ISBA/27/C/IWG/ENV/CRP.1

Twenty-seventh session
Council session, part I
Kingston, 21 March-1 April 2022

Item 11 of the provisional agenda*
Draft regulations on exploitation of mineral resources in the Area

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Parts IV: Annex IV

Drafting proposals submitted by delegations as compiled on 25 March 2022

Annex IV

Environmental Impact Statement

Explanation / comment

- While the proposals which in my view did not encounter any opposition at the February 2020 session of the Council are reflected in Annex IV, it is noted that the Legal and Technical Commission on this issue developed a draft standard and draft guidelines on Environmental Impact Assessments and draft guidelines on the preparation of the Environmental Impact Statement.
- Discussions will need to continue regarding the mandatory or recommendatory nature of the template, noting that different views were expressed at the February session of the Council and that draft regulation 47(3) currently states that the Environmental Impact Statement *shall* be in the form prescribed in Annex IV. It is noted that sections 1 and 2 below seem currently contradictory on this aspect, with section 1 using mandatory language while section 2 uses recommendatory language.

1. Preparation of an Environmental Impact Statement

The Environmental Impact Statement prepared under these regulations and the present annex shall:

(a) Be prepared in plain language and in an official language of the Authority together with an official English-language version, where applicable;

(b) Provide information, in accordance with the relevant regulations, Standards and Guidelines, corresponding to the scale and potential magnitude of the activities, to assess the likely Environmental Effects of the proposed activities. Such effects shall be discussed in proportion to their significance. Where an applicant considers an effect to be of no significance, there should be sufficient information to substantiate such conclusion, or a brief discussion as to why further research is not warranted; and

(c) Include a non-technical summary of the main conclusions and information provided to facilitate understanding of the nature of the activity by Stakeholders.

2. Template for Environmental Impact Statement

The recommended format for an Environmental Impact Statement is outlined below. It is intended to provide the International Seabed Authority, its member States and other stakeholders with unambiguous documentation of the potential Environmental Effects on which the Authority can base its assessment, and any subsequent approval that may be granted. Further detail for each section is provided following the overview.

The document is a template only, and is not intended to be prescriptive but rather to guide the format and general content of an Environmental Impact Statement. It does not provide details of methodology or thresholds that may be resource- and site- specific. These methodologies and thresholds may be developed as Standards and Guidelines to support the regulations.

Contents

Executive summary

One of the main objectives of the executive summary is to provide an overview of the project and a summary of the content of the Environmental Impact Statement for non-technical readers. Information provided in the executive summary should include:

(a) A description of the proposed development and its objectives;

(b) Economic, financial and other benefits to be derived from the project;

(c) Anticipated impacts of the activity (physicochemical, biological, socioeconomic);

(d) Mitigation measures to minimize environmental impacts;

(e) Linkages with the Authority's global environmental policy and strategy and the applicable regional environmental management plan and the development of the Environmental Monitoring and Management Plan; and

(f) Consultation undertaken with other parties.

Explanation / comment

- The proposed reference to the Authority's global environmental policy and strategy in paragraph (e) may need further discussion and explanation by the proponent of this addition, in particular whether this is intended to refer to the Authority's environmental goals and objectives currently under development.

1. Introduction

1.1 Background

Summarize briefly the project being proposed, including all main activities and locations.

1.2 Project viability

Provide information on the viability of the proposed development, its economic context and why the project is needed, and include a description of the benefits to mankind.

1.3 Project history

Summarize briefly the work undertaken up to the date the Environmental Impact Statement was finalized and ready to be submitted to the International Seabed Authority. This should include a brief description of the resource discovery, the exploration undertaken and any component testing conducted to date. For the component testing, provide a brief description of activities here. If applicable, include any report(s) related to component testing including any monitoring and assessment of the environmental impacts in an appendix.

1.4 Project proponent

Summarize the credentials of the proponent, including major shareholders, other contracts or licences held (including in other jurisdictions), previous and existing

contracts with the Authority and the proponent's environmental record, etc. The proponent's technological and environmental expertise, capacity and financial resources should be outlined.

1.5 This report

1.5.1 Scope

Provide detail as to what is and is not included, based on earlier assessments or work. Link to other supporting information. A key item that should be included is a previous risk assessment that evaluates activities classified as low risk (and therefore should receive less emphasis), compared with high-risk activities, which should be the focus of this Environmental Impact Statement.

1.5.2 Report structure

Where the Environmental Impact Statement spans multiple volumes, this section should provide additional details not listed in the table of contents.

2. Policy, legal and administrative context

Provide information on the relevant policies, legislation, agreements, standards and guidelines that are applicable to the proposed mining operation.

2.1 Applicable mining and environmental legislation, policy, and ~~agreements~~instruments

Outline the national and international legislation, regulation or guidelines as well as the Regional Environmental Management Plan that apply to the managementor regulation of Exploitation in the Area, including how the proposed operation will ~~comply with~~ implement them.

2.2 Other applicable legislation, policies and regulations

Outline any other legislation, policies or regulations that do not necessarily apply specifically to seabed mining or the environment, but may be relevant to the proposal (e.g., shipping regulations, maritime declarations, marine scientific research, climate change policies, Sustainable Development Goals). This section should also refer to national regulations and laws that relate to the effects of Exploitation activities on coastal States, or other places where components of Exploitation (e.g., processing) could occur.

2.3 Applicable international and regional agreements

In addition to the United Nations Convention on the Law of the Sea and the 1994 Agreement relating to the Implementation of Part XI of the Convention, ~~List~~ list the international agreements applicable to the operation, such as ~~the United Nations Convention on the Law of the Sea and~~ the International Maritime Organization suite of environmental and safety conventions, which includes the International Convention for the Safety of Life at Sea (SOLAS), the International Convention forthe Prevention of Pollution from Ships (MARPOL) and the Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter (London Convention) and the 1996 Protocol thereof; the Convention on Biological Diversity and the Convention on Migratory Species of Wild Animals; and applicable regional agreements.

