to be achieved, but not how this should be done. Companies often have great freedom to choose how they are to meet the regulatory requirements, which means that a number of solutions are determined at the local level. A clear division of roles and responsibilities is crucial for work on safety and the environment in the Norwegian oil and gas industry. Each company is responsible for the safety and conduct of its own operations. This represents a fundamental principle in the petroleum regulations. That is because the detailed knowledge, decision-making authority and not least the resources needed to ensure compliance with the regulatory requirements rest with each individual player.

A fundamental provision in the law and regulations is that no activity may take place in an area that is not explicitly opened for such activity by a Parliament decision. The Ministry of Petroleum and Energy have the competence to propose opening of new areas. Prior to such a proposal, the Ministry will have to carry out an assessment of the environmental, economic and social impacts of opening the new area for petroleum activities. The impact assessment is subject to wide consultations before the final Impact Assessment can be adopted by the Ministry. In addition, all operators will have to carry out a similar, but site specific, impact assessment for every field they want to develop and produce. The site-specific assessment is to be included in the Plan for Development and Production (PDO) for the site to make sure that the assessed impacts are taken care of in the PDO and in the decision processes. The final PDO must be approved by the Ministry.

The regulations are supplemented with a set of guidelines. One of the central guidelines is the comprehensive guideline for the preparation of a PDO as described above. The industry is also required to see to it that it adopts up-to date standards to secure good industry practice. Such standards are mainly developed by professional standardization companies and organizations, or the industry itself.

Licensees who have been awarded production licenses on the Norwegian continental shelf are carefully assessed in advance. Regulations and their enforcement are structured to support the sense of responsibility required from the companies. The government defines the parameters for the industry and follow-up to ensure that its activities are pursued in a prudent manner. These follow up duties involve continuous development of regulations, monitoring that the companies are complying with the requirements, and making appropriate use of our enforcement powers in the event of regulatory breaches.

Presentation available at: <https://ran-s3.s3.amazonaws.com/isa.org.jm/s3fs-public/files/documents/hbrekke.pdf>

4) Specific examples of guidelines in a Canadian context

Kenneth Wong, Legal Officer, Continental Shelf Division (JLC), Global Affairs Canada

The presentation commenced with a brief overview the Canadian regime with respect to the regulation of mining. Outcomes based regulation was shown to be preferable over proscriptive regulations. An example from terrestrial mining showing how outcomes-based rules allow operators a pathway to compliance while encouraging innovation. Royalties, dispute resolution, the project assessment process, and environmental regulations were also briefly discussed.

Four specific examples from offshore oil & gas and terrestrial mining were covered:

- Seismic sound mitigation – Statement of Canadian Practice with respect to the Mitigation of Seismic Sound in the Marine Environment.
- Sedimentation – Use of conclusions from recognized, peer-reviewed papers (PNET-probable no effect threshold of 6.5mm) as project assessment criteria, Smit et al. (2008). Species sensitivity distributions for suspended clays, sediment burial and grain size change in the marine environment. *Environmental Toxicology and Chemistry*, 27(4): 1006-1012.
- Vessel discharges – Offshore Waste Treatment Guidelines.
- Mine closure – Checklist for Governments, application of checklist.

Rather than focusing on whether these additional forms of guidance are mandatory or recommendatory, an overview was given of how these documents fit into an overall process for: approval of a seismic program; an application for a drilling permit; the operation of an offshore production installation, and; creating a new piece of regulation.

Presentation available at: <https://ran-s3.s3.amazonaws.com/isa.org.jm/s3fs-public/files/documents/kwong.pdf>

5) Status of China's Standards Development in the Deep-sea Field and Suggestions to the ISA on the Development of Standards and Guidelines for Activities in the Area

Chengbing Song, Director, China Ocean Mineral Resources R&D Association (COMRA)

There are 23 relevant national standards applicable to the deep-sea field have been published until 2018 in China. According to the content of the standards, there are eight resource standards, two environmental standards and thirteen technical standards. Six of them have been developed and implemented by COMRA. There are twenty-one relevant national standards being developed at present. Seven of them are being developed and implemented by COMRA.

In order to promote the development of standards and guidelines under the framework of exploitation regulations, COMRA would like to give some suggestions as the following:

Firstly, the Standards can be classified according to their content as follows: management standards, resource standards, environmental standards, technical standards, and safety and labor standards. The standards can also be classified as process standards and performance standards according to the function. The Standards and Guidelines in the list provided in ISBA/25/C/3 could be reduced and integrated in accordance with the exploitation activity.

Secondly, the Standards and Guidelines developed by the Authority should be agreeable with the current deep-sea mining technical and technological level and practical capacity, allowing a certain degree of flexibility to the contractors. The priority of Standards and Guidelines development should be in line with the needs of exploitation practice.

Thirdly, the continuity and inheritance of exploration stage and exploitation stage should be considered during the process of development of standards and guidelines.

Fourthly, ISA should actively promote the transition of applicable standards from ISO and other international organizations to ISA standards, such as safety, pollution, classification of resources, feasibility study of resource development and environmental impact assessment.

Finally, COMRA would like to actively contribute to the development of the environmental standards such as the Standard for Baseline Data and the Environmental Impact Assessment Standard based on COMRA's experience and practice.

Presentation available at: <https://ran-s3.s3.amazonaws.com/isa.org.jm/s3fs-public/files/documents/csong.pdf>

6) Process for development: Core objectives, principles & challenges

Chapi Mwangi, Chief, Contract Management Unit, ISA

The Exploitation Regulations will be complimented by specific standards and guidelines (S&Gs). The basis for the process for the development of S&Gs can be drawn from the many decades of experience and numerous existing examples from many other industries, especially the natural resources industry.

The presentation is based on the findings of a position paper on the development of and use of international standards (by International Association of Oil and Gas Producers), the ISA Council document presented at the 25th Session, commonly referred to as ISBA/25/C/3 and other publications.

It presents the core objectives of S&Gs, which center on levelling the playing field amongst contractors and providing consistent treatment of specific risks; it focuses on the principles that should guide development such as use of existing international standards without modification where possible; a phased approach where prioritization ensures that limited resources are used effectively and flexibility to accommodate regional or national differences. It then considers the specific challenges DSM faces, such as immaturity of the industry and lack of an industry association.

It concludes by suggesting a possible process whose accountability and ownership would rest with the Legal and Technical Commission of the ISA through its appointed technical working groups.

Presentation available at: <https://ran-s3.s3.amazonaws.com/isa.org.jm/s3fs-public/files/documents/cmwangi.pdf>

7) The ISO: role & process for developing standards

Professor Jiabiao Li, Chairperson of ISO/TC8/SC 13 (Marine Technology)

ISO, found in 1947, is the biggest international standard organization on comprehensive standards. Now ISO has published more than 22600 international standards and its member bodies covered 97% population and 98% national income on the world. There are 4 key principals in ISO standards development. ISO standards 1) respond to a need in the market, 2) are based on global expert opinion, 3) developed through a multi-stakeholder process, 4) based on a consensus. ISO/TC8/SC13 Marine Technology is aimed at standardization of the observation, exploitation and protection of the ocean and seas, and going on developing standards for deep sea mining and its environment impacts.

It's necessary to establish a liaison of ISO with ISA to promote together development of standards and guidelines for activities in the Area, assess the effectiveness of lots of existing ISO standards used into the Area, and develop new standards and guidelines under the ISA needs.

