

Environmental Obligations in the DSM Context Perspectives of a Contractor

Workshop for the Promotion of sustainable Development of Africa's Deep Seabed Resources in Support of Africa's Blue Economy
Abuja, Nigeria | Virtual



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Global Sea Mineral Resources NV

GSR is a member of the DEME-Group

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ENVIRONMENTAL OBLIGATIONS

SUMMARY

International
Conventions &
Standards
(e.g. UNCLOS,
MARPOL)

- ▶ Governing body of marine minerals in the Area:
International Seabed Authority (ISA)
- ▶ Mining Code, Regional Environmental Management Plan
[REMP], Guidelines, Standards



Baseline Studies

Environmental
Impact
Assessment
(EIA)

Environmental
Impact
Statement
(EIS)

Environmental
Management &
Monitoring Plan
(EMMP)

Closure Plan

Required for an Exploitation Contract application

**Twenty-fifth session**

Legal and Technical Commission session, part I

Kingston, 4–15 March 2019

Agenda item 11

**Review of the recommendations for the guidance of contractors
for the assessment of possible environmental impacts arising
from the exploration for marine minerals in the Area**

**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*

I. Introduction

1. During exploration for marine minerals, the International Seabed Authority is required to, among other things, establish and keep under periodic review environmental rules, regulations and procedures to ensure effective protection for the marine environment from harmful effects which may arise from activities in the Area and, together with sponsoring States, apply a precautionary approach to such activities on the basis of recommendations by the Legal and Technical Commission. In addition, contracts for mineral exploration in the Area require the contractor to gather oceanographic and environmental baseline data and to establish baselines against which to assess the likely effects of its programme of activities under the plan of work for exploration on the marine environment and a programme to monitor and report on such effects. The contractor shall cooperate with the Authority and the sponsoring State or States in the establishment and implementation of such monitoring programmes. The contractor shall report annually on the results of its environmental monitoring programmes. Furthermore, when applying for approval of a plan of work for exploration, each applicant is required to provide, inter alia, a description of a programme for oceanographic and environmental baseline studies in accordance with the relevant regulations and any environmental rules, regulations and procedures established by the Authority that would enable an assessment of the potential environmental impact of the proposed exploration activities, taking into account any recommendations issued by the Legal and Technical Commission, as well as a preliminary assessment of the possible impact of the proposed exploration activities on the marine environment.

* The present document replaces [ISBA/19/LTC/8](#). For further information, please see paragraphs 16 to 19 of [ISBA/25/C/19](#).



ENVIRONMENTAL BASELINE STUDIES AND IMPACT ASSESSMENT

- ▶ ISBA/25/LTC/6/Rev.1 → Baseline Study / EIA Guidance for Contractors
- ▶ Study Areas
 - ▶ Physical Oceanography
 - ▶ Geology, including Sediment Properties
 - ▶ Chemical Oceanography
 - ▶ Biological Communities
 - ▶ Bioturbation
 - ▶ Fluxes to Sediment (Sedimentation)

ENVIRONMENTAL BASELINE STUDIES

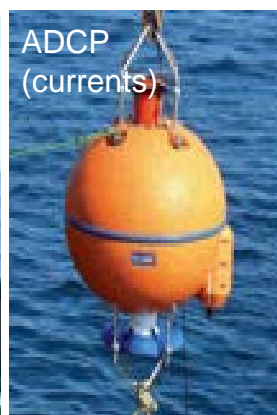
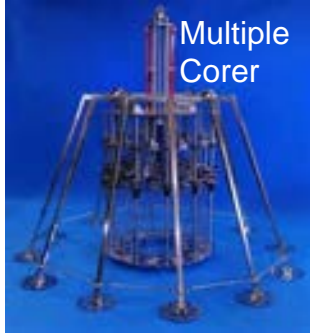
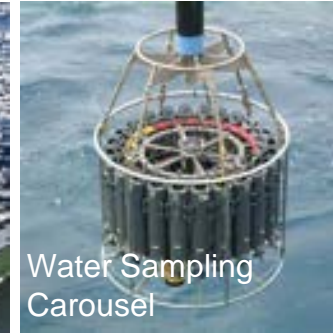
OVERVIEW