Explanation / comment

- The revision in the first part of the paragraph aims at making clear that the Convention and the Part XI Agreement are not optional instruments, since the application of these instruments is not left to the appreciation of the Contractor or sponsoring State.
- In light of the proposed additional instruments considered potentially applicable by delegations, as reflected in the second part of the paragraph, and of the fact that sponsoring States, flag States and port States may not all be parties to the specific instruments, consideration could be given to including a more general formulation along the following lines:

  "In addition to the United Nations Convention on the Law of the Sea and the 1994 Agreement relating to the Implementation of Part XI of the Convention, list the international agreements applicable to the operation, such as the International Maritime Organization environment and safety-related conventions, applicable environmental and biodiversity conventions, and applicable regional agreements."

2.4 Other applicable standards, principles and guidelines

Discuss applicable standards and guidelines that will be adhered to or aligned with throughout the operation, such as the Standards and Guidelines of the International Seabed Authority, the Equator Principles, the Environmental Management Standards of the International Organization for Standardization, the Code for Environmental Management of Marine Mining of the International Marine Minerals Society, the Performance Standards on Environmental and Social Sustainability of the International Finance Corporation and the standards of the Extractive Industries Transparency Initiative.

3. Description of the proposed development

Provide details of the proposed development activity, including relevant diagrams and drawings. It is understood that most projects will likely involve the recovery of minerals from the Area, with the concentrating process(es) occurring on land within a national jurisdiction (outside the jurisdiction of the Authority). While it is expected that this section would provide a brief description of the entire project, including offshore and land-based components, the Environmental Impact Statement should focus on those activities occurring within the Authority's jurisdiction (e.g., activities related to the recovery of the minerals from the Area up to the point of trans-shipment).

Details to be provided under this section should include the headings listed below.

3.1 Project area definition

3.1.1 Location

Include coordinates of the project area, detailed location maps (drawn to scale), a layout of the site and the locations of impact reference zones and preservation reference zones.

3.1.2 Associated activities

Describe the supporting activities and infrastructure required (e.g., transportation corridors) that are outside the direct mining site.

3.2 Mineral resource

Provide details of the type of resource proposed for extraction (e.g. sea floor massive sulphides, polymetallic nodules, ferromanganese crusts), the type of commodity and its grade and volume. Estimates of the inferred and indicated resource should be provided, along with visual models of the resource.

3.3 Project components

Provide background information on the proposal and the technologies and equipment to be employed, and include the subsections set out below.

3.3.1 Project scale

Provide an overview of the spatial and temporal scales of the mining operation, including volumes of material to be recovered, processed and deposited or discharged into the water column or back to the seabed. This should include an account of the area to be physically mined, as well as the likely extent of any secondary impacts (e.g., sediment plumes), which will be discussed in greater detail later.

3.3.2 Mining

Provide details of the technologies to be employed, including relevant diagrams and drawings, that address: the Mining Workplan, timelines and the general mining sequence, the technologies to be employed to recover the resource from the seabed,the depth of penetration into the seabed and other details of the mining activities.

3.3.3 Transport/materials handling

Provide a description of all methods to be used to transport the mineral-bearing ore, including from the sea floor to the surface, and any methods related to the trans-shipment of the mineral-bearing ore, including transfers at sea.

3.3.4 On-site processing

Provide a description of the processing of the mineralized material that will occur within or above the Area, including shipboard processing. Include a description of any methods to be used on the sea floor to separate the mineralized material from surrounding sediment and/or rock, as well as any dewatering of the mineralized material at the surface. This section should also cover any disposal of seawater/fines.

Include a description of the disposal and discharge of sediment, wastes or other effluents into the Marine Environment and the disposal of waste from general ship operations. The handling and management of hazardous materials should also be described, together with a description of the nature of such material and its transportation, storage and disposal.

3.3.5 Support equipment

Describe any equipment expected for mining and support operations (e.g., mining vessels/platforms, supply vessels, barges). Describe the anticipated frequency of vessel movements for these activities.

3.4 Commissioning

Describe the pre-production activities that will take place with regard to the establishment and set-up of the site for mining operations. The management of this process (such as the establishment of safety zones around vessels) should also be described.

3.5 Construction and operating standards

Outline the design codes to which the equipment will be or has been built, as well as the operating standards that will be applied to mining operations. This section should include subsections such as those set out below.

3.5.1 Design codes

3.5.2 Health and safety

3.5.3 Workforce description

This section should also outline capacity-building objectives and commitments.

3.6 Decommissioning and closure

Describe the steps that will occur when the mining operation is completed, including the decommissioning of offshore infrastructure, under a Closure Plan.

3.7 Other alternatives considered

Provide an account of alternative options that were considered and rejected in favour of the current proposal. Aspects should include the selection of the mine site, mine production scenarios, transport and materials handling and shipboard processing.

3.8 Development timetable (detailed schedule)

Provide a description of the overall timetable, from the implementation of the mining programme to the decommissioning and closure of operations. The description should include the major phases of the operation as well as the milestone dates onwhich relevant tasks are expected to be completed. Information on the development timetable provided under this section should clearly communicate the different phases in the development proposal. For reasons of clarity, a flow chart or a Gantt or PERT (Programme Evaluation and Review Technique) chart should be used where appropriate. Information provided in this section should include the following:

(a) The funding arrangement for the proposed activity, or whether the availability of funds is subject to this or other approvals being granted;

(b) Pre-construction activities including the development and testing of mining equipment, operations and systems in situ (if applicable);

(c) A construction schedule and staging timetable;

(d) An infrastructure development schedule;

(e) A monitoring schedule (during and after operations); and

(f) A closure schedule.

Explanation / comment

- The proposed reference to “the development and testing of mining equipment, operations and systems” in paragraph (b) could be further explained by its proponent and revisited in light of the

Recommendations for the guidance of contractors for the assessment of the possible environmental impacts arising from exploration for marine minerals in the Area issued by the Legal and Technical Commission (ISBA/25/LTC/6/Rev.1 and Corr.1), which provide definitions for "test mining" and "testing of mining components".

4. Description of the existing physicochemical environment

Give a detailed account of knowledge of the environmental conditions at the mine site, which should include information from a thorough literature review as wellas from on-site studies. The Guidelines on baseline data collection shall guide the drafting of this section by providing information on the minimum amount of detail required for an acceptable baseline description. The account will provide the baseline description of the geological and oceanographic conditions against which impacts will be measured and assessed. The detail in this section is expected to be based on a prior environmental risk assessment that will have identified the main impacts, and thus the elements that need to be emphasized in the environmental impact assessment.