Presentation available at: <https://ran-s3.s3.amazonaws.com/isa.org.jm/s3fs-public/files/documents/jli.pdf>

8) Perspectives on good process and lessons learned

Karsten D. Hagenah, Senior Project Manager, DNV GL

From the beginning as a ship classification society which was more than 150 years ago, DNV GL had to write down their classification rules as a basis for the classification process. With this good experience other standards and guidelines or recommended practices followed in the business areas of Oil & Gas and Energy as well as in the field of Underwater Technology to support the industry with certification and advisory services.

As a global service provider for quality assurance and risk management DNV GL has installed a service document development process to ensure consistency in the way that service documents are governed and managed throughout their life cycle. By DNV GL's service document management a flexible approach is given, and a timely revision is guaranteed, to keep the documents always up to date.

Under the regulation for exploitation of seabed minerals, it is highly recommended to adopt applicable standards and guidelines rather than to develop new ones, even if they are not developed for seabed mining.

DNV GL has a variety of service documents available which, if not completely fitting to the exploitation of marine minerals, can easily be adapted or revised for the new era of mining. And also, the development of new documents is something where DNV GL can support the International Seabed Authority.

If the need for new standards and guidelines is identified and the development tasks are clear a well-prepared structure will help to fill the content with reasonable efforts.

Presentation available at: <https://ran-s3.s3.amazonaws.com/isa.org.jm/s3fs-public/files/documents/karsten.pdf>

9) Engaging industry in the standard development process

Jennifer Warren, Director, Regulatory, United Kingdom Seabed Resources Ltd. (UKSR)

There were several key messages in the presentation on “engaging industry in the standards development process”. First, there are multiple models for developing standards; in all, industry plays a central role. Second, common elements of success in setting standards were identified, in particular the importance of the standards being international to diffuse knowledge and ensure a global competitive supply chain - allowing benefits to companies in sponsoring and non-sponsoring states, and industry driven to ensure widespread adoption. Third, the presentation highlighted a 2015 report that found that standards benefitted a national economy by improving industry performance, compliance, and supply chain opportunities. Finally, the presentation asked the question of whether there could be regulatory incentives for contractors to exceed any standards or thresholds.

Presentation available at: <https://ran-s3.s3.amazonaws.com/isa.org.jm/s3fs-public/files/documents/jwarren.pdf>

10) Practices and process in the IMO for guidelines development

David Carlin, Science Director, Centre for Environment, Fisheries and Aquaculture Science, UK

This presentation provided an overview of the Waste Assessment Guidelines (WAG) of the 1996 London Protocol and 1972 London Convention (LC/LP). Contracting Parties to the LC/LP have developed international guidance (or guidelines) to assist national authorities responsible for regulating dumping at sea in meeting their obligations under the two instruments. The guidelines contain step-by-step procedures to evaluate wastes and other matter being considered for dumping at sea. The presentation focused mainly on the generic WAG but we also referenced specific guidelines published to deal with each waste category (8 in total) listed on Annex I of the London Protocol, the reverse list. The guidelines do not specify standards and thresholds but provide the overall framework for the national authorities to undertake the assessment of the suitability of waste for disposal to sea and enable standards and thresholds to be determined by the national authorities, for example developing action lists and levels for dredged material. The WAG and associated data supplied by Contracting Parties is regularly reviewed by the LC/LP Scientific Groups to ensure continued fitness for purpose, with recommendations made on how the WAG could be updated.

The presentation went through the specific steps of the WAG covering characterization of waste, waste prevention audit, waste management options, application of an action list, identification and characterization of dump site(s), determination of potential impacts and development of impact hypotheses, specification of permit conditions and permit issue, and finally the monitoring of compliance and the conduct of field monitoring and assessment. The potential relevance of this stepwise approach to the work of the ISA and regulation of Deep Sea Mining was discussed.

Presentation available at: <https://ran-s3.s3.amazonaws.com/isa.org.jm/s3fs-public/files/documents/dcarlin.pdf>

11) *The relationship between standards and engineering*

Jon Machin, Head of Offshore Engineering, Deep Green

Jon Machin made a presentation in his capacity as Head of Engineering for Deep Green metals and also as a Professional Engineer, a Member of the Institution of Civil Engineers in the UK. The presentation provided a number of case studies. Firstly information was presented from a recent Best Practice document published by the Infrastructure Standards Group in the UK. The information described how standards can be formulated in a process under an over-arching risk management framework, which is the recommended current practice in the UK. The presentation drew comparisons with safety standards and legislation in the UK which adopt such a model, following the specific experience of the Piper Alpha offshore oil disaster in the 1980's and the subsequent Cullen Inquiry.

Comparisons were then drawn with recent research into standards in deep sea mining conducted by the European Union under the Blue Nodules research project. Further reference was made to the case of the Oil and Gas industry where the International Association of Oil & Gas Operators (IOGP) have during recent years successfully collaborated with the International Standards Organization (ISO) in order to form a simple yet comprehensive library of technical standards for oil and gas exploitation.

Conclusions were drawn regarding observations that the ISA's standards and guidelines process appears to be following in line with the state-of-the-art case studies referenced. Finally a request was made to permit the input of Contractors, and indeed all relevant stakeholders, during this process.

Presentation available at: <https://ran-s3.s3.amazonaws.com/isa.org/jm/s3fs-public/files/documents/jmachin.pdf>

12) *Science in standards development*

Amber Cobley, Deep Ocean Stewardship Initiative (DOSI)

DOSI is an international group of experts whose mission is to advance science in policy. When invited to present at the workshop, the DOSI Minerals Working Group canvassed the input of its members. The survey focused on the questions highlighted in the background document and agenda provided in advance of the workshop by the ISA Secretariat.

A common theme from the consultation and other DOSI Mineral Working Group meetings is the need for environmental goals and objectives to be established by the Secretariat in consultation with experts before the development of standards and guidelines. These should be matched up to the broad, overarching goals of UNCLOS, for example, effective protection of the marine environment from harmful effects. Well-developed goals and objectives will provide an effective mechanism to develop the many finer-detailed aspects of standards and guidelines (targets, indicators, thresholds etc.), especially those requiring higher levels of expert input. They are also vital to act as a measuring stick of the success or failure of this suite of environmental tools when they are being assessed at all levels.

A key output was the prioritization of Standards and Guidelines presented in ISBA/25/C/3 in terms of timing for development. The three options provided by the Secretariat to prioritize urgency were used. Additionally, we requested that participants identify whether there were Standards and Guidelines that needed to be written as soon as possible, as they will need to be in place in order to inform the development of other related Standards and Guidelines, as well as regulations in which they may be referenced. The Standards and Guidelines considered most urgent to develop in this group were (in ranked order):

- 1) Assessment framework -Guidelines (generic) for a risk-based approach to the development and assessment of environmental thresholds and indicators (#1 in Annex III, Background Document)

- 2) Serious harm - Guidelines on the interpretation of serious harm (#35 in Annex III, Background Document)
- 3) Impact assessment – Guidelines for environmental impact assessment and preparation of an environmental impact statement (#16 in Annex III, Background Document)
- 4) Baseline data – Guidelines on the expected scope and standard of baseline data collection (#12 in Annex III, Background Document)
- 5) Monitoring: Guidelines for the monitoring and evaluation of and reporting of results for the environmental effects of activities in the Area (#19 in Annex III, Background Document)
- 6) Management plans: Guidelines for the preparation of environmental management and monitoring plans (#18 in Annex III, Background Document)
- 7) Pollution – Guidelines for the control of pollution (#20 in Annex III, Background Document)

When comparing the priority ranking developed by the Secretariat in advance of the meeting, the Standard or Guideline that differed most significantly from the prioritization by DOSI Minerals WG members was that of serious harm (DOSI = Group 1, Secretariat = Group 3).

