

Africa's Deep-Seabed Resources Project

Third Workshop
1-3 June 2021



Day 2 Presentations

Project partners



Workshop co-host



The legal framework for activities in the Area:

Transitioning from exploration to exploitation

Mr. Nathan Eastwood
Legal Officer, Office of Legal Affairs

U.S. 2011.10.15 R.S. 11.11

International Seabed Authority

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Overview

- 1 Legal framework governing activities in the Area
- 2 Exploration Regulations: Overview & Status
- 3 Draft Regulations on Exploitation: Overview, Process & Status
- 4 Draft Standards & Guidelines: Overview, Process & Status
- 5 Next Steps – Transitioning to Exploitation

International Seabed Authority 2

2

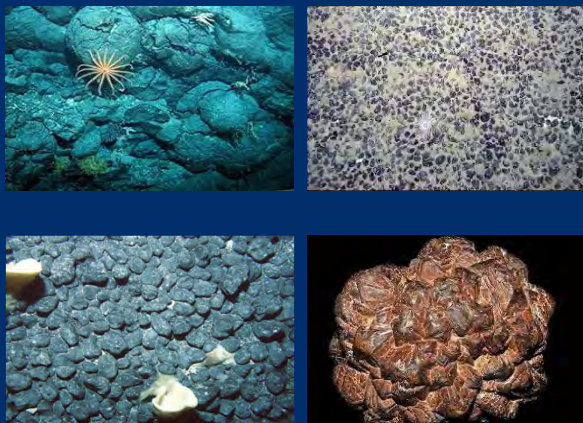


The Legal Framework – Sources of Law

- **UNCLOS**, the 1982 United Nations Convention on the Law of the Sea (Part XI, Annexes III and IV)
- **1994 Agreement for the Implementation of Part XI of the 1982 Convention**, contains the procedural and administrative requirements necessary to give effect to Part XI of UNCLOS
- **Regulations, Rules and Procedures of the International Seabed Authority** (the "Mining Code") refers to the whole of the comprehensive set of rules, regulations and procedures issued by ISA to regulate prospecting, exploration and exploitation of marine minerals in the international seabed Area (defined as the seabed and ocean floor and subsoil thereof beyond the limits of national jurisdiction).
- **Rules of International Law**, not incompatible with UNCLOS, including customary international law principles concerning the environment and investment
- **Decisions of International Courts & Tribunals**, including the Deep Seabed Chamber of the International Tribunal for the Law of the Sea



3



Fundamental Principles of UNCLOS

- **Article 136** – The Area and its resources are the common heritage of mankind
- **Article 137** - No State shall claim or exercise sovereignty or sovereign rights over any part of the Area or its resources. All rights in the resources of the Area are vested in mankind as a whole (represented by the ISA) and no State or natural or juridical person shall exercise mineral rights except in accordance with Part XI
- **Article 140** - Activities in the Area shall be carried out for the benefit of mankind as a whole
- **Article 141** – The Area shall be open to use exclusively for peaceful purposes by all States



4

International Seabed Authority
Council
 ISBA/25/C/WP.1
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 22 March 2019
 Original: English

Twenty-fifth session
 Council session, part II
 Kingston, 15–19 July 2019
 Agenda item 11
 Draft regulations for exploitation of mineral resources in
 the Area

**Draft regulations on exploitation of mineral resources in
 the Area**
 Prepared by the Legal and Technical Commission

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19-04860 (E) 180419
 Please recycle

Draft Regulations on Exploitation: Core features and obligations

- **Fundamental Policies and Principles**, including the development of Resources in the Area for all Mankind and the protection of the Marine Environment
- **Robust application and assessment process**, including external stakeholder participation and consultation and review by Legal and Technical Commission
- **Transparency of information and duty to exchange information**
- Requirement for **Environmental Impact Assessments, Environmental Monitoring & Management Plan, Environmental Performance Guarantees, Insurance and contributions to an Environmental Compensation Fund**
- **Financial terms**, including the payment of **royalties, fees and penalties**
- **Safety, labour and health standards**
- **Inspection, compliance and enforcement**
- **Dispute Settlement** provisions



7

Standards & Guidelines: Overview, Process & Status

Three-phased approach

- Phase 1 – S&G in place by the adoption of the draft regs
- Phase 2 – S&G in place prior to receipt of an application
- Phase 3 – S&G in place before mining activities commence

Stakeholder consultations

Adoption / Issuance

- Standards adopted by the Council and approved by the Assembly
- Guidelines issued by the LTC and reported to Council

Phase 1

- Preparation and assessment of an application for the approval of a plan of work for exploitation
- Environmental Impact Assessments and Environmental Impact Statement
- Preparation of Environmental Management and Monitoring Plans
- Development and application of Environmental Management Systems
- Tools and techniques for hazard identification and risk assessments
- Safe management and operation of mining support vessels
- Form and calculation of an Environmental Performance Guarantee
- Preparation and implementation of emergency response and contingency plans
- Expected scope and standard of baseline data collection



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International Seabed Authority

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The slide features a dark blue background with a faint world map and the International Seabed Authority (ISA) logo on the left. The title 'Equitable benefit-sharing under UNCLOS' is prominently displayed in white text, with 'UNCLOS' in a larger font. Below the title, the presenter's name 'Michael W. Lodge' and the date '2 June 2021' are listed. At the bottom left is the website 'isa.org.jm' and at the bottom right is the ISA logo and name.

Equitable benefit-sharing under UNCLOS

Michael W. Lodge

2 June 2021

isa.org.jm

International Seabed Authority

1

The slide has a dark blue background. At the top, a paragraph explains the status of deep-sea mineral resources. Below this, three white-outlined circles contain the questions: 'What is a benefit?', 'What is 'mankind as a whole'?', and 'What is equitable sharing?'. The ISA logo and name are in the bottom right corner.

The status of deep-sea mineral resources as 'the common heritage of mankind' means they must be exploited for the benefit of mankind as a whole

What is a benefit?

What is 'mankind as a whole'?

What is equitable sharing?

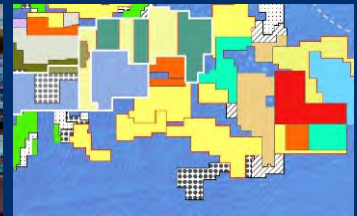
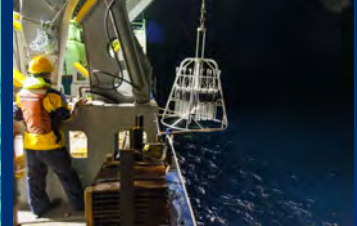
International Seabed Authority 2

2

Monetary and Non-Monetary Benefits

Some forms of non-monetary benefits are recognized in Part XI

1. Training
2. Capacity-building
3. Environmental protection
4. Increased scientific knowledge
5. Expansion of world mineral resources
6. Preferential access rights for developing countries



International Seabed Authority 3

3



Monetary Benefits

Revenue stream from DSM payment mechanism

1. ISA Administrative expenses
2. [Prior contributions of members]
3. Economic Assistance Fund (Art. 151(10))
4. [Funds allocated to the Enterprise]
5. Equitable distribution



International Seabed Authority 4

4

Mankind as a whole

Article 140.

Activities in the Area shall be carried for the benefit of mankind as a whole irrespective of geographic location of states, whether coastal or landlocked, and taking into particular consideration interests and needs of developing states and peoples who have not attained full independence or self-governing status [as recognized by the UN]

States Parties or all States?

What is a developing State?

What interests and needs should be taken into consideration?

Which non-independent and non-self-governing peoples?

The Authority shall provide for the equitable sharing of financial .. benefits through any appropriate mechanism on a non-discriminatory basis ...



5



What is equitable?

Formula for equitable sharing

1. Proportional based on ownership rights or progressive to redistribute wealth and remedy inequity?
2. Art. 140 desired remedial effect is socio-economic and redistributive.
3. Possible to develop progressive formula based on average GNI per capita and share of population adjusted by social distribution weight.
4. Alternative could be a 'Seabed Sustainability Fund'



6



Seabed Sustainability Fund?

Alternative to direct distribution?

1. Capacity development in deep sea science.
2. Environmental management plans.
3. Long-term scientific research projects.
4. Regional centres?
5. Project-based funding (like GEF)?
6. Raises questions of administration and fair access to funding.



International Seabed Authority 7

7

Special problem of Article 82(4)

Revenue-sharing from non-living resource exploitation on extended continental shelf.

In this case revenues **must** be distributed through the Authority.