4.1 Key messages

Provide an overview of key content (this information can be provided in a box that contains up to 6 bullet points on either the main aspects covered or the main findings).

4.2 Regional overview

Describe the general environmental conditions of the site, including the geological and oceanographic setting within a broader regional context and refer to the applicable Regional Environmental Management Plan. This should be brief section that includes a map. A more detailed site-specific description will be provided in accordance with the sections below.

4.3 Studies completed

Describe any prior research/Exploration (including methods used for completing the studies based on Best Available Techniques) that could provide relevant information for this Environmental Impact Statement and future activities. These should be detailed in the appendices, and the environmental reference baseline data collected for the Authority, as outlined in the exploration contract conditions, should accompany the Environmental Impact Statement.

4.4 Meteorology and air quality

Provide a general overview of climatology (e.g., wind directions and speeds, seasonal patterns). This section may be most relevant to surface operations.

4.5 Geological setting

Describe the nature and extent of the mineral resource and bedrock within a broader geological context. Describe the ~~general geological landscape and topographic features~~ geological petrographic and geomorphological setting of the site, including high-resolution bathymetric maps and sedimentation rates, and referto submarine features such as hydrothermal vents, seeps and seamounts.

4.6 Physical oceanographic setting

Provide a description of oceanographic aspects such as currents, ~~sedimentation~~ ~~rates~~ oceanographic fronts, eddies, particle flux and waves. Seasonal variability is an important element. Detail is required on the regional setting, as well as the specificsite, and should include changes in physical conditions and processes according to depth and horizontal distance from the proposed mine site (near-field, far-field).

4.7 Chemical oceanographic setting

Provide a description of water mass characteristics at the site and above the site at various depths of the water column, including the structure and development of the oxygen minimum zone in particular near the sea floor (up to 200m above bottom), that includes nutrients, particle loads, temperature and dissolved gas profiles, vent- fluid characteristics if applicable, turbidity ~~and geochemistry~~, etc.

4.8 Seabed substrate characteristics

Provide a description of substrate composition, including physical and chemical properties (e.g., sediment composition, pore-water profiles, grain size, sediment mechanics).

4.9 Natural hazards

Provide a description of applicable potential natural hazards for the site,including volcanism, seismic activity, cyclone/hurricane trends, tsunamis, etc.

4.10 Noise and light

Provide a description of ambient noise and light, and the influence of existing Exploration and maritime activity.

4.11 Greenhouse gas emissions and climate change

Provide a description of the level of gas and chemical emissions from both natural and anthropogenic activities in the Area, as well as those affecting sea floor and water-column chemistry.

4.12 Summary of the existing physicochemical environment

Summarize key findings and include notes on special considerations for hydrothermal vents, seeps, seamounts and oceanographic fronts or eddies. It is anticipated that this summary will be up to one page, and be more extensive than the key messages section.

5. Description of the existing biological environment

The description of the site should be divided by depth regime (surface, midwater and benthic, where appropriate), and provide a description of the various biological components and communities that are present in or utilize the area. The detail in this section is expected to be based on a prior environmental risk assessment that will have identified the main impacts, and thus the elements that need to be emphasized in the environmental impact assessment.

5.1 Key messages

Provide an overview of the key content (this information can be provided in a box that contains up to 6 bullet points on either the main aspects covered or the main findings).

5.2 Regional overview

Provide general regional context, and include site-specific issues and characteristics, existing Regional Environmental Management Plan, areas of particular environmental interest and national areas of adjacent countries, if any. References to relevant technical data and previous studies should also be included. This section should be brief, but provide broader context for the more detailed site- specific description below.

5.3 Studies completed

Describe any prior research/Exploration (including methods used for completing the studies based on Best Available Techniques) that could provide relevant information for this Environmental Impact Statement and future activity. These should be detailed in the appendices, and the environmental reference baseline data collected for the Authority, as outlined in the exploration contract conditions, should accompany the Environmental Impact Statement.

5.4 Biological environment

Address diversity, abundance, biomass, community-level analyses, connectivity, trophic relationships, resilience, ecosystem function and temporal variability. Any work on ecosystem models and appropriate ecosystem indicators, etc., should also be presented here. This section should span the size range from megafauna to microbial communities.

The description of the fauna is structured by depth range, as this enables a direct linkage to the source and location of an impact. For each depth zone, there should be a description of the main taxonomic/ecological groups (e.g., plankton, fish, marine mammals, benthic invertebrates, demersal scavengers), using the Authority's Guidelines.

The description needs to detail fauna communities in the water column down to the Mining Area, including migratory and highly mobile species, their relationship to the natural habitat, including the mineral resource, and the functional ecological relationships across groups to assess the scale of impacts to be expected if mining occurs.

5.4.1 Surface

Describe the biological environment from the surface to a depth of 200 metres, including plankton (phytoplankton and zooplankton), surface/near-surface fish such as tuna, and seabirds and marine mammals. The description should also evaluate the temporal and spatial variability in distribution and composition.

5.4.2 Midwater

Describe the ~~biological environment~~ pelagic fauna and their habitat in the open water from a depth of 200 metres down to 50 metres above the sea floor, and include zooplankton, nekton, mesopelagic and bathypelagic fishes and deep-diving mammals. The description should also evaluate the temporal and spatial variability in distribution and composition.

5.4.3 Benthic

Describe the benthic invertebrate and fish communities, including infauna and demersal fish, up to an altitude of 50 metres above the sea floor. This should include considerations of species richness, biodiversity, faunal densities, community structures and connectivity, etc. Bioturbation should also be covered in this section.

5.4.4 Ecosystem/community-level description

Summarize existing community or ecosystem studies that integrate elements ofthe above sections. The summary should consider early life-history stages, recruitment and behavioural information.

5.5 Summary of the existing biological environment

Summarize the key findings with respect to the biological environment, including regional distributions, special faunal characteristics, etc. It is envisaged that this summary will be up to one page in length.

6. Description of the existing socioeconomic environment

This section should describe the socioeconomic aspects of the project.