Other aspects of the consultation covered; suggested additions and deletions to the list of Standards and Guidelines; identification of those which should be mandatory; those where the most technical/scientific input was needed; and suggested resources for consideration in developing environmental Standards and Guidelines, the data for which have all been passed to the Secretariat. Comments in the consultation and other DOSI Minerals Working Group outputs highlight the need for data standardization. Data standardization is vital to the success of any environmental monitoring or management plan at any level, in particular regional environmental management plans (REMPs).

Presentation available at: https://ran-s3.s3.amazonaws.com/isa.org.jm/s3fs-public/files/documents/dosi_4.pdf

13) Considerations and perspectives from an environmental practitioner

Dr Samantha Smith, Head of Sustainability & External Relations, Global Sea Mineral Resources (GSR)

There were several key messages in the presentation on “Considerations and Perspectives from an Environmental Practitioner”. First, there are many existing environmental standards and guidelines that may be transferable to seafloor minerals. Examples from the dredging industry and others that may be applicable were provided. Second, when dealing with uncertainties, adaptive management is important. Third, the presentation encouraged keeping the over-arching goals, objectives and principles (GOPs) in mind when developing Standards and Guidelines, such as responsible management of resources in the Area and effective protection of the marine environment. Fourth, an environmental impact assessment, culminating in and Environmental Impact Statement, the Environmental Management and Monitoring Plan and Closure Plan must together demonstrate alignment with the GOPs. Finally, the presentation recognized the importance of partnerships and engagement to realize the goals.

Presentation available at: <https://ran-s3.s3.amazonaws.com/isa.org.jm/s3fs-public/files/documents/samsmith.pdf>

14) Electronic compliance for critical infrastructure monitoring

Carl Van Wyk, Account Manager, OSIsoft

Move from complexity to simplicity, from asset and process intelligence to operational intelligence with the PI System. Its highly scalable, open data infrastructure empowers enterprises in real time, transforming operational data into actionable knowledge and business transformation. How do you access and learn from critical data that resides in multiple incompatible systems across the enterprise? To meet today's formidable

production challenges, organizations need to empower people with self-service access to operational intelligence.

People with data will transform their world. The PI System data infrastructure sets free the data that's locked in systems. Turning data to information, the PI System connects people to information across the value chain to deliver operational intelligence that leads to actionable and transformative decisions. What makes the PI System unique is its ability to collect enormous amounts of high-fidelity, time-series data from any source - consistently, reliably and accurately. Then share that data in intuitive ways with people and tools that can make a difference.

How are today's metals and mining industries meeting the increasingly complex demands of lower-grade ores, material complexity and tightening regulatory compliance, as well as growing pressures on resources, energy and transportation? The leading mining, mineral processing, metallurgical processing and product manufacturing companies are turning to the PI System to help them reduce operational costs, improve asset health, safety, energy efficiency, OEE and ROA.

Presentation available at: <https://ran-s3.s3.amazonaws.com/isa.org.jm/s3fs-public/files/documents/osisoft.pdf>

Annex I: Terms of Reference for Workshop on Standards and Guidelines

Objectives of the workshop

1. To establish a prioritized list of standards and guidelines, with reference sources, that will be required to support the implementation of the exploitation regulations.
2. To develop a process for the development of the standards and guidelines.

Terms of reference

1. Standards and Guidelines

The workshop is requested to:

- Examine the draft list of documents (see the annex to ISBA/25/C/3) and identify those which lend themselves to the development of standards;
- Suggest additions or deletions to the list, with a particular focus on “environmental standards”;
- Indicate/suggest relevant reference sources for each suggested standard and guideline;
- Indicate which standards and/or guidelines should be prioritized for development; and
- Suggest indicative timelines for the prioritized documents.

The workshop will draw on and share experiences from national regulatory approaches, other international organizations and accreditation bodies. Council members also suggested certain considerations for prioritization.

2. Process for development

The workshop is requested to outline a process for the development of standards and guidelines, and address the following questions:

- Who initiates the process?
- Who develops the content of the standards and guidelines?
- What could be the recommended content of such standards and guidelines (can template be developed)?
- Who reviews the content (including the process for review)? and
- Who approves the content?

Annex II: Selected regulatory text from the Draft Regulations on Exploitation of Mineral Resources in the Area

- Regulation 45**
Development of Environmental Standards
- Environmental Standards shall be developed in accordance with regulation 9 4 and shall include the following subject matters:
- (a) Environmental quality objectives, including on biodiversity status, plume density and extent, and sedimentation rates;
 - (b) Monitoring procedures; and
 - (c) Mitigation measures.
- Regulation 94**
Adoption of Standards
1. The Commission shall, taking into account the views of recognized experts, relevant Stakeholders and relevant existing internationally accepted standards, make recommendations to the Council on the adoption and revision of Standards relating to Exploitation activities in the Area, including but not limited to standards relating to:
- (a) Operational safety;
 - (b) The conservation of the Resources; and
 - (c) The protection of the Marine Environment, including standards or requirements relating to the Environmental Effects of Exploitation activities and referred to in regulation 45.
2. The Council shall consider and approve, upon the recommendation of the Commission, the Standards, provided that such Standards are consistent with the intent and purpose of the Rules of the Authority. If the Council does not approve such Standards, the Council shall return the Standards to the Commission for reconsideration in the light of the views expressed by the Council.
3. The Standards contemplated by paragraph 1 above may include both qualitative and quantitative standards and include the methods, process or technology required to implement the Standards.
4. Standards adopted by the Council shall be legally binding on Contractors and the Authority and may be revised at least every 5 years from the date of their adoption or revision, and in the light of improved knowledge or technology.
- Regulation 95**
Issue of Guidelines
1. The Commission or the Secretary-General shall, from time to time, issue Guidelines of a technical or administrative nature, taking into account the views of relevant Stakeholders. Guidelines will support the implementation of these Regulations from an administrative and technical perspective.
2. The full text of such Guidelines shall be reported to the Council. Should the Council find that a Guideline is inconsistent with the intent and purpose of the Rules of the Authority, it may request that the guideline be modified or withdrawn.
3. The Commission or the Secretary-General shall keep under review such Guidelines in the light of improved knowledge or information.

Annex III: Revised Output table

S/N	Subject Matter	Draft Regulation (ISBA/25/C/WP.1)	Standard or guideline? (based on World Café round table session)	Priority ¹²	Other comments
A. Phase 1 – Priority 1					
Documents to be in place by the time of the adoption of the draft regulations (expected in July 2020)					
1.	Assessment framework Guidelines (generic) for a risk-based approach to the development and assessment of environmental thresholds and indicators	Annex VII		[1]	Rationale and purpose for this risk assessment framework to be expanded upon by the Commission.
2.	Preparation of an application Guidelines for the preparation and assessment of an application for the approval of a plan of work for exploitation	DR7, DR13–16, DR25 and annexes I–III	2 of 4 groups suggested Standard	[1]	
12.	Baseline data Guidelines on the expected scope and standard of baseline data collection	Annex IV	1 of 4 group suggested Standard	[1]	
15.	Risk assessment Guidelines on tools and techniques for hazard identification and risk	Not applicable	1 of 4 group suggested to combine with EIA process, Another suggested that it	[1]	Commission to determine need. Other tools or instruments may cover or be more appropriate for content.