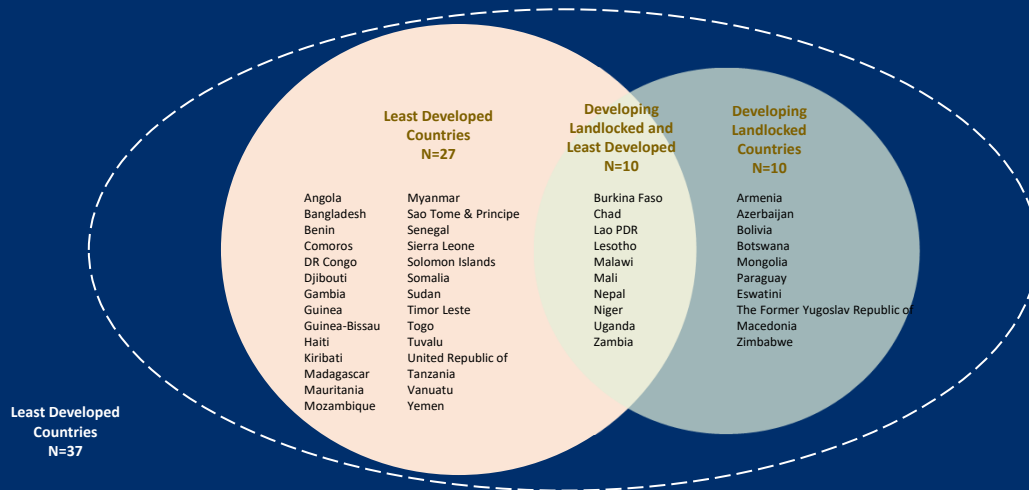
Equitable sharing criteria to be developed must take into account the **interests and needs** of developing States, but particularly 'the **least developed and land-locked** among them'.



International Seabed Authority 8

8

Special problem of Article 82(4)



9

Special problem of Article 82(4)

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Equitable sharing criteria to be developed must take into account the **interests and needs** of developing States, but particularly 'the **least developed and land-locked** among them'.

Remedial effect is **socio-economic** and **geographic**.

Can apply different social distribution weight to favour specified countries (but others will lose out)



10

12

Process

Equitable benefit-sharing rules must be approved by ISA Assembly on recommendation of Council.

But Council and Assembly must take into account recommendations of Finance Committee.

Under consideration by Finance Committee since 2019. Report to Assembly expected by end 2021.



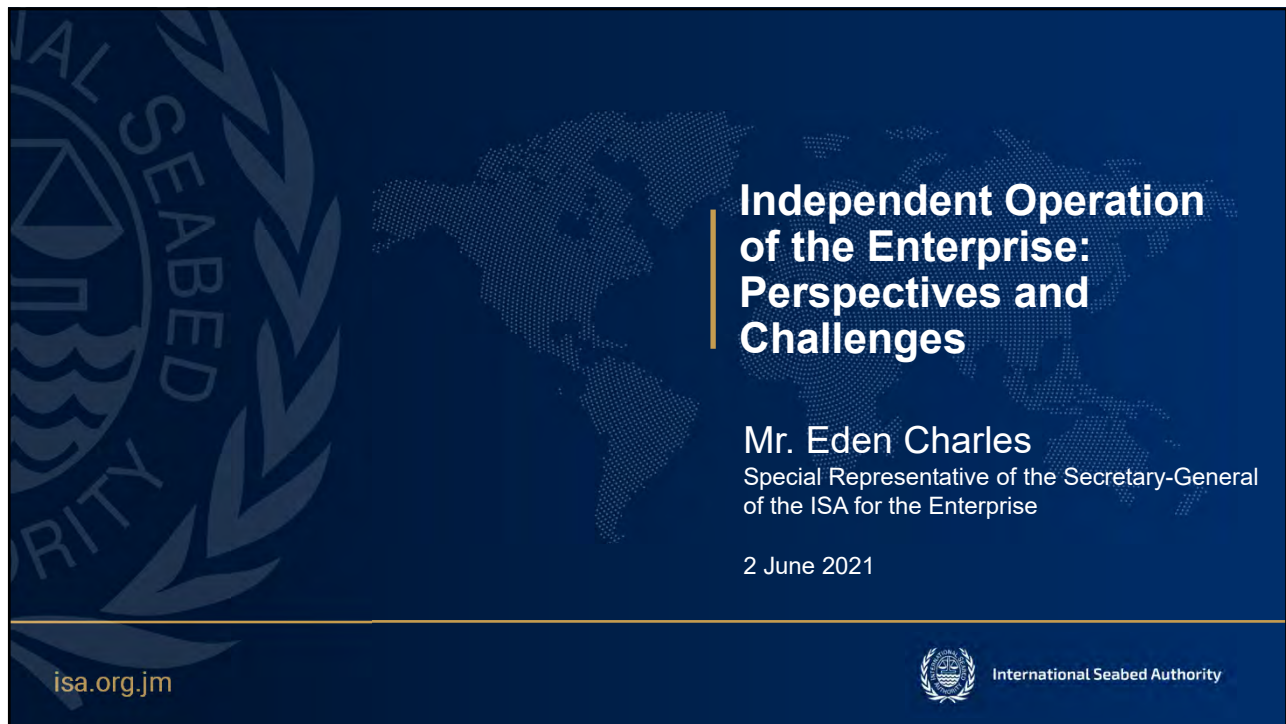
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Independent Operation of the Enterprise: Perspectives and Challenges

Mr. Eden Charles
Special Representative of the Secretary-General
of the ISA for the Enterprise

2 June 2021

isa.org.jm




International Seabed Authority

1

Historical Background

- The issue of the Enterprise was first discussed in 1971 in the Seabed Committee's Sub-Committee I
- The Third United Nations Conference on the Law of the Sea began in New York in 1973
- Nine years later, adoption of the United Nations Convention on the Law of the Sea (UNCLOS or Convention) in Montego Bay, Jamaica
- Adoption of the 1994 Agreement on the Implementation of Part XI of the Convention



International Seabed Authority 2

2

Rationale for the Enterprise

The 1971 Paper from the thirteen members of the Group of Latin America and Caribbean countries introduced the idea of the Enterprise.

The paper made clear that the Enterprise was going to give effect to the principle of the 'common heritage of mankind' and any agreed arrangement for the exploitation of the Area must be consistent with this objective.



Section 2, paragraphs 1 and 2 of the annex of the 1994 Implementation Agreement

The Secretariat of the Authority shall perform the functions of the Enterprise until it begins to operate independently of the Secretariat. The Secretary-General of the Authority shall appoint from within the staff of the Authority an interim Director-General to oversee the performance of these functions by the Secretariat.



Section 2, paragraphs 1 and 2 of the annex of the 1994 Implementation Agreement

These functions, among others, shall be:

- Assessment of the results of the conduct of marine scientific research with respect to activities in the Area, with particular emphasis on research related to the environmental impact of activities in the Area;
- Assessment of technological developments relevant to activities in the Area, in particular, technology relating to the protection and preservation of the marine environment; and
- Assessment of approaches to joint-venture operations.

The Enterprise shall conduct its initial deep seabed mining operations through joint ventures.



Pending the independent operation of the Enterprise, the Secretary-General of the ISA is to appoint from within the staff of the ISA an interim Director-General to oversee the performance of the Enterprise during its interim status as part of the Secretariat.

Workload and capacity constraints have impaired the Secretariat's ability to perform the functions assigned to the Secretariat until the Enterprise begins to operate independently.

Based on a decision of the Council, the Secretary-General has appointed a Special Representative for the Enterprise with a very limited mandate.

The limited resources and the unpredictable nature of the funding under the Voluntary Trust Fund have also affected the ability of the Special Representative to adequately discharge the limited mandate.



The Legal and Technical Commission (LTC) recommendations on the Study Related to Issues on the Operationalization

In March 2021, the LTC adopted the recommendations, including the following contained in the study of the Enterprise as follows:

- The LTC further recalls that the 1994 Agreement, adopting an 'evolutionary approach', provided for operationalization of the Enterprise through a step-by-step progression based on functional needs of the Enterprise at each of the steps.
- The LTC recognized that the development of the draft regulations on exploitation of mineral resources in the Area is at an advanced stage and there is an expectation that these draft regulations will be adopted in the not-too-distant future.
- At such time, joint ventures with the Enterprise may be initiated.
- The LTC recommends that the Council, taking into consideration the current circumstances of the work of the Authority, consider requesting the Assembly, subject to the availability of the requisite funds, to establish the position of the interim Director-General within the Secretariat, and for the Secretary-General to appoint a person into this position to oversee the specified functions listed in section 2 (1) of the Annex to the 1994 Agreement.



Disadvantages arising from the delay of the operationalization of the Enterprise

- The delay in operationalizing the Enterprise places the entity at a significant disadvantage in relation to other stakeholders.
- Unlike others, it has no fixed seat at the table, and only participates in the negotiations on the draft exploitation code, on an exceptional basis.
- This situation has to be rectified as the exploitation code would govern the future operations of the Enterprise.
- The capacity of the Enterprise to deliver on the objective of equitable sharing of benefits encapsulated in the 'common heritage' principle has been undermined and will continue to be undermined for as long as it remains non-operational.



Disadvantages..

- Some of the draft Regulations such as 2(2)(c) on transfer of technology and 20 on joint arrangements clearly anticipate the proper functioning of the Enterprise.
- The ISA's own Strategic Plan has set 2023 as the completion date for the Exploitation Code and financial regime for the Area.
- The ISA is currently considering the design of the system of payments for exploitation of minerals in the Area.
- Regulations 16 and 19 of the applicable regulations (*ISBA/16/A/12/Rev.1* and *ISBA/18/A/11* respectively), applicants for plans of work for exploration for polymetallic sulphides and cobalt-rich ferromanganese crusts are required to choose between either providing a reserved area, or offering an equity interest in a future joint venture arrangement with the Enterprise.