6.1 Key messages

Provide an overview of key content (this information can be provided in a box that contains up to 6 bullet points on either the main aspects covered or the main findings).

6.2 Existing uses

6.2.1 Fisheries

If the project area occurs within an area used by fisheries, then this needs to be described here. This should include description of areas of significance for fish stocks, such as spawning grounds, nursery areas or feeding sites as well as ecologically or biologically significant marine areas.

6.2.2 Marine traffic

This section describes the non-project-related marine traffic occurring within the project area.

6.2.2 bis Submarine cables

This section describes the non-project-related submarine cables occurring within the project area.

6.2.3 Tourism

Describe areas used by cruise liners and for game fishing, sightseeing, marine mammal watching and other relevant tourism activities.

6.2.4 Marine scientific research

Outline the current scientific research programmes taking place in the area.

6.2.5 Area-based management tools

Describe any relevant area-based management established under subregional, regional or global processes and the scope, geographical coverage and objectives of such tools. Also describe any relevant area-based management in adjacent areas under national jurisdiction.

6.2.6 Other

List other uses of the project area that are not related to the above (e.g., ~~submarine cables,~~ other mineral exploration, exploitation projects, traditional navigation).

6.2 bis Planned uses

Describe the planned uses of the area for which information is publicly available (e.g. fisheries, maritime traffic, tourism, marine scientific research, submarine cables, area-based management tools).

6.3 Sites of an archaeological or historical nature

List any sites of archaeological or historical significance that are known to occur within the potential area of impact.

6.4 Summary of existing sociocultural environment

Summarize key findings regarding the sociocultural environment. It is envisaged that this section will be up to a page in length, and more extensive than the key messages.

7. Assessment of impacts on the physicochemical environment and proposed Mitigation

Provide a detailed description and evaluation of potential impacts of the operation to components of the physical environment identified in section 4. This may need to consider effects that could happen during the construction/development (pre-commissioning), operational and decommissioning phases, as well as the potential for accidental events. The preferred approach for this template is to include for each component a description of:

(a) The source (action, temporal and spatial duration) and nature of the disturbance;

(a)bis The nature and extent of any actual or potential impact, including cumulative impacts;

(a) ter The methods used to determine impacts (including the assumptions ~~of any impact modelling undertaken);~~

(b) Measures that will be taken to avoid, remedy or mitigate such impacts; and

(c) The unavoidable (residual) impacts that will remain.

It is important that these sections make clear the expected longevity of unavoidable effects. The detail in this section is expected to be based on a prior environmental risk assessment that will have identified the main impacts, and thus the elements that need to be emphasized in the environmental impact assessment.

7.1 Key messages

Provide an overview of the key content covered in section 7.

7.2 Description of potential impact categories

Provide an overview and description of the categories of general impacts caused by the mining operation. This should introduce the major types of effect, such as habitat removal, the creation of sediment plumes, noise and light, etc.

Key elements that need to be included are:

(a) Descriptions of impact studies carried out during exploration (e.g., component testing and the resulting observations from the associated monitoring);

(b) Descriptions of the results of any environmental risk assessments, which should be included as separate reports or appendices where appropriate; and

(c) Descriptions of the methods applied to describe and quantify impact categories and assessment.

7.3 Meteorology and air quality

Provide a description of potential effects on air quality from the surface or subsurface operations.

7.3.1 Potential impacts and issues to be addressed

7.3.2 Environmental management measures to mitigate impacts

7.3.3 Residual impacts

7.4 Geological setting

Provide a description of impacts the mining operation may have on the ~~topography~~ geomorphology of the site or its ~~geological/geophysical composition~~ sedimentary and geological characteristics.

7.4.1 Potential impacts and issues to be addressed

7.4.2 Environmental management measures to mitigate impacts

7.4.3 Residual impacts

7.5 Physical oceanographic setting

Provide a description of the effects on the current speed/direction ~~and sedimentation rates~~, etc. A regional oceanographic model will be relevant to this section.

7.5.1 Potential impacts and issues to be addressed

7.5.2 Environmental management measures to mitigate impacts

7.5.3 Residual impacts

7.6 Chemical oceanographic setting

Provide a description of the effects such as sediment plume generation (frequency, spatial extent, composition and concentration) and the clarity of water, particulate loading, water temperature, dissolved gas and nutrient levels etc., in all relevant levels of the water column. A regional oceanographic model will be relevant to this section. For a sea floor massive sulphide project, the modification of vent-fluid discharges, if present, should be addressed.

7.7 Seabed substrate characteristics

For example: changes in the sediment composition, grain size, density and pore- water profiles.

7.8 Natural hazards

Discuss any impacts of the operation on natural hazards and plans to deal with these hazards.

7.9 Noise and light

Noise and light above existing levels.

7.10 Greenhouse gas emissions and climate change

Assessment of gas and chemical emissions from both natural and anthropogenic activities, as well as those affecting sea floor and water-column chemistry. Subsections should include estimated greenhouse gas emissions and a greenhouse gas emissions assessment where appropriate.

7.11 Maritime safety and interactions with shipping

Include project safety and interactions with other vessels.

7.12 Waste management

Vessel waste management, with reference to compliance with relevant conventions, legislation and principles, and methods of cleaner production and energy balance.

7.13 Cumulative impacts

The nature and extent of any interactions between various impacts, where they may have cumulative effects, must be considered on both spatial and temporal scalesover the lifetime of the mining operation.

7.13.1 Proposed operations impacts

Cumulative within the scope of the mining proposed herein.

7.13.2 Regional operation impacts

Cumulative between activities, where known in the region.

7.14 Other issues

Outline here other, more general issues, as applicable.

7.15 Summary of residual effects

A table may be a useful summary format to pull together the above elements in a simple visual mode.

8. Assessment of impacts on the biological environment and proposed Mitigation

Provide a detailed description and evaluation of potential impacts of the operation to the biological environment components identified in section 5. This may need to consider effects that could happen during the construction/development (pre-commissioning), operational and decommissioning phases, as well as the potential for accidental events. The preferred approach for this template is to include for each component a description of:

(a) The source (action, temporal and spatial duration) and nature of the disturbance;

(a)bis The nature and extent of any actual or potential impact, including cumulative impacts;

(a) ter The methods used to determine impacts (including the assumptions of any impact modelling undertaken);

(b) Measures that will be taken to avoid, remedy or mitigate such impacts; and

(c) The unavoidable (residual) impacts that will remain.