¹² Suggested development priority provided by workshop participants:

[1] Documents to be put in place (or largely complete) by the time of the adoption of the draft regulations (July 2020);

[2] Documents to be put in place prior to the receipt of and consideration of a plan of work for exploitation; and

[3] Documents to be put in place before monitoring or mining activities commence in the Area.

	assessment		should be a standalone guideline for companies. Another group was in conclusive torn between Standard and Guideline (50/50)		
16.	Impact assessment Guidelines for environmental impact assessment and preparation of an environmental impact statement	DR 47 and Annex IV	1 Group proposed to be standard	[1]	
23.	Access to data Guidelines for access to environmental data and information	DR 2(e)(v)	Potentially delete if covered in Draft Regulation 2	[1]	
22.	Environmental guarantee Guidelines for the form and calculation of an environmental performance guarantee	DR 26	1 of 4 suggested Standard, Another suggested that it should be deleted as it is already contained in draft regulations.	[2]	See note 1 below. Given financial implications, the terms and conditions for such guarantees should be established by the Council or details added as an annex to the regulations.
24.	Participation Guidelines for procedures for stakeholder participation in activities in the Area	DR 2(e)(vii) and DR 11(1)(a)		[2]	See Note 1 below.
Note 1	With respect to 22 (environmental guarantee) and 24 (participation) these were initially ranked phase 2 following the world café discussion, however during the plenary workshop 4 it was proposed to move them to phase 1, priority 1. With respect to 22 (environmental guarantee) it was noted that this issue will receive additional discussion in Council. With respect to 24, it was noted that the Secretariat is developing a communications and stakeholder engagement policy which will be open for consultation.				

B. Phase 1 – Priority 2					
3.	Use of exploitation contract as security Guidelines for the application and assessment for use of an exploitation contract as security	DR22		[1]	
30.	Good industry practice Guidelines for the application of good industry practice	Schedule 1	1 of 4 suggested to be amended as a guideline for the assessment of what is good industry practice	[1]	Standard or Guideline may not be necessary. Commission to consider modification / improvement in definition.
34.	Commercial production Guidelines on criteria for determining the date of commercial production	Schedule 1		[1]	
4.	Insurance Guidelines for insurance requirements under an exploitation contract and placing of insurance risk	DR 36	1 of 4 groups suggested Standard	[1] or [2]	
5.	Modification Guidelines for the process modifying a plan of work and on the meaning of material change	DR 25 and DR 57	1 of 4 groups suggested Standard	[2] or [1]?	
17.	Management system Guidelines for the development and application of environmental management systems	DR 46 and Annex VII		[1] to [3]	Commission to determine need. Other tools or instruments may cover or be more appropriate for content.

27.	Emergency response plans Guidelines for the preparation and implementation of an emergency response and contingency plan	DR 33, DR 53 and Annex V		[1]	
39.	Transfer of rights and obligations Guidelines for the application and assessment on the transfer of rights and obligations under an exploitation contract	DR 23		[1.5]	
C. Phase 2					
Documents to be in place prior to the receipt of and consideration of an application of a plan of work for exploitation					
7.	Management systems Guidelines for the application of health and safety management systems	DR 30(6)	1 of 4 groups suggested Standard	[2 or 3]	Commission to determine need. Other tools or instruments may cover or be more appropriate for content.
8.	Safe operation Guidelines for the safe management and operation of mining support vessels	DR 30 and DR 32	1 of 4 groups suggested Standard	[2 or 3]	
9.	Maritime security Health, safety and maritime security plan	Annex VI	2 of 4 groups suggested Standard	[2 or 3]	
10.	Mapping Guidelines for mapping seabed habitats and resources in the Area	Not applicable	None (1 group suggested it should be rolled into the EIA)	[2 but relevant?]	
18.	Management plan	DR 48 and Annex VII		[2]	

	Guidelines for the preparation of environmental management and monitoring plans				
19.	Monitoring Guidelines for the monitoring and evaluation of and reporting of results for the environmental effects of activities in the Area	DR 51(a) and Annex VII	1 of 4 groups suggested combined with s/n20 (pollution) as a Standard Another group suggested that it should have both components of standards and guidelines.	[2]	
21.	Closure Guidelines for the preparation of closure plans and post-closure monitoring and evaluation	Part VI	1 of 4 proposed that it should have two separate components/documents: i. preparation of closure plan guidelines and ii. Post closure monitoring and evaluation Standard Another group was inclusive split 50/50 for Standard.	Split, and [2], then [3]	See Note 2 below.
25.	Reasonable regard Guidelines for the practical application of reasonable regard for other activities in the marine environment	DR 31	Need to create a definition? See Article 145	[2]	Commission to determine need. Other tools or instruments may cover or be more appropriate for content.
26.	Marine Scientific Research Guidelines on protocols for the conduct of marine scientific research in the Area	DR 1(4)		[2]	
31.	Best available techniques Guidelines on the application of best	DR 44(b) and Schedule 1		[2]	Standard or Guideline may not be necessary. Commission to consider

	available techniques				modification / improvement in definition.
32.	Best environmental practice Guidelines on the application of best environmental practice	DR 44(b) and Schedule 1		[2]	
33.	Best available scientific evidence Guidelines on the application of best available scientific evidence	DR 44(c) and Schedule 1		[2]	
36.	Change of control Guidelines on a change of control	DR 24		[2]	
37.	Risk of incidents Guidelines on the interpretation of “as much as reasonably practicable”	DR 32		[2]	
40.	Annual and other reporting Guidelines for annual and other reporting requirements under an exploitation contract	DR 38	1 of 4 groups suggested Standard	[2.5]	See Note 2 below.
41.	Review Guidelines for the review of activities under a plan of work	DR 58	1 of 4 groups suggested Standard	[2.5]	See Note 2 below.
43.	Labour Guidelines for the adoption of international labour rules and standards	DR 30		To advance with IMO/ILO	Commission to determine need. Other tools or instruments may cover or be more appropriate for content.
44.	Safety assessment Guidelines for formal safety	Not applicable	1 of 4 groups suggested Standard	[2] to advance	

	assessment			with IMO	
46.	Performance Assessment Guidelines on the conduct of performance assessments	DR 52	1 of 4 groups suggested Standard	[2.5]	
47.	Adaptive management Guidelines on the use of adaptive management measures	Annex VII		[2]	
48.	Notifiable events Guidelines for protocols relating to notifiable events	DR 34	1 of 4 groups suggested Standard	[2.5]	
49.	Royalty returns Guidelines for the preparation and processing of royalty returns	DR 64 and Appendix IV		[2.5]	
51.	Enforcement and penalties Guidelines for enforcement under the regulations and the setting and application of monetary penalties	DR 103(6)		[2]	
Note 2	<ul style="list-style-type: none"> ▪ With respect to 21 (Closure) participants felt that this should be split into two parts, with a standard/guideline for the preparation of closure plans being completed in phase 2, and a standard/guideline for post closure monitoring and evaluation being completed in phase 3. ▪ Participants recommend that for 40 (annual and other reporting) and 41 (review) consideration be given to using the existing documentation developed in support of the exploration regulations. 				
D. Phase 3					
Documents to be in place before commercial mining activities commence in the Area.					
21.	Closure Guidelines for the preparation of	Part VI		Split, and [2], then	See Note 3 below.

	closure plans and post-closure monitoring and evaluation			[3]	
28.	Records and samples Guidelines for the keeping of books, records and samples	DR 39 and DR 74	1 of 4 groups suggested Standard	[3]	Commission to determine need. Other tools or instruments may cover or be more appropriate for content.
29.	Accounting principles Guidelines on internationally accepted accounting principles	DR 74(2)	1 of 4 groups suggested Standard	[3]	
35.	Serious harm Guidelines on the interpretation of serious harm	Schedule 1	1 of 4 groups suggested that some components should be Standards while the others a guideline	[3]	Standard or Guideline may not be necessary. Commission to consider modification / improvement in definition. Alternative suggestions were made to focus on the definition of the environmental Goals, Objectives, Principles (GOPs) and for Contractors to demonstrate adherence to those through their EIA/EIS, EMMP and Closure Plans. [Ensuring the GOPs are met could alleviate Serious Harm concerns.]
42.	Expiration of contract Guidelines on information to be submitted upon expiration of an exploitation contract	DR 91	1 of 4 groups suggested Standard	[3]	
45.	Technology Guidelines for the use of remote monitoring technology	DR 102	1 of 4 groups suggested deletion and another questioned what the inspectorate use the data for.	[3]	