Disadvantages..

- Eleven contractors, entering into contracts for exploration of polymetallic sulphides or cobalt-rich ferromanganese crusts between 2011 and 2018, have taken up the option to offer an equity interest in a future joint venture arrangement with the Enterprise.
- The terms and conditions upon which such equity participation will take place requires additional elaboration and this work remains outstanding.
- The Enterprise itself will be the most appropriate organ within the ISA to contribute to this work.



Future Action by States

Urgent tasks required to enable the evolutionary approach envisioned for the operationalization of the Enterprise:

Implementation of the recommendation of the LTC in its report contained in paragraph 5, dated 3 March 2020 on the appointment of an interim Director-General for the Enterprise.

This would enable the Enterprise to:

- Make much needed input into the development of the Exploitation Regulations;
- Collaborate with the Secretariat on economic modelling to ascertain the potential financial benefits of exploitation to be carried out by the Enterprise, as compared to other contractors, in order to inform the elaboration of the ISA's payment regime; and
- Develop proposed conditions under which joint ventures in future contracts may operate, with the Enterprises' equity participation.



Conclusions

- The 'common heritage of mankind' is not just a principle that should guide activities of the States, their nationals and other entities in the Area and the exploitation of the resources of the Area.
- It involves the enjoyment of important rights and the assumption of onerous obligations by States Parties under the Convention in relation to the Area.
- Failure to operationalize the Enterprise would leave the principle of the 'common heritage of mankind' as a dream deferred.
- It would also undermine the letter and spirit of the Convention, but will also destroy the carefully constructed balance of rights and obligations relating to the Area.





International Seabed Authority

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Protection and preservation of the marine environment from activities in the Area

Wanfei Qiu

Programme manager (Marine Environment), ISA

June 2021

isa.org.jm



International Seabed Authority

Protection of the Marine Environment (Article 145, UNCLOS)

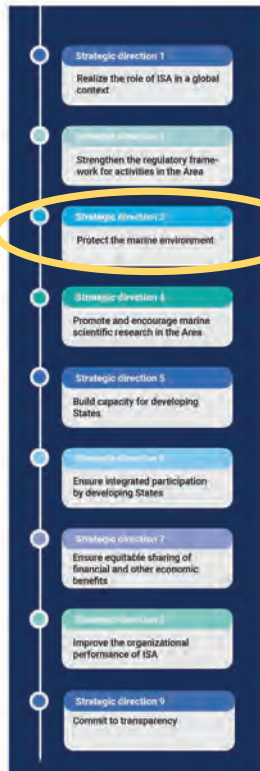
Necessary measures shall be taken....to **ensure the effective protection of the marine environment** from harmful effects which may arise from activities in the Area

To this end, ISA shall **adopt appropriate rules, regulations and procedures**



International Seabed Authority 2

ISA Strategic Directions 2019-2023



ISA Strategic Plan (2019-2023) (ISBA/24/A/10)

- SD3.1: Adaptive, practical and technically feasible regulatory framework
- **SD3.2: Regional environmental Assessments and Management Plans**
- SD3.3: Access to environmental information
- SD3.4: Monitoring programmes and methodologies
- **SD3.5: EIA/risk assessment**



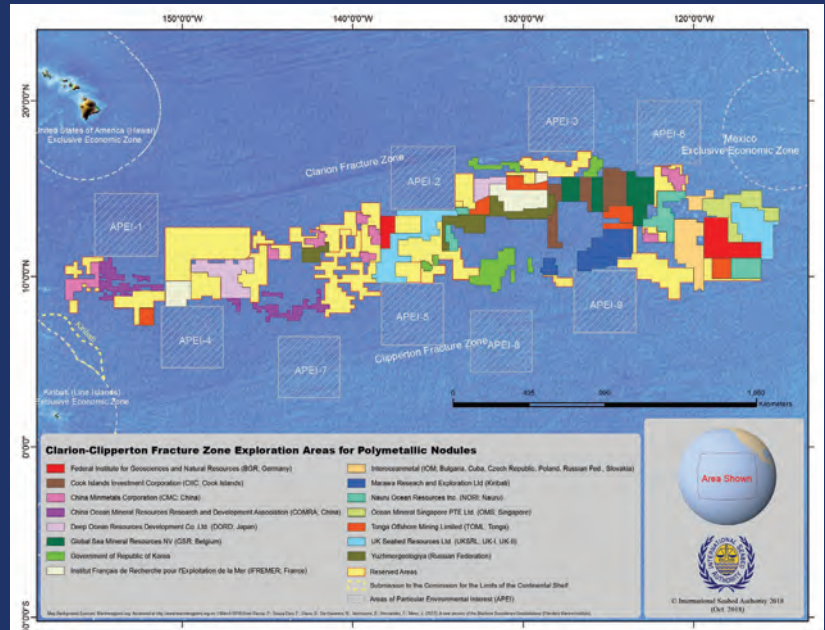
Regional Environmental Management Plans (REMPs)

- Provides relevant organs of ISA, contractors and sponsoring states, with **proactive measures and tools** to support informed decision-making
- Established by **a decision of the Council, on recommendations of the LTC**



CCZ Environmental Management Plan

- Adopted by Council in 2012
- Measures at different scales
- Network of 9 APEIs (~1.4 million sq. km²)



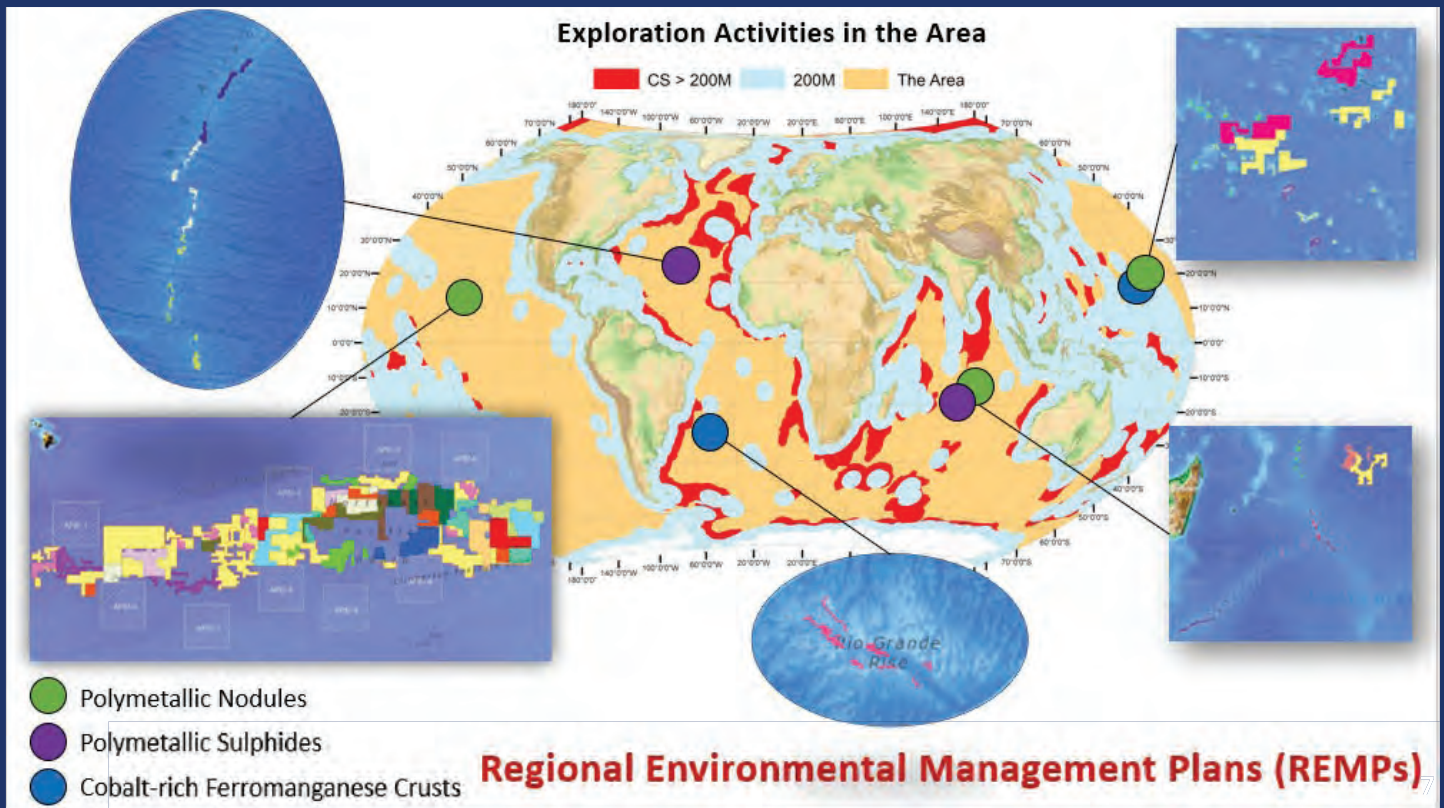
Review of the CCZ-EMP

- Expert workshop in October 2019
- Scientific synthesis of patterns of biodiversity and ecosystem function across the CCZ
- Assessment of the representativity of APEI network