(d) The applicable environmental goals and objectives, indicators and threshold values as identified in the applicable Regional Environmental Management Plan.

It is important that these sections make clear the expected longevity of unavoidable (residual) impacts and whether or not the biological environment is expected to recover, and in what time frame, following disturbance. The detail in this section is expected to be based on a prior environmental risk assessment that will have identified the main impacts, and thus the elements that need to be emphasized in the environmental impact assessment.

8.1 Key messages

This section should provide an overview of the key content covered in section 8.

8.1 bis Description of the key sources of environmental impacts

This section should describe the key sources of impacts on the marine environment from the mining operation.

8.2 Description of potential impact categories

This section is an overview and description of the categories of general impacts caused by the mining operation. This is not expected to be detailed, but rather to introduce the major types of effects, such as habitat removal, the crushing of animals, the creation of sediment plumes, noise and light, etc. A description should be included of any lessons learned from activities during the exploratory phase of the programme (e.g., mining system component tests).

8.3 Surface

Description of potential effects on the biological environment from the surface down to a depth of 200 metres, including any impacts on plankton (phytoplankton and zooplankton), nekton, surface/near-surface fish such as tuna, and seabirds and marine mammals.

8.3.1 Potential impacts and issues to be addressed

8.3.2 Environmental management measures to mitigate impacts

8.3.3 Residual impacts

8.4 Midwater

Description of the potential effects on the biological environment from a depth of 200 metres down to 50 metres above the sea floor, including zooplankton, nekton, mesopelagic and bathypelagic fishes and deep-diving mammals.

8.4.1 Potential impacts and issues to be addressed

8.4.2 Environmental management measures to mitigate impacts

8.4.3 Residual impacts

8.5 Benthic

Description of the potential effect on benthic invertebrate and fish communities, including infauna and demersal fish, up to an altitude of 50 metres above the sea floor.

8.5.1 Potential impacts and issues to be addressed

8.5.2 Environmental management measures to mitigate impacts

8.5.3 Residual impacts

8.6 Ecosystem/community level

Describe estimated effects on the ecosystem or where linkages between the various components above are known.

8.6.1 Potential impacts and issues to be addressed

8.6.2 Environmental management measures to mitigate impacts

8.6.3 Residual impacts

8.7 Cumulative impacts

The nature and extent of any interactions between various impacts where they may have cumulative effects must be considered. This should include an evaluation of the spatial and temporal intensity of mining and its effects on other impacts.

8.7.1 Proposed operations impacts

Cumulative within the scope of the mining proposed herein.

8.7.2 Regional operation impacts

Cumulative between activities, where known in the region.

8.8 Summary of residual effects

A table may be a useful summary format.

9. Assessment of impacts on the socioeconomic environment and proposed Mitigation

As in the preceding sections, provide a detailed description and evaluation of potential impacts of the operation to the socioeconomic components identified in section 6. This may need to consider effects that could happen during the construction/development (pre-commissioning), operational (including maintenance) and decommissioning phases, as well as the potential for accidental events. The preferred approach for this template is to include for each component a description of:

(a) The nature and extent of any actual or potential impact, including cumulative impacts;

(a)bis The methods used to determine impacts (including the assumptions of any impact modelling undertaken);

(b) Measures that will be taken to avoid, remedy or mitigate such impacts; and

(c) The unavoidable (residual) impacts that will remain.

9.1 Key messages

This section should provide an overview of the key content covered in section 9.

9.2 Impact identification

9.2.1 Existing uses

9.2.1.1 Fisheries

A description of potential impacts and issues to be addressed, along with proposed management measures and a description of residual impacts.

9.2.1.1.1 Potential impacts and issues to be addressed

9.2.1.1.2 Environmental management measures to mitigate impacts

9.2.1.1.3 Residual impacts

9.2.1.2 Marine traffic

A description of potential impacts on non-project-related marine traffic occurring within the project area, along with proposed management measures and a description of residual impacts.

9.2.1.2bis Submarine cables

A description of potential impacts on non-project-related submarine cables occurring within the project area, along with proposed management measures and a description of residual impacts.

9.2.1.3 Tourism

A description of potential impacts and issues to be addressed, along with proposed management measures and a description of residual impacts.

9.2.1.4 Marine scientific research

A description of potential impacts and issues to be addressed, along with proposed management measures and a description of residual impacts.

9.2.1.5 Area-based management tools

A description of potential impacts and issues to be addressed, along with proposed management measures and a description of residual impacts.

9.2.1.6 Other

List other potential impacts that are not related to the above (e.g., submarine cables, other mineral Exploration or Exploitation projects).

9.2.1bis Planned uses

Describe the potential impacts on planned uses of the area for which information is publicly available (e.g. fisheries, maritime traffic, tourism, marine scientific research, submarine cables, area-based management tools).

9.3 Sites of an archaeological or historical nature

Describe, as applicable, potential impacts to sites of archaeological or historical significance that are known to occur within the potential area of impact, along with proposed management measures and a description of residual impacts.

9.4 Socioeconomic and sociocultural issues

This section will provide a description of socioeconomic and sociocultural benefits or impacts, including any applicable social initiatives.

9.5 Summary of existing sociocultural environment

A table may be a useful summary format. Potential cumulative effects should also be included.

10. Accidental events and natural hazards

Environmentally hazardous discharges resulting from accidental and extreme natural events are fundamentally different from normal operational discharges of wastes and wastewaters. This section should outline the possibility/probability o f accidental events occurring, the impact they may have, the measures taken to prevent or respond to such an event and the residual impact should an event occur.

For each component include:

(a) The nature and extent of any impact;
(b) Measures that will be taken to avoid, mitigate or minimize such impact; and
(c) Residual impacts.

10.1 Extreme weather

For example: hurricanes/cyclones.

10.2 Natural hazards

For example: volcanic eruptions, seismic events.

10.3 Accidental events

For example: leakage or spillage of hazardous material, fires and explosions, and collisions, including potential loss of equipment.