50.	Compliance Guidelines for plan of work compliance		1 of 4 groups suggested deletion	[3]	Suggest deletion as purpose of guideline unknown.
Note 3	With respect to 21 (Closure) participants felt that this should be split into two parts, with a Standard/Guideline for the preparation of closure plans being completed in phase 2, and a Standard/Guideline for post closure monitoring and evaluation being completed in phase 3.				
Stand alones					
11.	Scoping reports Guidelines for the preparation of scoping reports	Not applicable	1 of 4 groups suggested Standard	[N/A?]	If Scoping Reports are included in the Exploitation Regulations, then this may need to be developed in Phase 1.
38.	Renewal Guidelines for the preparation and assessment of an application to renew an exploitation contract	DR 21	1 of 4 groups suggested Standard	[3]	

Annex IV: Agenda of the Pretoria Workshop

Monday, 13 May 2019	
08h30 -09h00	Registration at registration desk, Conference Room I, O R Tambo Building, Department of International Relations and Cooperation, Pretoria
09h00 – 09h35	<p>Welcome remark (10 mins): Ambassador M Joyini, Deputy Director-General, Diplomatic Training, Research and Development (DIRCO)</p> <p>Opening remarks (5 mins each):</p> <ul style="list-style-type: none"> • Mr. Michael W. Lodge, Secretary-General, International Seabed Authority (ISA) • Mr Kgabo Mohoai, Director-General, Department of International Relations and Cooperation (DIRCO) • Adv. Thabo Mokoena, Director-General. Department of Mineral Resources • High Commissioner Lumka Yengeni, Permanent Representative of the Republic of South Africa to International Seabed Authority (ISA) and President of the Council of ISA (25th session) • Ms. Lowri Mai Griffiths, Head of Maritime Policy Unit , Foreign and Commonwealth Office, the United Kingdom
09h35 – 09h50	Objectives & ground rules for workshop: Yongsheng Cai, Senior Legal Officer, ISA (15 mins)
Objective Day 1	<i>To set the context / the role of standards and guidelines; what is the Authority seeking to deliver / what is the approach(es) taken by other regulators (The “What” -subject matter-)</i> <i>Output: revised and prioritized list of standards and guidelines</i>
09h50–11h20	Moderator: Gavin Watson , Legal Counsellor, Foreign and Commonwealth Office, UK
	Primer on terminology Chris Brown, ISA Consultant (5 mins)
	Regulatory framework: where are we now? Where do we need to be? How are we going to get there? Chris Brown, ISA Consultant (15 mins)
	A risk-based approach to regulating extraction activities Becky Hitchin, Offshore Industries Advice Manager, Joint Nature Conservation Committee (20 mins)
	Regulators’ use of standards, guidelines and other instruments Harald Brekke, Project Coordinator/Senior Geologist Norwegian Petroleum Directorate (20 mins)
	Specific examples of guidelines in a Canadian context Kenneth Wong, Legal Officer, Continental Shelf Division (JLC), Global Affairs Canada (20 mins)
	Status of China's Standards Development in the Deep-sea Field and Suggestions to the ISA on the Development of Standards and Guidelines for Activities in the Area Chengbing Song, Director, China Ocean Mineral Resources R&D Association (10 mins)
11h20-11h25	<i>Group photo</i>

Monday, 13 May 2019	
11h25 -11h40	<i>Comfort break</i>
11h40 –12h30	<p>Panel discussion, sharing experiences of national and other approaches to using standards and guidelines in natural resource or environmental regulation (50 mins)</p> <p>Objective: to discuss regulatory approaches that best suit the International Seabed Authority as a regulator of natural resources and protection of the marine environment in the Area (driving questions under consideration)</p> <p>Kenneth Wong, Legal Officer, Continental Shelf Division (JLC), Global Affairs Canada (Chair of the panel)</p> <p>Setepane Mohale, Chief Director, Mineral Promotion and International Coordination, Department of Mineral Resources, RSA (Panel member)</p> <p>Sergio Hernández, Executive Director, Great Suppliers of the Mining Industry Association, Chile (Panel member)</p> <p>Harald Brekke, Project Coordinator/Senior Geologist Norwegian Petroleum Directorate (Panel member)</p> <p>David Carlin, Science Director, Centre for Environment, Fisheries & Aquaculture Science (Cefas), UK (Panel member)</p> <p>Q&A</p>
12h30 13h30	<i>Lunch break</i>
13h30-13h40	Introduction to workshop session 1 (Chapi Mwango , Chief of the Contract Management Unit, ISA) (10 mins)
13h40-16h10	<p>Workshop session 1: Eight break-out groups (150 mins) To structure as a World Café-type discussion to address the 4 questions.</p> <p><i>Break-out 1: (i) Examine the draft list of documents and identify those which lend themselves to the development of standards. (ii) What additions or deletions should be made to the ISBA/25/C/3 list, with a particular focus on a comprehensive list of “environmental standards”?</i></p> <p><i>Moderators:</i> Kenneth Wong Legal Officer, Continental Shelf Division (JLC), Global Affairs Canada</p> <p style="padding-left: 40px;">Sergio Hernandez Executive Director, Great Suppliers of the Mining Industry Association, Chile</p> <p><i>Break-out 2: What existing resources exist that might be useful reference or source material for each of the items on the ISBA/25/C/3 list?</i></p> <p><i>Moderators:</i> Mark Alcock, Director, Maritime Jurisdiction Advice, Geoscience Australia</p> <p style="padding-left: 40px;">Mehdi Remaoun, First Secretary, Permanent Mission of Algeria to ISA</p>

Monday, 13 May 2019	
	<p><i>Break-out 3: What are the indicators that a document will be mandatory or recommendatory?</i></p> <p><i>Moderators: Setepane Mohale, Chief Director, Mineral Promotion and International Coordination, Department of Mineral Resources, RSA</i></p> <p style="padding-left: 40px;">Hannah Lily, Seabed Mining Project, The Pew Charitable Trusts</p> <p><i>Break-out 4: Review the suggested prioritized order of the items on the ISBA/25/C/3 list and suggest any amendments.</i></p> <p><i>Moderators: Lowri Mai Griffiths, Head of Maritime Policy Unit , Foreign and Commonwealth Office, UK</i></p> <p style="padding-left: 40px;">Samantha Smith, Head of Sustainability & External Relations, Global Sea Mineral Resources</p>
16h10-16h40	<i>Comfort break</i>
16h40-17h30	<p>Plenary</p> <p>Moderator: Théophile Ndougsa Mbarga, Extractive Industry Monitoring Improvement Project, Cameroon</p> <p>Feedback / discussion on WS1 (40 mins)</p> <p>Wrap-up by Chapi Mwangi, Chief, Contract Management Unit, ISA (10 mins)</p>

Day 2 Tuesday, 14 May 2019	
09h00-09h20	<p>Highlights from Day 1 (Chapi Mwangi, Chief, Contract Management Unit, ISA) (10 mins)</p>
	<p>Objectives Day 2 (Yongsheng Cai, Senior Legal Officer) (10 mins)</p>
Objective Day 2	<p><i>Mechanism for the development of standards and guidelines (the “How” (process))</i></p> <p><i>Output I: suggested flowchart process(es) for the development of standards and guidelines</i></p> <p><i>Output II: Developing content: expert needs; understanding the relationship(s) between technology and standard development, and science input</i></p>
09h20-10h50	<p>Moderator: Mark Alcock, Director, Maritime Jurisdiction Advice, Geoscience Australia</p>