DATA CATEGORY	DETAILS*
Physical Oceanography	<p>Information requirements: pressure, current profile, temperature, salinity and turbidity, particle concentration and composition, etc.</p> <p>Sampling/measurement design: adapt to geomorphology of seabed and hydrodynamic process from surface to seafloor, at depths likely impacted by plumes, sufficient temporal and spatial resolution, etc.</p> <p>BATs and methodologies: ADCPs, sediment traps, CTDs stations, moorings, satellite data for surface water, circulation model coupled with sediment transport model, etc.</p>
Chemical Oceanography	<p>Information requirements: water column chemistry, oxygen concentration and profiles, pH and carbonate, organic matter, etc.</p> <p>Sampling/measurement design: same locations as physical oceanography measurements, vertical profiles and temporal variation assessed</p> <p>BATs and methodologies: confirmation with existing standards, model the time-scales of test-mining by-product, etc.</p>
Geological properties	<p>Information requirements: high-resolution, multi-beam bathymetric data, sediment properties (including pore water chemistry) collect information on the potential for heavy metal and trace element release during full-scale mineral operations, etc.</p> <p>Sampling/measurement design: determine heterogeneity of the environment and assist the placement of suitable sampling locations.</p> <p>BATs and methodologies: geochemistry of sediments and porewater determined to 20 cm, or depth of removal by mining, whichever is deeper, etc.</p>
Biological Communities	<p>Information requirements: seafloor and near-bottom communities including microfauna, meiofauna, macrofauna, megafauna, demersal scavengers and fauna associated with resource, pelagic communities (water column and near bottom), baseline tissue metal concentrations, marine animal and surface animal observations, regional distribution/genetic connectivity studies, etc.</p> <p>Sampling/measurement design: use biometric map to plan sampling design, samples representative of habitats, bottom topography, depth, seabed and sediment characteristics, the water column and mineral resources being targeted, establish time series, etc.</p> <p>BATs and methodologies: Photographic/video transects and animal sampling, use of multi corer, box corer, moored time lapse cameras, plankton nets, AUV/ROV and other methods, DNA sequencing, taxonomic standardization, etc.</p>
Bioturbation	<p>Information requirements: rates and depth of bioturbation</p> <p>Sampling/measurement design: spatial and temporary variation</p> <p>BATs and methodologies: multi cores, Pb-210 analysis, sediment imaginary, etc.</p>
Fluxes to Sediment	<p>Information requirements: time series data on the flux and composition of materials from the upper water column to the deep sea.</p> <p>Sampling/measurement design: deployments may share the same moorings as current meters if practical, temporal resolution of the particle-flux measurements must be one month or better and nephelometry time series should be recorded on the sediment traps, etc.</p> <p>Study requirements: moorings with sediment traps be established, with one trap below 2000 m, one approximately 500 m above seafloor and one 10 m above seafloor, for a  by period (e.g. covering seasonal variability), etc.</p>

*Note: Not exhaustive

ENVIRONMENTAL IMPACT ASSESSMENT (EIA)

- ▶ An EIA is a process and an evaluation of the possible positive or negative effects that a proposed project may have on the environment
- ▶ Includes Environmental Risk Assessment, including significance rankings – ensures the EIA and EIS focus on the key issues



ENVIRONMENTAL IMPACT STATEMENT (EIS)

- ▶ Tool for decision making
- ▶ Describes the positive and negative environmental effects of a proposed action (EIA results)
- ▶ Presents effects and mitigation
- ▶ Usually also lists one or more alternative actions
- ▶ EIS Template provided in Annex IV of ISA's (draft) Regulations for Exploitation [ISBA/25/C/WP.1]



ISBA/25/C/WP.1



Annex IV

Environmental Impact Statement

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.