Friday Harbor, Washington, USA, 1-4 October 2019

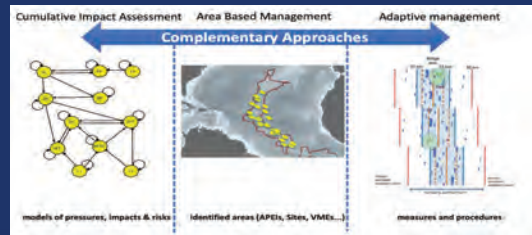
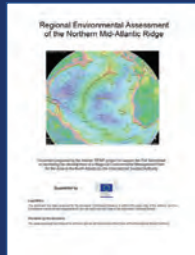




Priority regions as identified in ISBA/25/C/13	2019	2020	2021
CCZ-EMP (Scientific review of APEI network)	Washington, USA, 1-4 October (completed)		
Mid-Atlantic Ridge	Evora, Portugal, 25-29 November (completed)	Virtual workshop, 23 November to 4 December (completed)	
Indian Ocean triple junction ridge & nodule-bearing province			India (Date: To be confirmed)
North-west Pacific		Virtual workshop, 26 October to 6 November (completed)	
South Atlantic for seamounts			Venue/Date (To be confirmed) (focusing on capacity-building)



Scientific approaches in support of developing a REMP



EIA in ISA regulations

ISBA/19/C/17, ISBA/16/12/Rev. 1, ISBA/18/A/11

- Legal and Technical Commission: **develop and implement procedures**
- Contractors: **gather environmental baseline data**
- Contractors and sponsoring States: **implementing programmes for environmental monitoring and evaluation**



Source: M. Sudhakar, India



Recommendations for the guidance of contractors (ISBA/25/LTC/6 Rev. 1)



Environmental Baseline Studies



Data collection, reporting and archival protocol



Cooperative research



EIA during exploration

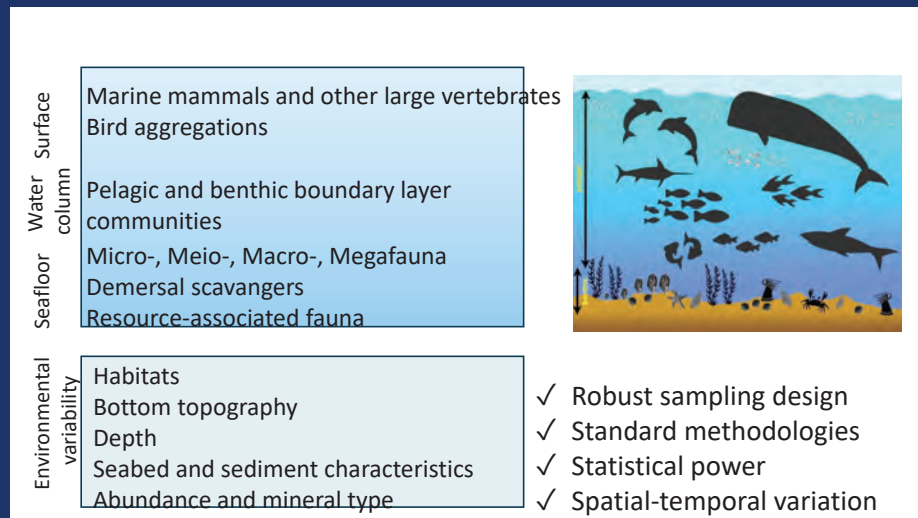


Explanatory commentary (BAT and methodologies)

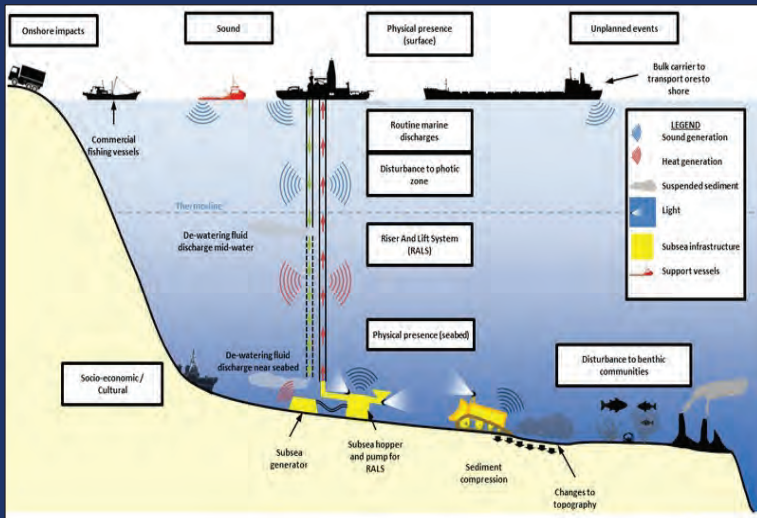


Environmental Baseline Studies

- Physical Oceanography
- Chemical Oceanography
- Geological properties
- Biological Communities
- Bioturbation
- Fluxes to the sediment
- Sediment oxygen consumption
- Food web structure

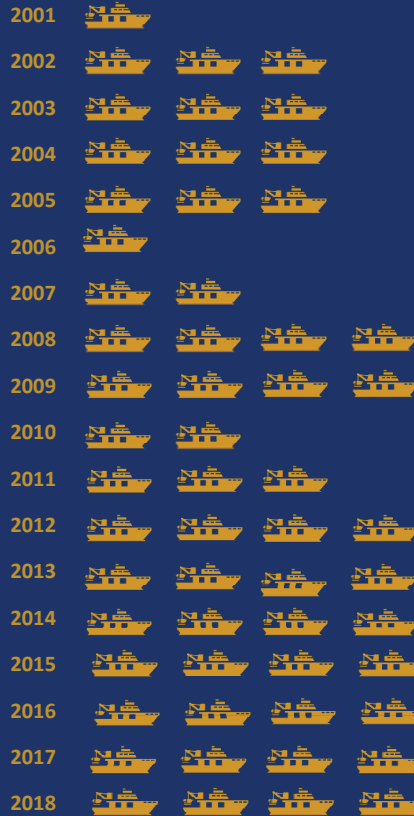


EIA during exploration



Activities requiring EIA

- Use of sediment disturbance systems that create artificial disturbances and plumes on the sea floor;
- Testing of mining components;
- Test-mining;
- Testing of discharge systems and equipment;
- Drilling activities using on-board drilling rigs;
- Sampling with epibenthic sled, dredge or trawl, or similar technique, in nodule fields, that exceeds 10,000 m²;
- Taking of large samples to test land base processes.



75 cruises in 18 years

Polymetallic Nodules



Abyssal plains

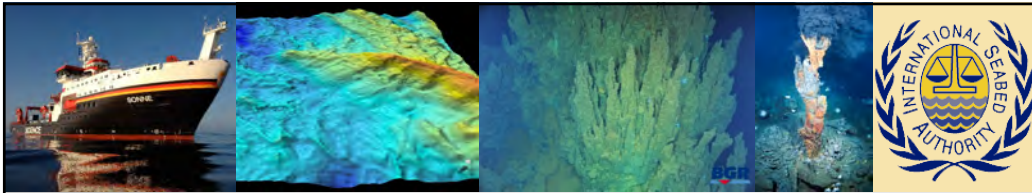




THANK YOU!

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Environmental obligations in DSM context: perspective of a contractor

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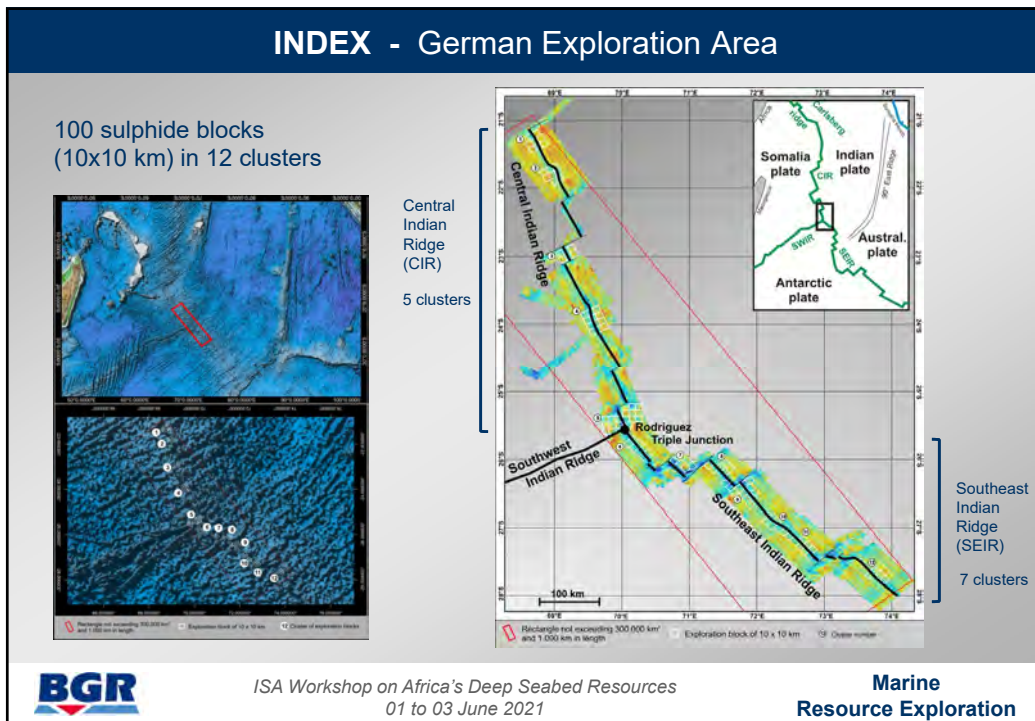
² Integrated Environmental Solutions (INES) Wilhelmshaven, Germany