Day 2	Tuesday, 14 May 2019
	<p>Process(es) for development: core objectives, principles & challenges Chapi Mwango, Chief, Contract Management Unit, ISA (10 mins)</p> <p>The ISO: role & process for developing standards Jiabiao Li, Chairperson of ISO/TC8/SC 13 (Marine Technology)(20 mins)</p> <p>Perspectives on good process and lessons learned Karsten Hagenah, Senior Project Manager, DNV GL (20 mins)</p> <p>Engaging industry in the standard development process Jennifer Warren, Director, Regulatory, United Kingdom Seabed Resources Ltd. (20 mins)</p> <p>Practices and process in the IMO for guideline development David Carlin, Science Director, CEFAS (20 mins)</p>
10h50-11h10	<i>Comfort break</i>
11h10-11h20	Introduction to workshop session 2 (Chapi Mwango , Chief, Contract Management Unit, ISA)(10 mins)
11h20-12h30	<p>Workshop session 2: designing a process(es) for technical standard and guideline development (<i>output of working groups to be flowchart based</i>) (70 min)</p> <p>Questions: Who initiates the process? Who develops the content of the standards and guidelines? What could be the recommended content of such standards and guidelines (can a template be developed)? Who reviews the content (including the process for review)? And Who approves the content?</p> <p>Discussion will be conducted in two groups on the questions above.</p> <p>Moderator for Group One: Hannah Lily, Seabed Mining Project, The Pew Charitable Trusts</p> <p>Moderator for Group Two: Annemiek Vink, Marine Resource Exploration, Federal Institute for Geosciences and Natural Resources, Germany</p> <p>Rapporteur for Group One: Joshua Tuhumwire, Managing Director, Gondwana Geoscience Consulting Limited, Uganda;</p> <p>Rapporteur for Group Two: Chris Brown, ISA Consultant</p>
12h30-13h30	<i>Lunch</i>
13h30-14h50	<p>Plenary: Moderator: Chapi Mwango</p> <p>Feedback from WS2 (Joshua Tuhumwire, Managing Director, Gondwana Geoscience Consulting Limited, Uganda) (20 mins)</p> <p>Feedback from WS2 (Chris Brown, ISA Consultant) (20 mins)</p> <p>Facilitated discussion on process (40 mins)</p>

Day 2	Tuesday, 14 May 2019
14h50-15h30	Moderator: Tevita Suka Mangisi , Deputy Permanent Representative of Tonga to the United Nations
	The relationship between standards and engineering: an engineer’s perspective Jon Machin, Head of Offshore Engineering, Deep Green (20 mins)
	Science in standards development Amber Cobley, Deep Ocean Stewardship Initiative (20 mins)
15h30-15h50	<i>Comfort Break</i>
15h50-17h20	Considerations and perspectives from an environmental practitioner , Samantha Smith, Head of Sustainability & External Relations, Global Sea Mineral Resources (20 mins)
	Electronic compliance for critical infrastructure monitoring , Carl Van Wyk, Account Manager, OSIsoft (30 mins)
	Q&A for the afternoon presentations (30 mins)
	Wrap up day 2 [Yongsheng Cai , Senior Legal Officer, ISA] (10 mins)

Day 3	Wednesday, 15 May 2019
09h00-09h20	Highlights from Day 2 (Yongsheng Cai , Senior Legal Officer, ISA) (10 mins)
	Objectives Day 3 (Chapi Mwangi , Chief, Contract Management Unit, ISA) (10 mins)
Objective Day 3	<i>Developing content: “environmental standards” focus and the “when” (delivery)</i> <i>Outputs: (1) Designing environmental standards; (2) Indicative timelines for the delivery of standards and guidelines and resource needs</i>
09:20-09:30	Introduction to workshop session 4 (Yongsheng Cai , Senior Legal Officer, ISA) (10 mins)
09h30-12h30	Workshop session 3: designing environmental standards (this session needs to address the specific issues, resources and challenges in the development of environmental standards in particular: output to feed into subsequent technical workshop(s)) (100 mins) Discussion will be conducted in two groups on questions to be developed.

Day 3	Wednesday, 15 May 2019
	<p>Moderator for Group One: Gordon Paterson, Senior Research Zoologist, Natural History Museum, Department of Life Science, UK</p> <p>Moderator for Group Two: Malcolm Clark, Principal Scientist, National Institute of Water & Atmospheric Research Ltd, New Zealand</p> <p>Rapporteur for Group One: Alison Swaddling, Ocean Governance Adviser, Commonwealth Secretariat</p> <p>Rapporteur for Group Two: Amber Cobley, Deep Ocean Stewardship Initiative</p>
11h10-11h30	<i>Comfort break</i>
11h30-12h30	Continuation of workshop session 3
12h30-13h30	<i>Lunch</i>
13h30-14h30	<p>Plenary: Moderator: Eliah Ralushai, Senior Geochemist, Council for Geoscience, RSA</p> <p>Feedback from WS3 (Alison Swaddling, Ocean Governance Adviser, Commonwealth Secretariat) (15 mins)</p> <p>Feedback from WS3 (Amber Cobley, Deep Ocean Stewardship Initiative) (15 mins)</p> <p>Facilitated discussion on process (30 mins)</p>
14h30-14h40	Introduction to workshop session 4 (Chapi Mwangi , Chief, Contract Management Unit, ISA) (10 mins)
14h40-15h40	<p>Workshop session 4: Revisiting indicative timelines for delivery and resource needs (60 min)</p> <p>Panel discussion</p> <p>Moderator: Graham Leung, Secretary, Justice and Border Control, Department of Justice</p> <p>Pedro Madureira, Deputy Head, Task Group for the Extension of the Continental Shelf - Portugal</p>
15h40-16h40	<p>Panel discussion: facilitated discussion on Pulling it all together (40 min)</p> <p>Wrap-up / key takeaways, key issues for ISA Council and Commission consideration</p> <p>Moderator: Mehdi Remaoun, First Secretary, Permanent Mission of Algeria to ISA</p> <p>Chris Williams, Managing Director, United Kingdom Seabed Resources (Panel member)</p> <p>Diva Amon, Biologist, Deep Ocean Stewardship Initiative (Panel member)</p>

Day 3	Wednesday, 15 May 2019
	<p>Duncan Currie, Deep Sea Conservation Coalition (Panel member)</p> <p>Malcolm Clark, Principal Scientist, National Institute of Water & Atmospheric Research Ltd, New Zealand (Panel member)</p> <p>Mark Alcock, Director, Maritime Jurisdiction Advice, Geoscience Australia (Panel member)</p> <p>Tevita Suka Mangisi, Deputy Permanent Representative of Tonga to the United Nations (Panel member)</p> <p>Urs Engels, Deputy Head of Division, Federal Ministry of Economic Affairs & Energy, Germany (Panel member)</p> <p>Q&A (20 mins)</p>
16h40-16h50	<p>Closing remarks (10 mins):</p> <ul style="list-style-type: none"> • Mr. Michael W. Lodge, Secretary-General, ISA • Ms Lindiwe Mekwe, Acting Chief Executive Officer, Petroleum Agency, RS