11. Environmental management, monitoring and reporting

Provide sufficient information to enable the Authority to anticipate possible environmental management, monitoring and reporting requirements for an environmental approval. Information listed include a description of the applicant's environmental management system and should reflect the proponent's environmental policy and the translation of that policy to meet the requirements of this section and previous sections during different stages of the project life (i.e., from construction to decommissioning and closure).

The Environmental Management and Monitoring Plan is a separate report from the Environmental Impact Statement, but this could be a useful opportunity to highlight some of the key issues from the Statement that will be addressed in the full Environmental Management and Monitoring Plan. Information detailed in this section should include the headings set out below.

11.1 Organizational structure and responsibilities

This section should show how the Contractor's environmental team fits into its overall organizational structure. Responsibilities of key personnel should be outlined.

11.2 Environmental management system

~~Although a~~A full environmental management system ~~may not~~shall exist at the time the Environmental Impact Statement is submitted., The applicant has to demonstrate that it will be capable of managing all relevant environmental questions , and outline the standards that will be considered and/or aligned with when developing the system for the project.

11.3 Environmental Management and Monitoring Plan

An Environmental Management and Monitoring Plan will be submitted as a separate document for the Authority's approval prior to the commencement of mining operations. This section should provide an overview of what the Plan would entail. This section should include, at a minimum, the headings set out below.

11.3.1 Mitigation and management

Summarize the actions and commitments that have arisen from the impact minimization and mitigation strategies.

11.3.2 Monitoring plan

Summarize the monitoring plan approach and programme.

11.3.2.1 Approach

11.3.2.2 Programme

Provide an overview of the envisaged monitoring programme (further detail will be provided in the Environmental Management and Monitoring Plan).

11.3.3 Closure Plan

A Closure Plan will be submitted as a separate document for the Authority's approval. However, this section should provide an overview of what the Closure Plan will entail, including decommissioning, continued monitoring and rehabilitation measures, if applicable.

11.4 Reporting

11.4.1 Monitoring

Outline how the results of monitoring studies will be reported to the Authority.

11.4.2 Incident reporting

Outline how Incidents will be reported and managed.

12. Product stewardship

Provide a brief description of the intended use of the mineral-bearing ore once it leaves the Area. The description should also address the meeting of standards for environmental management. The intention is not to provide a full and highly detailed account, but, where information is known about environmental impacts, these impacts should be described briefly here.

13. Consultation

Describe the nature and extent of consultation(s) that have taken place with parties identified who have existing interests in the proposed project area and with other relevant stakeholders.

13.1 Consultation methods

Describe the mechanism(s) used to consult with different groups and how this aligns with any relevant consultation obligations.

13.2 Stakeholders

List any relevant stakeholders that have been consulted and explain the processby which stakeholders were identified.

13.3 Public consultation and disclosure

Provide a description of the goals and consultation workshops/meetings that occurred prior to the preparation of the report. Include a description of ~~key~~ the concerns and comments identified by stakeholders and ~~whether or not~~how these ~~applicant intends to~~will be addressed ~~these concerns~~, and, if not, describe the reasons for that decision.

13.4 Continuing consultation and disclosure

Outline any further consultation with stakeholders that has been deemed necessary and is being planned.

14. Glossary and abbreviations

Explain the relevant terms used in the Environmental Impact Statement (e.g., terms under different legislation, technical terms) and provide a list of acronyms and their definitions.

15. Study team

Outline the people involved in carrying out the environmental impact assessment studies and in writing the Environmental Impact Statement. If independent scientists or other experts were involved in any of the work, they should be listed. The names, occupational qualifications and their role in the generation of the Environmental Impact Statement of such people should also be included.

16. References

Provide details of reference materials used in sourcing information or data used in the Environmental Impact Statement.

17. Appendices

The appendices should include all the technical reports carried out for parts ofthe environmental impact assessment and the Environmental Impact Statement.

I – Members

China

4.7 Chemical oceanographic setting

including the structure and development (if applicable) of the oxygen minimum zone in particular near the sea floor (up to 200m above bottom)

5.4 Biological environment

~~The description needs to detail fauna communities in the water column down to the Mining Area, including migratory and highly mobile species, their relationship to the natural habitat, including the mineral resource, and the functional ecological relationships across groups to assess the scale of impacts to be expected if mining occurs.~~

6.2 Existing uses

~~**6.2.1 Fisheries**~~

~~If the project area occurs within an area used by fisheries, then this needs to be described here. This should include description of areas of significance for fish stocks, such as spawning grounds, nursery areas or feeding sites as well as ecologically or biologically significant marine areas.~~

~~**6.2.2 Marine traffic**~~

~~This section describes the non-project-related marine traffic occurring within the project area.~~

9.2.1 Existing uses

~~**9.2.1.1 Fisheries**~~

~~A description of potential impacts and issues to be addressed, along with proposed management measures and a description of residual impacts.~~

~~**9.2.1.1.1 Potential impacts and issues to be addressed**~~

~~**9.2.1.1.2 Environmental management measures to mitigate impacts**~~

~~**9.2.1.1.3 Residual impacts**~~

~~**9.2.1.2 Marine traffic**~~

~~A description of potential impacts on non-project-related marine traffic occurring within the project area, along with proposed management measures and a description of residual impacts.~~

11.2 Environmental management system

The applicant has to demonstrate that it will be capable of managing ~~all~~ appropriate relevant environmental questions, and outline the standards that will be considered and/or aligned with when developing the system for the project.

Rationale

On 4.7, it is very difficult to discover the structure and development of the oxygen minimum zone in currently understanding on deep sea environment, especially for the development of the oxygen minimum zone, which requires abundant in-situ monitoring data with enough long time to reveal the development process of oxygen minimum zone, Contractors can not meet the requirement of characteristics description based on current collected data.

On 5.4, the requirement involves the frontier issues of basic science, such as connectivity, ecosystem function and life-history, which are obviously beyond Contractors' scientific research capacity and beyond their obligations under the contract.

On 6.2.1, 6.2.2, 9.2.1.1 and 9.2.1.2, according to the Exploration Regulations, the

applicant should ensure that relevant installations “are not established where interference may be caused to the use of recognized sea lanes essential to international navigation or in areas of intense fishing activity.” Therefore, neither the exploration area nor the exploitation area would be located within fishing areas or overlapped with sea lanes. Thus, it may not be necessary to assess the impact upon fisheries and marine traffic for exploitation.