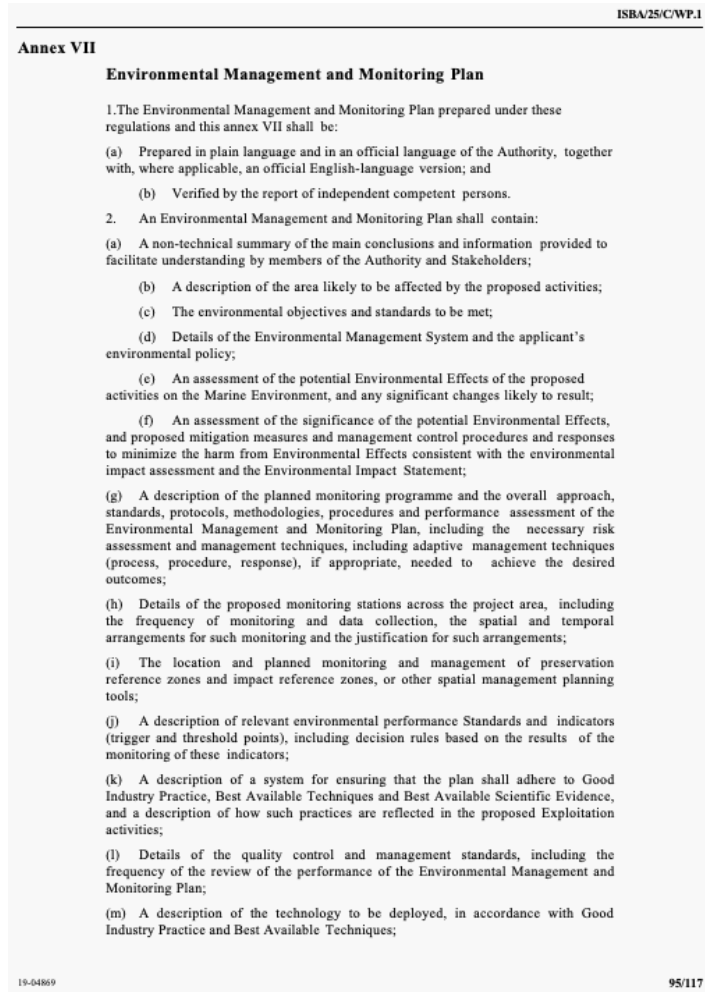
2. Template for Environmental Impact Statement

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.

ENVIRONMENTAL MANAGEMENT AND MONITORING PLAN

(EMMP)



- ▶ Tool to proactively manage and confirm that the impacts of exploitation do not exceed those stated in the Contractor's Environmental Impact Statement (EIS) and other relevant environmental commitments or obligations
- ▶ Includes: monitoring programme, location of reference zones, environmental indicators, training programme, waste management, ongoing consultation details

CLOSURE PLAN

ISBA/25/C/WP.1

Annex VIII

Closure Plan

1. The Closure Plan shall be prepared and implemented in accordance with the Guidelines and the relevant regional environmental management plan and shall include the following information:

- (a) A description of the closure objectives and how these relate to the mining activity and its environmental and social setting;
- (b) The period during which the plan will be required, which shall be determined by reference to a specified duration, achievement of a specified event or target indicator or compliance with specified terms agreed with the Authority;
- (c) A plan with coordinates showing the area(s) subject to the closure objectives;
- (d) A summary of the relevant regulatory requirements, including conditions previously documented;
- (e) Details of the closure implementation and timetable, including descriptions of the arrangements for the temporary suspension of mining activities or for permanent closure decommissioning arrangements for vessels, installations, plant and equipment (where applicable);
- (f) Data and information relating to baseline conditions for monitoring measures;
- (g) An updated environmental impact assessment for the activities that will be undertaken during closure, if any, together with details of the identifiable residual Environmental Effects, including any relevant technical documents or reports;
- (h) Details of monitoring to be undertaken during and after closure that specify the sampling design (spatial and temporal sampling), the methods to be used and the duration of the post-closure activities;
- (i) Details of the management measures to Mitigate the residual Environmental Effects;
- (j) Details of any restoration objectives and activities, where applicable;
- (k) Information on reporting and management of data and information post-closure;
- (l) Details of the persons or entity (subcontractor, consultant(s)) that will carry out the monitoring and management measures under the Closure Plan, including their qualification(s) and experience, together with details of the budget, project management plan and the protocols for reporting to the Authority under the Closure Plan;
- (m) Details of the amount of the Environmental Performance Guarantee provided under these regulations;
- (n) Details of any compensatory measures agreed or proposed to achieve the agreed closure objectives; and
- (o) Details of consultations with Stakeholders in respect of the plan.