Annex V: List of participants for the Pretoria Workshop

No.	Name ¹³	Affiliation
1.	Agata Kozłowska-Roman	National Research Institute, Poland
2.	Alison Swaddling	The Commonwealth Secretariat
3.	Amber Coble	Deep Ocean Stewardship Initiative
4.	Annemiek Vink*	Federal Institute for Geosciences and Natural Resources, Germany
5.	Apete Soro	Director Mineral Resources, Fiji
6.	Avumile Dlakavu	Department of International Relations and Cooperation, RSA
7.	Becky Hitchin*	Joint Nature Conservation Committee UK
8.	Carl Van Wyk	OSIsoft
9.	Carsten Ruehle	Federal Institute for Geosciences and Natural Resources, Germany
10.	Chapi Mwango	International Seabed Authority
11.	Chengbing Song	China Ocean Mineral Resources R&D Association
12.	Christopher Brown*	International Seabed Authority
13.	Christopher Williams	United Kingdom Seabed Resources Ltd.
14.	David Carlin*	Centre for Environment, Fisheries and Aquaculture Science, UK
15.	David Eggleston	Australian High Commission in Pretoria
16.	Diva Amon	Deep Ocean Stewardship Initiative
17.	Duncan Currie	Deep Sea Conservation Coalition
18.	Eden Charles	Special Representative for the Enterprise
19.	Eleanor Petch*	Foreign and Commonwealth Office, UK
20.	Elijah Ralushai	Council for Geoscience, RSA
21.	Gavin Watson	Foreign and Commonwealth Office, UK
22.	Gerber Leonardus	University of Pretoria, RSA
23.	Gordon Paterson	National History Museum, Department of Life Sciences, UK
24.	Graham Leung*	Department of Justice, Nauru
25.	Guifeng Wu	China Ocean Mineral Resources R&D Association
26.	Hannah Lily*	PEW Charitable Trusts
27.	Hans-Peter Damian	Federal Environment Agency, Germany
28.	Harald Brekke*	Norwegian Petroleum Directorate
29.	Harald Ginzky	Federal Environment Agency, Germany
30.	Jennifer Warren	United Kingdom Seabed Resources Ltd.
31.	Jiabiao Li	ISO/TC8/SC13 (Marine Technology)
32.	Jon Machin	Deep Green
33.	Josefa Caniogo	Ministry of Lands and Mineral Resources, Fiji
34.	Joshua Tuhumwire	Gondwana Geoscience Consulting Limited, Uganda
35.	Julian Wilckens	Federal Ministry of Education and Research, Germany
36.	Kamila Mianowicz	InterOceanmetal Joint Organization (IOM)
37.	Karsten Hagenal	DNV_GL
38.	Kenneth Wong*	Continental Shelf Division, Global Affairs Canada
39.	Kgabo Mahaoi	Department of International Relations and Cooperation, RSA
40.	Lei Ju	Ministry of Foreign Affairs, China
41.	Lindiwe Mekwe	Petroleum Agency SA, RSA
42.	Linlin Li	Ministry of Foreign Affairs, China

¹³ * indicates a member of the workshop report drafting group.

No.	Name ¹³	Affiliation
43.	Lowri Mai Griffiths*	Foreign and Commonwealth Office, UK
44.	Lumka Yengeni	Permanent Representative of the Republic of South Africa to ISA
45.	Malcolm Clark	National Institute of Water & Atmospheric Research Ltd, New Zealand
46.	Malefetsane Moseme	Ministry of Foreign Affairs and International Relations, Lesotho
47.	Marie Bourrel-McKinnon	International Seabed Authority
48.	Mark Alcock*	Geoscience Australia
49.	Marzia Rovere	Italian National Research Council- Marine Science Institute
50.	Mathu Joyini	Diplomatic Training, Research and Development, RSA
51.	Medard Ainomuhisha	Ministry of Foreign Affairs, Uganda
52.	Mehdi Remaoun*	Permanent Mission of Algeria to the ISA
53.	Melinda Williams-Maluka	Department of International Relations and Cooperation, RSA
54.	Michael Lodge	International Seabed Authority
55.	Michał Nowosielski	Ministry of Environment, Poland
56.	Mosa Mabuza	Council for Geoscience, RSA
57.	N.R.Ramesh	National Institute of Ocean Technology, India
58.	Nobuyuki Okamoto	Japan Oil, Gas and Metals National Corporation
59.	Nomfundo Zulu	Department of International Relations and Cooperation, RSA
60.	Pedro Madureira*	Portuguese Task Group for the Extension of the Continental Shelf
61.	Robert Heydon	Nauru Offshore Resources Inc.
62.	Robert Milbourne	Mining Standards International
63.	Rosana Dos Santos	Department of International Relations and Cooperation, RSA
64.	Rose Lesley Kautoke	Permanent Mission of Tonga to the UN
65.	Sibonakaliso Mbatha	Department of Mineral Resources, RSA
66.	Samantha Smith*	Global Sea Mineral Resources
67.	Sanet Mongale	Department of Mineral Resources, RSA
68.	Sarah Dippenaar	Australian High Commission in Pretoria
69.	Sean Wilson	Nauru Offshore Resources Inc.
70.	Sebastian Volkmann	Allseas Group
71.	Sergio Hernández*	Great Suppliers of the Mining Industry Association, Chile
72.	Setepane Mohale*	Department of Mineral Resources, RSA
73.	Shanique Gregory	International Seabed Authority
74.	Simon Cardy	Department of International Relations and Cooperation, RSA
75.	Solomon Korbieh	Permanent Mission of Ghana to the United Nations
76.	Talatu Akindolire*	International Seabed Authority
77.	Tevita Suka Mangisi	Permanent Mission of Tonga to the UN
78.	Thabo Mokoena	Department of Mineral Resources, RSA
79.	Thanisa Naidu-Lewin	Department of International Relations and Cooperation, RSA
80.	Théophile Ndougsa Mbarga	Extractive Industry Monitoring Improvement Project, Cameroon
81.	Tshifhiwa Thovhogi	Petroleum Agency SA, RSA
82.	Tomoko Tauchi	Deep Ocean Resources Development Co Ltd, Japan
83.	Urs Engels	Federal Ministry of Economic Affairs and Energy, Germany
84.	Xuwei Xu	ISO/TC8/SC13 (Marine Technology)
85.	Yongsheng Cai*	International Seabed Authority

Annex VI: Background information note for the Pretoria Workshop

1 May 2019

Prepared by Office of Legal Affairs

Participants are invited in advance of the workshop to reflect on their own experiences and on the approaches to the development and use of standards and guidelines under national and international regulatory frameworks; to list possible standard and guideline source materials and reference documents that could assist the Authority; and consider processes for their further development or adoption. This will help contribute to rich and constructive discussions during the workshop, and in the compilation of a workshop report. Questions to be addressed during the workshop are also presented in this document for participant information and preparation, as well as the Legal and Technical Commissions' terms of reference.

I. Introduction

1. The purpose of this note is to provide participants of the Pretoria workshop with background information on the development and delivery of standards and guidelines under the Authority's Mining Code and in particular the objectives and expected output of the workshop in order to help manage participant expectations and input to the workshop programme. The terms of reference of the workshop, as endorsed by the Legal and Technical Commission, are set out at Annex I to this note.

II. Objectives and deliverables of the workshop

2. The objectives of the workshop are:

(i) To establish a prioritised list of standards and guidelines, with reference sources, that will be required to support the implementation of the exploitation regulations; and

(ii) To develop a process for the development of the standards and guidelines.

3. The delivery of these objectives will be achieved through a series of expert presentations, panel discussions and active working sessions to address specific questions. As requested by the Commission, the workshop will also focus on compiling a list of "environmental standards", as well as an associated development process.