On 11.2, based on current data and knowledge gaps about deep sea environment, Contractors can not find out and predict “all” relevant environmental questions. It obviously beyond Contactors’ scientific research capacity and beyond their obligations under the contract as well.

France

Environmental Impact Statement, point 3.2

Estimates of the inferred, ~~and~~ indicated resource and probable reserves should be provided *on the basis of the international CRIRSCO reporting template or national accepted codes (NI 43-101, JORC Code)* ~~, along with visual models of the resource~~.

Rationale

Mining evaluations have been made public and go as far as estimating reserves measured accordingly to recognized normative reference systems (Canadian standard NI-43-101). It is important to agree on the accuracy expected from the evaluation of resources/reserves and to refer to the standards in force. At the mining permit application stage, it seems appropriate to request the submission of at least a pre-feasibility study of the mining project, based on the standardized assessment of inferred and indicated resources and probable reserves (international CRIRSCO standard, national codes NI41-101, JORC code, internationally recognized)

Annex IV, 4.5 Geological setting

Describe at the mine site and within a broader geological context the nature and extent of the mineral resource and bedrock within a broader geological context, including hydrothermal vents, seeps and seamounts. Targeted geological properties are : bathymetry and geomorphology (including high-resolution sea floor mapping) , geological setting, sediment and stratigraphy, diagenesis, weathering and remobilization, rock substrate geochemistry and mineralogy, mineral resource geochemistry and mineralogy. In combination with biogeochemical parameters, geological data are used to map the habitat variability~~Describe the general geological landscape and topographic features geological petrographic and geomorphological setting of the site, including high-resolution bathymetric maps and sedimentation rates, and refer to submarine features such as hydrothermal vents, seeps and seamounts~~.

Rationale

To write this paragraph in coherence with ISBA/27/C/11 regulation 202

Finland

5.4 Biological environment

Address diversity, abundance, biomass, community-level analyses, connectivity, trophic relationships, resilience, ecosystem function as well as spatial and temporal variability. Any work on ecosystem models and appropriate ecosystem indicators, etc., should also be presented here. This section should span the size range from megafauna to microbial communities.

…

5.4.3 Benthic

Describe the benthic invertebrate and fish communities, including infauna, epifauna and demersal fish, up to an altitude of 50 metres above the sea floor. This should include considerations of species richness, biodiversity, faunal densities, community structures and connectivity, etc. Ecosystem functions, such as ~~B~~bioturbation etc. should also be covered in this section. The description should also evaluate the temporal and spatial variability in distribution and composition.

5.4.4 Ecosystem/community-level description

Summarize existing community or ecosystem studies that integrate elements ofthe above sections. The summary should consider trophic relationships, ecosystem functioning, benthic-pelagic couplings, early life-history stages, recruitment and behavioural information.

…

8.5 Benthic

Description of the potential effect on benthic invertebrate and fish communities, including infauna, epifauna and demersal fish, up to an altitude of 50 metres above the sea floor.

Rationale

5.4: should include also spatial variation to be consistent with other parts.
5.4.3: Epifaunal communities need to be mentioned as they will be heavily impacted from nodule extraction. We also consider that other ecosystem functions than bioturbation should be included and propose a text revision to cover for that.
5.4.4: The current description is very restricted and will not cover important ecosystem level processes. We propose additional text to be added.

Micronesia

Annex IV: Section 6 (Title, chapeau, section 6.2.5bis, section 6.2.6, and section 6.4)

TITLE: Description of the existing socioeconomic and sociocultural environment

This section should describe the socioeconomic and sociocultural aspects of the project.

. . .

6.2.5bis Sociocultural uses

List the sociocultural uses of the project area (e.g., traditional navigation routes, migratory paths of culturally significant marine species, sacred sites and waters associated with ritual or ceremonial activities of Indigenous Peoples and local communities)

6.2.6

List other uses of the project area that are not related to the above (e.g., other mineral exploration, exploitation projects~~, traditional navigation~~)

. . .

6.4 Summary of existing socioeconomic and sociocultural environment.

Summarize key findings regarding the socioeconomic and sociocultural environment. It is envisaged that this section will be up to a page in length, and more extensive than the key messages.

Rationale

Section 6 of the EIS template deals with not just socioeconomic matters but also sociocultural elements, including the listing of sites of an archaeological or historical nature in section 6.3 as well as the new reference to traditional navigation in section 6.2.6. Also, the title of section 6.4 refers to the summary of the existing sociocultural environment. We propose amending the overall title for section 6, the chapeau/introduction of section 6, and the title and content of section 6.4 to reflect a broader view of section 6, to include both socioeconomic and sociocultural considerations. We also propose having a subsection devoted to sociocultural aspects of the project, which we propose as section 6.2.5bis, which is inspired in part by the work of the CBD in the description of EBSAs as well as the CBD's Akwe: Kon voluntary guidelines for the conduct of cultural, environmental and social impact assessments (https://www.cbd.int/doc/publications/akwe-brochure-en.pdf). Consequently, we also propose deleting the reference to traditional navigation in section 6.2.6.

Our proposals for section 6 should be read in conjunction with our separate textual proposals for section 9 of this same EIS template.

For more information on sociocultural elements pertaining to the management of the high seas and the Area (including the work of the ISA as well as work contemplated under a future BBNJ instrument), please see the following:

Considering Indigenous Peoples and local communities in governance of the global ocean commons, by Marjo K. Vierros, et al, Marine Policy, Volume 119, September 2020, available at https://www.sciencedirect.com/science/article/pii/S0308597X19309212.

The Necessity of Traditional Knowledge for Management of Deep-Seabed Mining, Deep Ocean Stewardship Initiative Policy Brief, 2021, available at https://www.dosi-project.org/wp- content/uploads/072-DOSI-Policy-brief-Traditional-Knowledge-for-Management-of-DSM-long-V11.pdf.

Traditional knowledge and the BBNJ instrument, by Clement Y. Mulalap, et al, Marine Policy, Volume 122, December 2020, available at https://www.sciencedirect.com/science/article/abs/pii/S0308597X19308620.