ISA Workshop on Africa's Deep Seabed Resources
01 to 03 June 2021

Marine
Resource Exploration


1



2

ISA Regulations

International Seabed Authority ISBA/25/LTC/6/Rev.1

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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*



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3

ISA Regulations

ISA Environmental requirements summarized and published in 2020:

30 pages

100 mandatory requirements

12 themes

Valid for

- PM Nodules
- PM Sulfides
- CR Crusts (partially different)

Marine Policy 114 (2020) 103258

Contents lists available at ScienceDirect

Marine Policy

journal homepage: www.elsevier.com/locate/marpol

The current status of environmental requirements for deep seabed mining issued by the International Seabed Authority

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ARTICLE INFO **ABSTRACT**

Keywords:
Area-based management tools
Environmental baseline studies
ISA
Policy themes
Species-specific
Statistical power
Toxicology

Up to September 2018, the International Seabed Authority has issued a total of 100 mandatory requirements (published between 2011 and 2015) as guidance for potential future miners when collecting data for their environmental baseline studies during the exploration phase. An in-depth analysis of all current requirements highlights twelve themes covered by multiple requirements: methodology for seabed sampling, methodology for water column sampling, statistical evidence, spatio-temporal considerations, toxicology, modeling needs, genetic studies, species-specificity, documentation and archival storage, impact-related studies, area-based management tools, and compliance and assessment. Within each theme, the relevant requirements are compared with each other to allow a comprehensive assessment of the research effort needed to satisfy all of the 100 requirements.



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General Considerations

During exploration: contractors are obligated to spend
50 % of time and expenditures
for environmental studies

→ Environmental aspects **same weight** as economic interest

Results will be considered for **exploitation regulations**

Historical chance for
environmental regulations being available , **BEFORE Mining** starts!

+ chance for science:

Obligation for 15 years ongoing environmental research in same area - for EACH license area!



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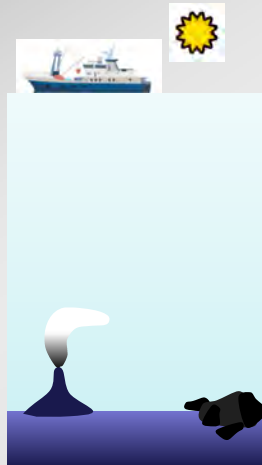
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General Objective

1. Abiotic:

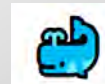
Physical
Chemical

Geological



2. Biotic:

Biological
(Microbiological
Ecological)



Requirements cover whole water column, benthic boundary layer, hydrothermal field, seafloor outside hydrothermal fields



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General Objective

Baseline studies:

Identification and documentation of current status of environment

Monitoring during mining component tests:

Assessment of impact of anthropogenic activities



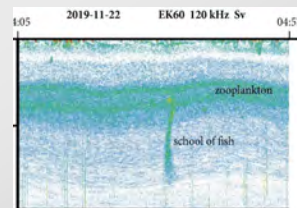
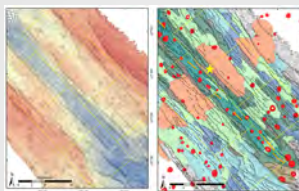
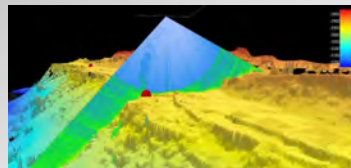
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Echosounding: water column + seafloor

Ship- Based, Deep-Towed (HOMESIDE/ROV), AUV



- Echosounding:**
- Topography, geomorphology
 - High Resolution Maps
 - → Geological Habitats

- Water column imaging:**
- Zooplankton movements
 - Occurrences of Schools of fish and Mammals
 - Biomass estimations



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**Marine
Resource Exploration**

8

Water column sampling and monitoring

CTD and Sensor sledge (Water sampler)



CTD (Conductivity, Temperature, density)
Oxygen, turbidity
→ Water masses



Water chemistry:
Nutrients, DOC, pH
Suspended Particles

Plankton
Pelagic
communities

Sediment trap moorings



Particle Flux
Composition of
particles

Deep sea
currents
(current meter)

Dissolved metals
(passive sampling)



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Large-scale seafloor sampling

Rock and ore sampling: dredge, TV-grab



Rocks (glass, ore):
Mineralogical and
geochemical composition
→ Formation processes

Meio- and Microfauna
communities
associated with rocks or ore
(on surface)



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Sampling the benthic boundary layer



Sediment Cores (MUC, GC, PC)



Benthic communities
(Macro-, Meio-, ...-fauna)
Microbiological communities
→ Ecosystem functions

Chemical composition of
sediments and pore water:
organic matter, metals, nutrients,
pH, O₂
(→ Oxygen consumption)

Mineralogical composition
Sedimentation rate → particle
flux

Paleoceanographic
development of the region



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Marine
Resource Exploration

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Sampling and monitoring of hydrothermal fields

ROV (manipulator, slurp gun, TV-Sled)

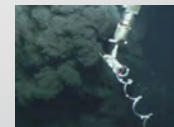


(Micro)Biological Samples
Video & Photo Mapping

Benthic community structure
Species abundance
Food webs
Metal contents of animals
→ Fauna catalog
→ Genetic library
→ Ecosystem function



Rocks and Ores:
Mineralogical and
geochemical
composition
→ Formation processes



Fluid chemistry
(venting)
→ Toxic metals
into environm.



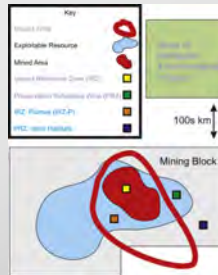
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General Themes

- Documentation and archival storage:
 - Reports
 - Upload of data to ISA database
<https://www.isa.org/im/deepdata>
- Standardization and quality assurance
- Area based-management tools:
e.g. definition of mining, buffer and preservation zones etc.
- Scientific interpretation
use of data for modeling (e.g.)



(from: Jones et al 2020)



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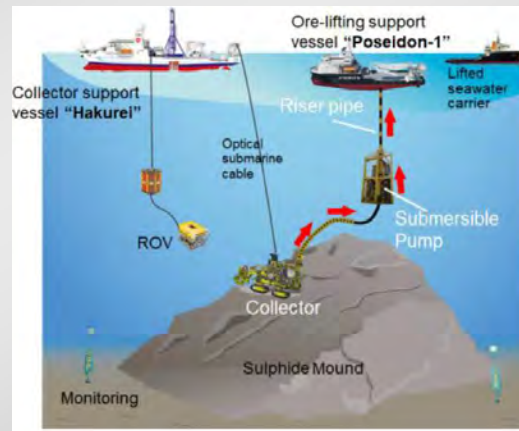
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Environmental Impact Assessment

During exploration contract: EIA at test sites for mining technology

- 3d monitoring before, during and after the test
- Develop monitoring concept & strategy
- Define indicators of a good environmental status
- Contribute how uncertainties in knowledge of impacts can be implemented in appropriate regulatory framework



Source: JOGMEC

BGR plans to carry out EIA in 3rd 5-years phase of exploration contract.



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Many thanks for your attention!!!



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AFRICA'S DEEP-SEA RESOURCES Project

Workshop 1-3 June 2021
**Legal regime governing the conduct of MSR in the
AREA**

Mr. Elie Jarmache
Legal and Technical Commission/ISA

1

Presentation

- Introducing MSR in UNCLOS
- MSR in Part XI
- Stakeholders and MSR in the Area
- Some lessons to conclude...