4. In addition to the delivery of the above objectives, the workshop also aims to:

- Outline what is understood by a risk-based approach to regulation
- Provide a better understanding of how regulators approach the use, adoption and reference of standards in a national context, particularly in connection with natural resource and environmental regulation
- Understand the parameters to the setting of standards and guidelines from an engineering and a science-based perspective
- Provide the groundwork for subsequent technical development, including addressing the gaps and challenges in document development.

5. As noted on a number of occasions by the Authority and stakeholders, there exists a wealth of experience and documentation on standards and guidelines across parallel industries, as well as documentation, process and procedures developed under the Authority's exploration regulations. Equally, contractors engaged in exploration activities will have considered and generated technical specifications and practices which should be also considered as valuable input into the development and delivery process.

6. A drafting group will be convened from 16-17 May 2019 to compile and deliver a report capturing the workshop discussions and suggestions, as well as a list of reference documents, flowcharted development processes and indicative timelines for documentation delivery. It is envisaged that the report of the workshop will be a valuable resource for the Legal and Technical Commission to help it put together a work programme and recommendations for the Council in relation to standards and guidelines development.

III. Consideration of Standards and Guidelines by the ISA Council, February 2019

7. In February 2019, a number of discussion documents were presented to, and discussed by the ISA Council relating to common themes arising from stakeholder submissions to the draft regulations. Document [ISBA/25/C/3 discussed the content and development of standards and guidelines and contained](#) an indicative list of standards and guidelines to support implementation of the draft regulations.

8. During its consideration of document ISBA/25/C/3, Council members made a number of observations in connection with standard and guideline development. These included:¹⁴

- Consistent and in accordance with Part XI of the Convention
- The development of standards by thematic areas
- Issues of terminology used in ISBA/25/C/3 to capture criteria and thresholds for environmental quality status
- Open and transparent process for development
- Compatibility with current technical levels and knowledge, and avoid frequent changes
- Not all documents require a formal process for development
- Draw on existing and generally accepted international standards
- Clarity required on the relationship between best available techniques, best environmental practice and standards
- What determines the mandatory versus recommendatory nature of a document?
- Standards should be seen as a “floor not a ceiling”
- The flexible nature of guidelines to support delivery of technical and administrative requirements under the regulations i.e. not to overburden the content of the regulations, where content is more appropriately reflected in reference documents.

9. Additionally, a number of delegations spoke to the prioritisation of documentation under the regulatory framework i.e. what is to be developed in parallel with the regulations, and what can be left for subsequent consideration. Providing guidance on the process for an application for a plan of work for exploitation was seen as key; other priority areas for development could include an assessment framework relating to environmental indicators and thresholds, guidelines for environmental assessments, and for environmental management and monitoring.

IV. Legal framework: Standards and Guidelines under the Draft Exploitation Regulations

10. In adopting and implementing the regulations, the Authority must, for the exercise of its functions under part XI of the United Nations Convention on the Law of the Sea, incorporate “mining standards and practices, including those relating to operational safety, conservation of the resources and the protection of the marine environment”.¹⁵

11. The revised draft exploitation regulations (ISBA/25/C/WP.1) contain a number of provisions relating to standards and guidelines. This includes regulation 45 (Development of Environmental Standards), regulation 94 (Adoption of Standards) and regulation 95 (Issue of Guidelines). The presumption is that

standards adopted by the Council have legally binding effect, whereas guidelines (technical or administrative in nature) issued by the Commission or Secretary-General are recommendatory in nature. The regulatory text in each case also requires the Commission to take into account the views of relevant stakeholders. For ease of reference, the text of these 3 regulations is presented at Annex II to this note.

12. The Authority, contractor-base and other stakeholders have an important role to play in the promotion of “standardisation” through the use of standards to deliver a level playing field and a robust and credible regulatory and operational framework.

V. Standard and Guideline development priorities

13. The annex to ISBA/25/3 pioneered a first and indicative list of standards and guidelines (principally guidelines) to be drawn up by the Authority and based on a review of the draft exploitation regulations. The list is reproduced as Annex III to this document in the form of an output table required by the Commission.

14. In addition to suggested reference sources, the output table seeks workshop input on reference sources (e.g. existing standards or guidelines) as well as those documents that should be prioritised and an indicative timeline.

15. While it will be challenging to set specific target deadlines for document delivery, it is felt that there are 3 document development phases that should be considered as part of workshop discussions, namely:

- (1) Documents to be put in place (or largely complete) by the time of the adoption of the draft regulations (July 2020);
- (2) Documents to be put in place prior to the receipt of and consideration of a plan of work for exploitation; and
- (3) Documents to be put in place before monitoring or mining activities commence in the Area.

16. To this end, the secretariat has provided an initial and indicative order of priority in the output table contained at Annex III based on the above phases. These are presented for consideration by the workshop participants.

17. It is acknowledged that the document list may not be exhaustive or may contain documents that have no place on the list. This will be addressed during the workshop.

VI. Workshop format and questions to be addressed

18. Over the 3-day workshop, a number of facilitated working sessions will target the specific deliverables required by the Commission through a number of questions to be addressed by such sessions, and plenary feedback.

19. Working session 1 (Day 1): this working session will be structured to provide output from smaller working groups. The format of the session will be the World-Café style approach allowing all participants the opportunity to share their thoughts, experience and ideas on the following:

- (1) Break-out Q1: (i) Examine the draft list of documents and identify those which lend themselves to the development of standards. (ii) What additions or deletions should be made to the ISBA/25/C/3 list, with a particular focus on a comprehensive list of “environmental standards”?
- (2) Break-out Q2: What existing resources exist that might be useful reference or source material for each of the items on the ISBA/25/C/3 list?
- (3) Break-out Q3: What are the indicators that a document will be mandatory or recommendatory?
- (4) Break-out Q4: Review the suggested prioritized order of the items on the ISBA/25/C/3 list and suggest any amendments.

20. Working session 2 (Day 2): this working session will address a suggested process or processes (and questions presented by the Commission) for the development of technical standards and guidelines. In order to focus discussion, the process for 2 documents will be considered, namely:

- (1) A process for the development of an assessment framework for mining discharges (see regulation 50(1)(a)); and
- (2) A process for the development of guidelines for environmental impact assessment and preparation of an environmental impact statement.

21. Working session 3 (Day 3): this working session (split into 2 parts) is intended to address the specific challenges in the design and delivery of “environmental standards”, including:

- (1) To what extent existing environmental standards and guidelines developed by competent bodies and accreditation organisations can be adapted and applied to regulate/guide environmental management of exploitation activities?
- (2) What are the information needs to ensure a science-based approach to the development of environmental standards and guidelines?
- (3) What are the best environmental practices currently being developed and implemented by the deep-sea mining industry and what are the challenges to implement standards and guidelines from the industry's perspective?

22. Working session 4 (Day 3): this working session will revisit indicative timelines for delivery as a result of prior working group and other discussions.

VII. Reference and source materials

23. As part of the workshop programme, and beyond, the secretariat encourages participants to supply details of appropriate reference documents and materials that the Commission and secretariat may draw upon during development and drafting processes. Links to or copies of such documents may be emailed to ola@isa.org.jm.

VIII. Key documents

- Draft regulations on exploitation of mineral resources in the Area (unedited advance text) ([ISBA/25/C/WP.1](#))
 - Draft regulations on exploitation of mineral resources in the Area (note by the Commission to the Council) ([ISBA/25/C/18](#))
 - Content and development of standards and guidelines for activities in the Area under the Authority's regulatory framework ([ISBA/25/C/3](#))
 - Towards an ISA Environmental Management Strategy for the Area ([ISA Technical Study no: 17](#))
-