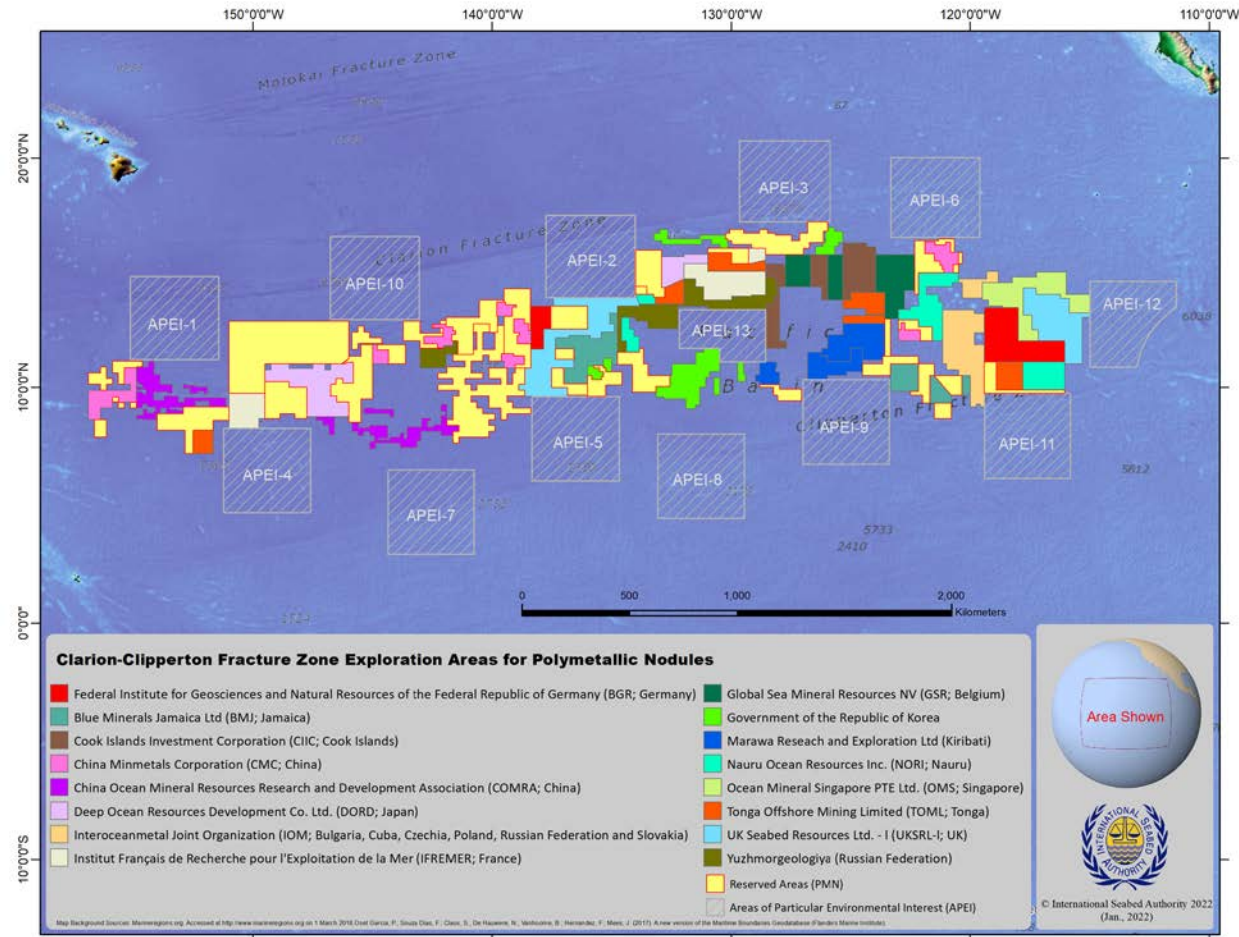
2. The level of detail in the Closure Plan is expected to differ between cases involving a temporary suspension of mining operations and cases involving final mine closure. The content of the Closure Plan is to be commensurate with the nature, extent and duration of activities associated with the level of closure and maturity of the project.

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- ▶ Includes details and selection of mitigative technologies and other specific closure activities
- ▶ Closure objectives
- ▶ Schedule of closure
- ▶ Decommissioning arrangements for vessel, plant and equipment
- ▶ Management measures to mitigate the residual environmental effects
- ▶ Monitoring details

REGIONAL ENVIRONMENTAL MANAGEMENT PLAN (REMP)



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Closure Plan

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A key question we face as a global society is: how do we **best source** the metals we need for the future we want, **responsibly?**