2

MSR in UNCLOS

- MSR key element in the new Order for oceans
 - P. XIII both Governance and Rules
 - Governance: Principles in article 240
 - ✓ Peaceful purposes and appropriate means
 - ✓ No interference with other activities
 - ✓ MSR respecting marine environment

3

• MSR in UNCLOS (ctd)

- **Rules:** the « *summa divisio* » in LOS:
 - ✓ *within NJ or beyond NJ* depending of the maritime spaces,
 - ✓ Consent regime or Freedom of the MSR.
- MSR in the AREA is the second branch (256) although the word « freedom » is not used
- ✓ « All States, competent IO have the right to conduct MSR in the Area » (reference P.XI)

4

Part. XI and MSR regime

- One single article 143 as a basis for MSR/Area
- Two main stakeholders are mentioned:
 - Art.143,2: the ISA to know more about the marine environment and the resources (*note resources not qualified mineral*),
 - ISA may enter into contracts
 - Important role in coordination, disseminating the results

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P. XI and MSR regime (ctd)

- Art. 143,3: States Parties (note the drafting is different from 256 « *all States* »),
- Very ambitious and precise tasks for S.Parties:
 - ✓ Participating in international programmes,
 - ✓ Programmes (through ISA) for the benefit of of developing States (strengthening their research capabilities as well the ISA personal)
 - ✓ Idea linked with Training or Capacity Building

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Some lessons

- Same weakness: the lack of MSR definition,
- Do we have any experience: does the Legal Regime in the Area be implemented?
- MSR, specific activity not covered by art. 157:
« ISA shall organize and control activities in the Area, particularly administering the resources »
- What about conflict of activities?
- « Glass half empty? »



WORKSHOP FOR THE PROMOTION OF SUSTAINABLE DEVELOPMENT OF AFRICA'S DEEP SEABED RESOURCES IN SUPPORT TO AFRICA'S BLUE ECONOMY, VIRTUAL SESSION, PORT LOUIS-KINGSTON-YAOUNDE, 1-3 June 2021

SESSION VI: Management and dissemination of geological, mineral and environmental information



Theme 2: Geological, mineral and environmental data as a critical tool to inform decision-making processes, investments and governance of mineral activities in the Area

By

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Legal and Technical Commission, ISA, Cameroon




Expert for the Extractive Industry Monitoring Improvement Project, Ministry of Higher State Control, Cameroon

Former Director in charge of mining exploration in Cameroon's Ministry of mines

OBJECTIVES



OBJECTIVES:

- 
- 
- 
- Clarify key concepts and definitions related to the management of geo-scientific, mining and environmental data;
 - State the legal basis for the management of geo-scientific, mining and environmental data as a constraint on mining activities in the Area;
 - Identify the role of key tool for decision-making for investment and governance of mining activities in the Area;
 - Make a link with Africa's blue economy & geo-scientific, mining & environmental knowledge management of the Area;
 - Explore some routes for the active participation of African States Parties.

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LEGAL FOUNDATIONS GEOLOGICAL, MINING & ENVIRONMENTAL DATA MANAGEMENT AS A CONSTRAINT OF MINING ACTIVITIES IN THE AREA

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GEOLOGICAL, MINING & ENVIRONMENTAL DATA & INFORMATIONS: A USEFULL TOOL IN MAKING DECISION IN MINING ACTIVITIES INVESTMENT IN THE AREA



IV

GEOLOGICAL, MINING & ENVIRONMENTAL DATA & INFORMATIONS: A KEY TOOL FOR A GOOD GOVERNANCE OF THE MINING ACTIVITIES IN THE AREA



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GEOLOGICAL, MINING & ENVIRONMENTAL DATA MANAGEMENT AND THE RELATIONSHIP WITH THE AFRICA'S BLUE ECONOMY



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DEFINITIONS OF KEY CONCEPTS & TERMS

□ INTRODUCTION

- The discovery of mineral indices & deposits is tailored by geoscientific data as well as the environmental and mining data are playing a key role in the development of a mineral resource deposit.
- The access to existing data sets by investors is a very important for the risk assessment and reduction during prospecting/exploration and exploitation phases, which incorporate high risk in a long term view.



DEFINITIONS OF KEY CONCEPTS & TERMS (cont'd)

□ INTRODUCTION (Cont'd)

- The capacity by the mining developers to use existing data enables to better orientate the efforts for the future identification of mineral and energy natural resources of our planet.
- The management and the accessibility of geoscientific, mining and environmental data is considered as a key factor in the decision making processes for mining investment and for a good governance in a sustainable exploration and exploitation, both incorporating an inclusive and participative approaches.



DEFINITIONS OF KEY CONCEPTS & TERMS (cont'd)

□ INTRODUCTION (End)

□ The geoscientific, mining and environmental data support:

- The effective discovery of a new generation of vast low-cost mineral and energy resources and their optimal development and sustainable exploitation;
- Infrastructure development and spatial planning on the continent and the delimitation and sustainable use of maritime spaces and corridors;
- Sustainable and efficient management and conservation of continental and marine ecosystems.



DEFINITIONS OF KEY CONCEPTS & TERMS (cont'd)

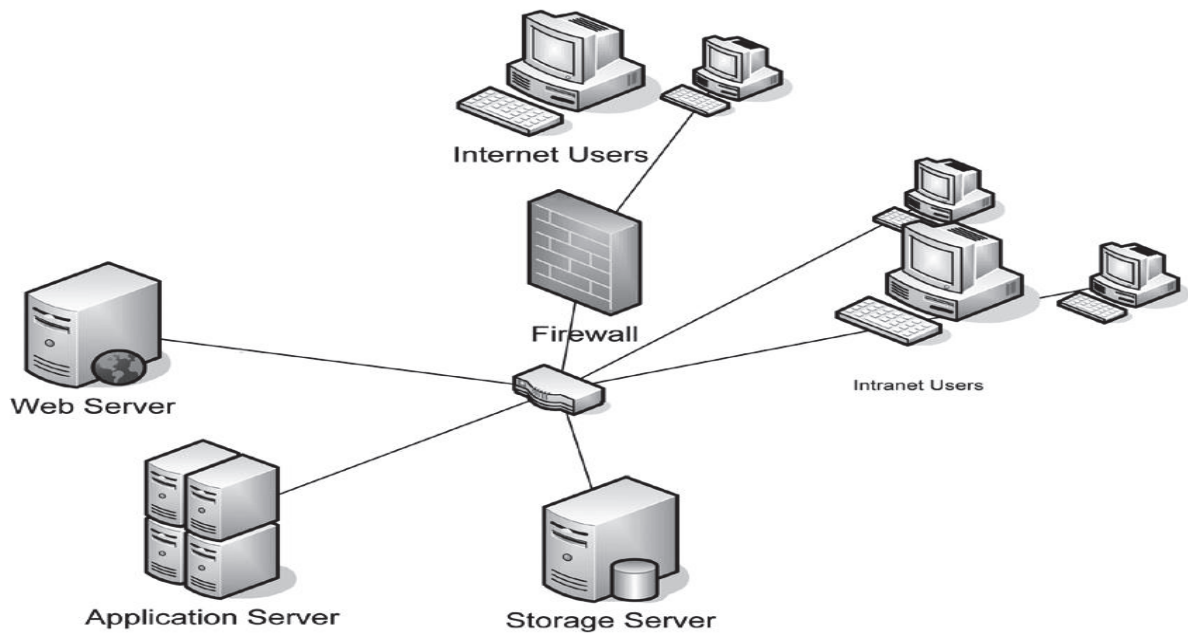
□ THE CONCEPT OF DATA MANAGEMENT & ACCESSIBILITY

1. Data management and dissemination is the set of mechanisms implemented to process, model, interpret, store and make data accessible in variable standards and normative formats with the use of various data access codes and nomenclatures.



DEFINITIONS OF KEY CONCEPTS & TERMS (cont'd)

□ THE CONCEPT OF DATA MANAGEMENT & ACCESSIBILITY



DEFINITIONS OF KEY CONCEPTS & TERMS (cont'd)

□ THE CONCEPT OF GEOSCIENTIFIC, MINING AND ENVIRONMENTAL DATA MANAGEMENT & DISSEMINATION

2. The management and dissemination of geoscientific, mining and environmental data is the set of technological means implemented to process, model, interpret, store and make these data from ground, sea or airborne surveys or field surveys, accessible in standard and standardized variable formats (maps, 2D or 3D digital models, photographic and / or statistical representations) with various access codes.

DEFINITIONS OF KEY CONCEPTS & TERMS (cont'd)

DEFINITIONS OF SOME KEY TERMS

3. Geoscientific data: They constitute the body of knowledge contained within the geoscience infrastructure, which includes geological, geophysical, topographic and bathymetric maps and associated databases. They present fundamental geoscience information for the extractive sector and related activities such as water and environmental resource management, land and marine use, geohazard management and infrastructure works.



DEFINITIONS OF KEY CONCEPTS & TERMS (cont'd)

DEFINITIONS OF SOME KEY TERMS

4.a. Mining data: They are composed of all the knowledge relating to the structure of a mineral deposit including the physical parameters of the ore such as its geometry of distribution, its content, its volume or tonnage, the density of the mineral (or minerals) with commercial value, the mine life and the mine planning, etc.

4.b. Mining deposit: Any natural deposit of mineral substances marketable under the current economic conditions.

4.c. Mineral deposit: A concentration of mineral substances within a specific area of the earth's crust (continental or marine).



DEFINITIONS OF KEY CONCEPTS & TERMS (cont'd)



□ DEFINITIONS OF SOME KEY TERMS

5. Environmental data: It is the set of environmental knowledge including the data relating to the behaviour of the continental and marine ecosystems with their fauna and flora vis-à-vis the impacts resulting from the mining activities, including the battery of measures of mitigation and management to take during the implementation of the mining project to avoid, reduce, mitigate or offset negative environmental and social impacts.



DEFINITIONS OF KEY CONCEPTS & TERMS (cont'd)



□ DEFINITIONS OF SOME KEY TERMS

6. Protection of the environment in mining activities:

- The concept of environmental protection in mining activities is based on the effects of mineral exploration and production, recovery and / or processing of mining products.
- This activity which induced effects and impacts on the physical environment (including fauna and flora) and human, requires a response from the point of view of prevention, mitigation and remediation of the different environmental, physical and social impacts that can occur.