Russian Federation

para. 1 (a)
The Environmental Impact Statement prepared under these regulations and the present annex shall:
(a)Be prepared ~~in plain language and~~ in an official language of the Authority ~~together with an official English-language version, where applicable;~~

Rationale
Environmental Impact Statement should be prepared in an official language of the Authority. It is up to the contractor to indicate what should be an official version.
In our view, every document can be provided in any of the six official languages. Ensuring the translation is one of the most basic functions of the Secretariat and this is in line with common practice of international organisations. It is preferable to include a recommendation to provide an English translation.
It is also unclear what is exactly meant by "plain" language here, bearing in mind scientific and technical information provided in the EIS. We do not consider this word appropriate.

Executive summary, para (e)

Rationale
It is not clear what is meant by "the Authority's global environmental policy"

Section 3. Paragraph 3.7

~~Provide an account of alternative options that were considered and rejected in favour of the current proposal.~~ Provide an account of alternative options, if any, that were considered and rejected in favour of the current proposal.

Rationale
it is not clear whether providing "an account of alternative options that were considered and rejected in favour of the current proposal" is considered mandatory or not. We propose to add the words "if any"

Section 4. Paragraph 4.5
It is proposed to amend the text as follows:
«Describe the regional geological framework of the seabed hosting mineral resources, including bathymetry data, geomorphological settings and occurring tectonic and magmatic processes, lithology of host rocks, sedimentary cover extent and sedimentation rates, nature and extent of mineral resources. Give additional focus on hydrothermal vents, seeps, seamounts etc.»

~~*Describe the nature and extent of the mineral resource and bedrock within a broader*~~

~~*geological context. Describe the general geological landscape and topographic features geological petrographic and geomorphological setting of the site, including high-resolution bathymetric maps and sedimentation rates, and refer to submarine features such as hydrothermal vents, seeps and seamounts*~~

Section 4. Paragraph 4.6

It is proposed to amend the text as follows:

Provide a description of oceanographic aspects such as thermohaline conditions, optical properties and turbidity, currents regime, tides, waves, turbulence, and oceanographic fronts and eddies. Seasonal variability is an important element. Detail is required on the regional setting, as well as the specific site, and should include changes in physical conditions and processes according to depth and horizontal distance from the proposed mine site (near-field, far-field)

~~*Provide a description of oceanographic aspects such as currents, sedimentation rates oceanographic fronts, eddies, particle flux and waves. Seasonal variability is an important element. Detail is required on the regional setting, as well as the specific site, and should include changes in physical conditions and processes according to depth and horizontal distance from the proposed mine site (near-field, far-field)*~~

Section 4. Paragraph 4.7

It is proposed to amend the text as follows:

Provide a description of water mass hydrochemical characteristics at the site and above the site at various depths of the water column: oxygen (including the structure and development of the oxygen minimum zone), nutrients, pH, carbonate system, trace metals, organic and inorganic matter, particle concentrations and particle fluxes, vent-fluid characteristics if applicable, in particular near the sea floor (up to 200m above bottom)

~~*Provide a description of water mass characteristics at the site and above the site at various depths of the water column, including the structure and development of the oxygen minimum zone in particular near the sea floor (up to 200m above bottom), that includes nutrients, particle loads, temperature and dissolved gas profiles, vent fluid characteristics if applicable, turbidity and geochemistry, etc.*~~

Section 4. Paragraph 4.8

It is proposed to amend the text as follows:

Provide a description of water mass hydrochemical characteristics at the site and above the site at various depths of the water column: oxygen (including the structure and development of the oxygen minimum zone), nutrients, pH, carbonate system, trace metals, organic and inorganic matter, particle concentrations and particle fluxes, vent-fluid characteristics if applicable, in particular near the sea floor (up to 200m above bottom)

~~*Provide a description of substrate composition, including physical and chemical*~~

~~*properties (e.g., sediment composition, pore-water profiles, grain size, sediment mechanics)*~~

Section 6. Paragraph 6.2.1

Rationale

It is not entirely clear what is meant by "ecologically significant marine areas" and how “ecologically significant marine areas” will be identified as well as biologically significant areas”. Clarification is required.

Section 7. Paragraph 7.5

It is proposed to amend the text as follows:

Provide a description of the impacts (e.g., sediment plume generation, discharge water) and their effects on the oceanographic settings (e.g., changes in temperature and salinity of water, optical characteristics and turbidity, etc.). A regional oceanographic model will be relevant to this section. Characteristics of sediment and discharge plumes (their frequency, spatial extent, composition and concentration, etc.) should be described (or a reference is made to subparagraph 7.6)

~~*Provide a description of the effects on the current speed/direction and sedimentation rates, etc. A regional oceanographic model will be relevant to this section*~~

Rationale

It should be taken into account that currents are the result of the relationship of a complex of forces and conditions in the ocean. With that it is not clear how exploitation activities can affect the current speed/ direction.

Section 7. Paragraph 7.6

It is proposed to amend the text as follows:

Provide a description of the impacts (e.g., sediment plume generation, discharge water) and their effects on the hydrochemical settings of the water column (e.g., clarity of water, particle concentrations and particle fluxes, dissolved gases and nutrient levels, carbonate system, trace metals, organic and inorganic matter, etc.), in all relevant levels of the water column. A regional oceanographic model will be relevant to this section. For a sea floor massive sulphide project, the modification of vent-fluid discharges, if present, should be addressed. Characteristics of sediment and discharge plumes (their frequency, spatial extent, composition and concentration, etc.) should be described (or a reference is made to subparagraph 7.5)

~~*Provide a description of the effects such as sediment plume generation (frequency, spatial extent, composition and concentration) and the clarity of water, particulate loading, water temperature, dissolved gas and nutrient levels etc., in all relevant levels of the water column. A regional oceanographic model will be relevant to this section. For a sea floor massive sulphide project, the modification of vent-fluid discharges, if present, should be addressed*~~

Section 8. Paragraph 8.2

We propose the following wording of the subparagraph:
This is not expected to be detailed, but rather to introduce the major types of impacts and their effects, such as habitat removal, the crushing of animals, the creation of sediment plumes, noise and light, etc.

Rationale
We propose to add the words "impacts and their" and reword the second sentence as proposed.