DEFINITIONS OF KEY CONCEPTS & TERMS (cont'd)

□ DEFINITIONS OF SOME KEY TERMS

6. Protection of the environment in mining activities (end):

- The protection of the environment in mining activities is **the set of mechanisms implemented to prevent, mitigate and remedy the various impacts related: (i) to exploration and production activities, (ii) to mineral processing, recovery and valorisation / or its transformation.**

7. Good governance in mining activities consists of achieving these activities in an optimal and sustainable manner, i.e **so as to be economically profitable, ecologically acceptable, inclusive and participatory of all stakeholders involved or impacted by these activities including those related to.**



DEFINITIONS OF KEY CONCEPTS & TERMS (cont'd)

□ DEFINITIONS OF SOME KEY TERMS

8. The Area: It is the seabed and their subsoil beyond the limits of national jurisdiction. It is rich in mineral resources such as polymetallic nodules, polymetallic sulphides and cobalt-rich ferromanganese crusts.

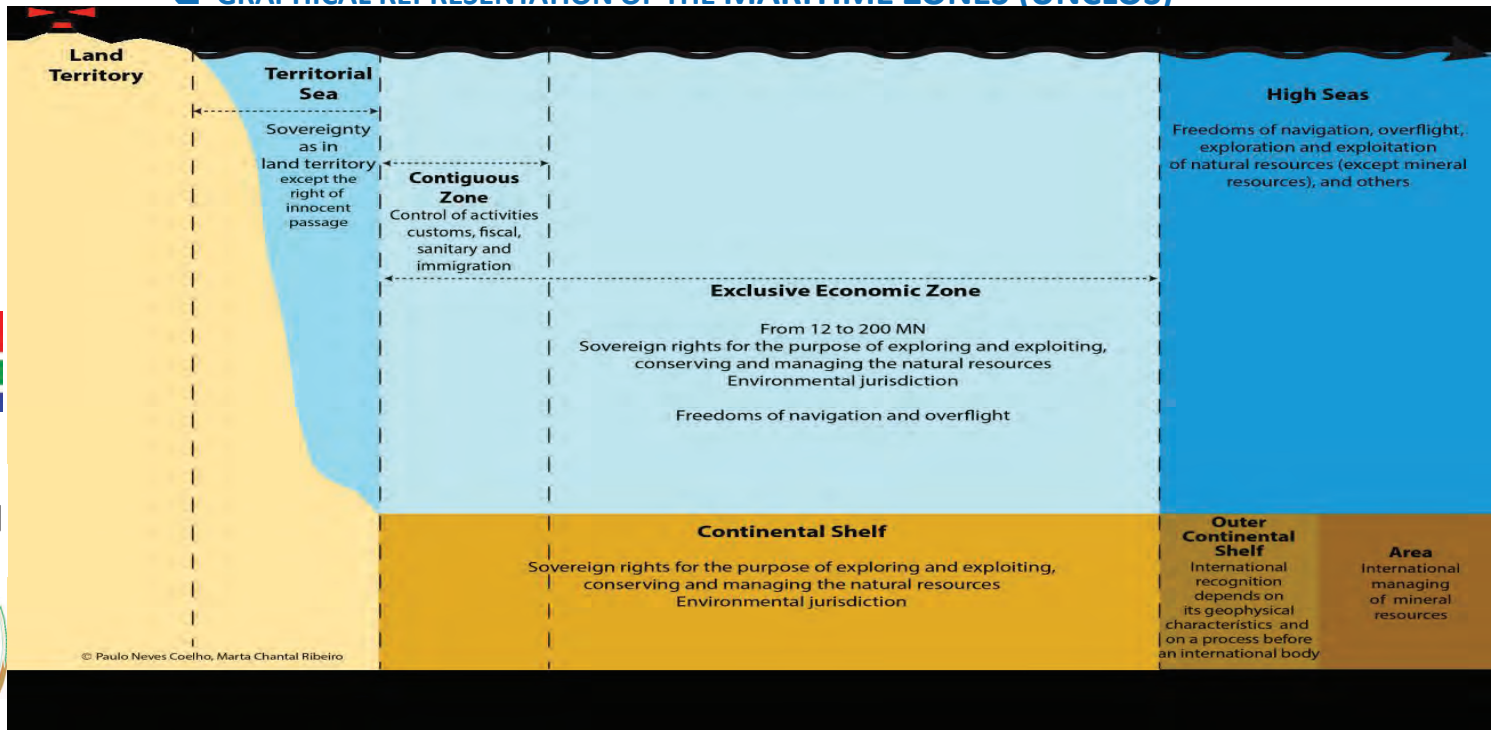
- The Convention divides the ocean into six major maritime areas. Four of these areas are under the jurisdiction of the coastal State: the territorial sea, the contiguous zone, the exclusive economic zone and the continental shelf. The other two correspond to maritime areas beyond national jurisdictions: the high seas and the seabed area beyond the continental shelf, called the « Area ».





DEFINITIONS OF KEY CONCEPTS & TERMS (cont'd)

GRAPHICAL REPRESENTATION OF THE MARITIME ZONES (UNCLOS)

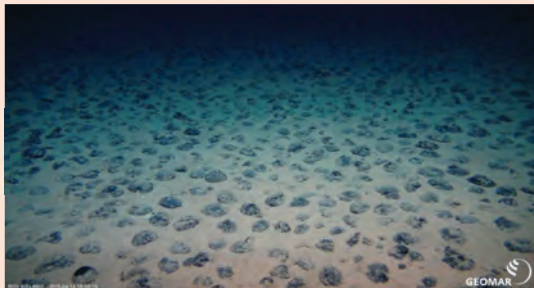


DEFINITIONS OF KEY CONCEPTS & TERMS (cont'd)

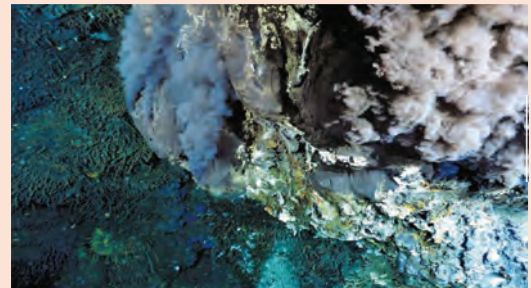
DEFINITIONS OF SOME KEY TERMS: MINERAL TYPES IN THE AREA

9. Polymetallic nodules (PMN): It is any deposit or agglomerate of nodules, located on the surface of the deep seabed or just below it, which contains manganese, nickel, cobalt and copper.

PMN



PMS



10. Polymetallic sulphides (PMS): It is deposit of sulphide minerals of hydrothermal origin and associated mineral resources containing concentration of metals such as copper, lead, zinc, gold and silver.



DEFINITIONS OF KEY CONCEPTS & TERMS (End)

□ DEFINITIONS OF SOME KEY TERMS: MINERAL TYPES IN THE AREA (end)

11. Cobalt-rich ferromanganese crust: These are deposits of oxides and hydroxides of ferromanganese crust enriched with minerals, formed by direct precipitation of seawater minerals on solid substrates containing significant amounts of cobalt, titanium, nickel, platinum, molybdenum, tellurium, cerium, other metals and rare earths.



**CRFC
or PMC**

- All geoscientific, mining and environmental knowledge related to mining activities (prospecting, exploration and mining) in the Area, is the key in making investment decisions and governance of mining activities in the said marine area.

CONTENT

- I** DEFINITIONS OF KEY CONCEPTS & TERMS
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- III** GEOLOGICAL, MINING & ENVIRONMENTAL DATA & INFORMATIONS: A USEFULL TOOL IN MAKING DECISION IN MINING ACTIVITIES INVESTMENT IN THE AREA
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- V** GEOLOGICAL, MINING & ENVIRONMENTAL DATA MANAGEMENT AND THE RELATIONSHIP WITH THE AFRICA'S BLUE ECONOMY
- VI** CONCLUSIONS & RECOMMANDATIONS

LEGAL FOUNDATIONS OF GEOLOGICAL, MINING & ENVIRONMENTAL DATA MANAGEMENT AS A CONSTRAINT FOR MINING ACTIVITIES IN THE AREA



- The letter and spirit of the United Nations Convention on the Law of the Sea (UNCLOS) in general, encourages the collection of data relating to the improvement of geoscientific (geological, geophysical, bathymetric, etc.), mining and environmental of the Area, whose resources are considered as the Common Heritage of Human Kind (CHHK).
- In Part XI, the collection and management of the three types of data and knowledge derived from them constitutes the binding basis for all mining activities in the Area, from prospecting, exploration to exploitation stage for the three classes of mineral resources identified on the seabed. The Authority (ISA) has all the administration rights over the resources of the Area (art.137, par.3 of UNCLOS).

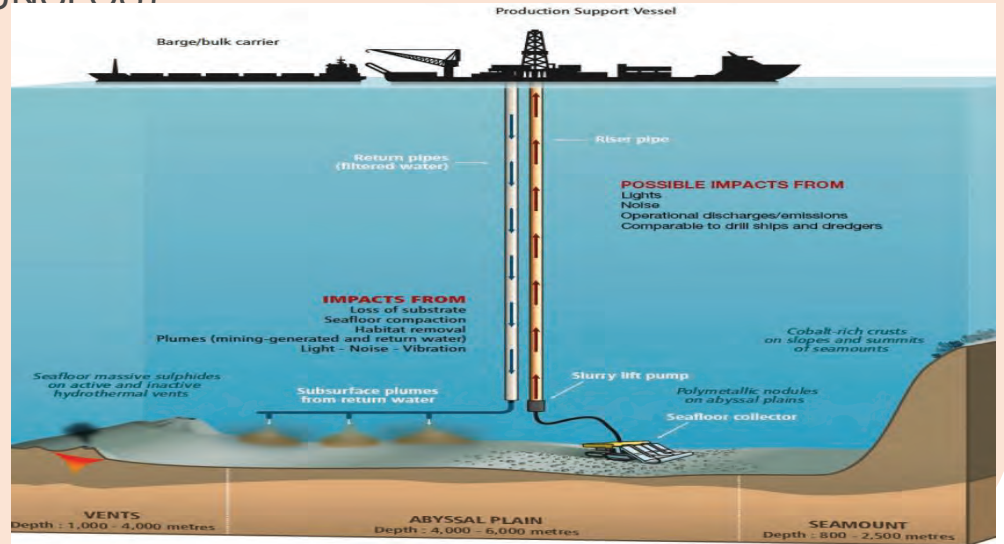
LEGAL FOUNDATIONS OF GEOLOGICAL, MINING & ENVIRONMENTAL DATA MANAGEMENT AS A CONSTRAINT FOR MINING ACTIVITIES IN THE AREA(cont'd)



- Data acquisition and knowledge of geoscientific, mining and environmental in the Area are derived from prospecting, exploration and exploitation activities undertaken by contractors who are either States parties, those private parties sponsored by one (or more) State Party (s) or natural persons having the nationality of the States Parties, are under the control of the Authority (Article 153 of the UNCLOS, Annex III, Arts 2 & 3). The Contractor has the obligation to communicate to the Authority all relevant data and information as laid down in art. 14 of Annex III.
- In addition, the Authority is authorized to carry out marine scientific research on the Area or may enter into contracts for this purpose (Article 143 UNCLOS).

LEGAL FOUNDATIONS OF GEOLOGICAL, MINING & ENVIRONMENTAL DATA MANAGEMENT AS A CONSTRAINT FOR MINING ACTIVITIES IN THE AREA (cont'd)

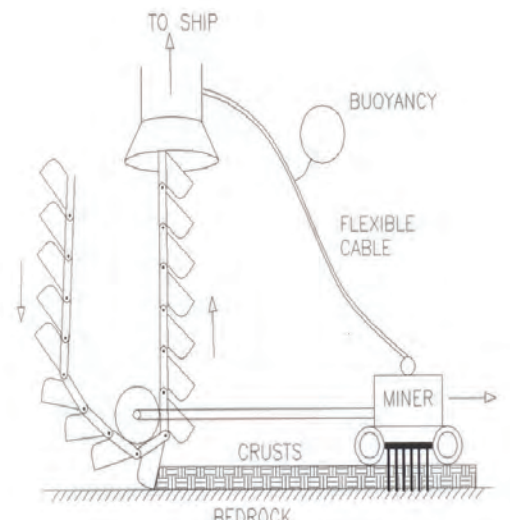
- The Authority coordinates the management and dissemination of the results and analyses of marine scientific research when they are available (art.143, par.2 of UNCLOS)



LEGAL FOUNDATIONS OF GEOLOGICAL, MINING & ENVIRONMENTAL DATA MANAGEMENT AS A CONSTRAINT FOR MINING ACTIVITIES IN THE AREA (ctd)

□ GEOSCIENTIFIC DATA & KNOWLEDGE (GEOLOGICAL, GEOPHYSICAL, BATHYMETRIC, ETC.)

- The Contractor must first provide the Authority with a request for approval of a work plan of knowledge and information (in the form of maps) relating to the physical and geoscientific characteristics such as geographical coordinates, the topography of the seabed, the bathymetry and bottom currents, geological description of facies, etc. (ISBA / 19 / C / 17, Annex II, sec.II, para.19 a).



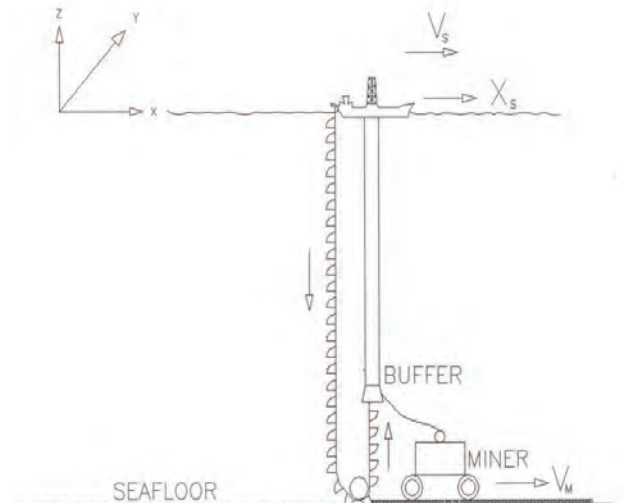
Combined continuous line and hydraulic system (Cheung, 1994, Mavistra, 2000)

LEGAL FOUNDATIONS OF GEOLOGICAL, MINING & ENVIRONMENTAL DATA MANAGEMENT AS A CONSTRAINT FOR MINING ACTIVITIES IN THE AREA (cont'd)



DATA AND MINING KNOWLEDGE

- The Contractor must first provide the Authority with a request for approval of a work plan with knowledge and information on the average density of minerals of economic interest, their composition including their content (ISBA / 19 / C / 17, Appendix II, sec.II, para.19 a).



Continuous line bucket system via a pipe
(Cheung, 1994, Mavistra, 2000)

LEGAL FOUNDATIONS OF GEOLOGICAL, MINING & ENVIRONMENTAL DATA MANAGEMENT AS A CONSTRAINT FOR MINING ACTIVITIES IN THE AREA (cont'd)



ENVIRONMENTAL DATA & KNOWLEDGE

- Mining activities carried out in the Area are subject to an obligation to the collection of data and measures to improve knowledge in order to prevent, reduce and control potential pollution and any ecological disturbance of the marine environment on the one hand, and protect and conserve natural resources while preventing damage to marine fauna (UNCLOS Arts 145 & 146).
- The Contractor must provide to the Authority prior to the approval of a plan of work, the knowledge and information relating to the environment (speed & direction of winds, salinity & water temperature, biogenesis (ISBA / 19 / C / 17, Annex II, sec.II, para.19 (b)) and shall take necessary measures to monitor the environment and report annually to the SG (ISBA / 19 / C / 17, Annex IV, art.5).



LEGAL FOUNDATIONS OF GEOLOGICAL, MINING & ENVIRONMENTAL DATA MANAGEMENT AS A CONSTRAINT FOR MINING ACTIVITIES IN THE AREA (end)



ANNUAL REPORT OBLIGATIONS

- The Contractor is required to submit an annual report no later than 90 days after the end of each calendar year to the SG, including all relevant geological, mining and environmental data and information from its space activities, in accordance with the relevant contractual clauses (ISBA / 19 / C / 17, Annex IV, Article 10).
- The Contractor shall, upon the expiry or termination of a contract, submit and provide, if it has not already done so, all relevant geological, geophysical, geochemical and environmental data and information including all technical, economic and environmental reports. and related financial information, estimates of exploitable sectors (ISBA / 19 / C / 17, Annex IV, art.11). This is even before the request for approval of a plan of work for the exploitation (ISBA / 19 / C / 17, Annex IV, art.11.3).



CONTENT



DEFINITIONS OF KEY CONCEPTS & TERMS



LEGAL FOUNDATIONS GEOLOGICAL, MINING & ENVIRONMENTAL DATA MANAGEMENT AS A CONSTRAINT OF MINING ACTIVITIES IN THE AREA



GEOLOGICAL, MINING & ENVIRONMENTAL DATA & INFORMATIONS: A USEFULL TOOL IN DECISION MAKING PROCESSES IN MINING ACTIVITIES INVESTMENT IN THE AREA



GEOLOGICAL, MINING & ENVIRONMENTAL DATA & INFORMATIONS: A KEY TOOL FOR A GOOD GOVERNANCE OF THE MINING ACTIVITIES IN THE AREA



GEOLOGICAL, MINING & ENVIRONMENTAL DATA MANAGEMENT AND THE RELATIONSHIP WITH THE AFRICA'S BLUE ECONOMY



CONCLUSIONS & RECOMMANDATIONS



GEOLOGICAL, MINING & ENVIRONMENTAL DATA & INFORMATIONS: A USEFULL TOOL IN DECISION MAKING PROCESSES IN MINING ACTIVITIES INVESTMENT IN THE AREA

Phase	Step	Duration (yrs)	Types of data & information required	Decision		Observation	
				Ok	No	Ok	No
Attribution of Explor Contract	Exploration contract Application Process	≤ 01	File documentation: Physical Characteristics and Geoscience of DS, Mineral data of economic interest, data and environmental monitoring measures	Fav	Defav	PoW approved & Attribution C. Explor	PoW reject
Exploration	Pre-feasibility study	06	Prefeasibility study: Geological data, geophysical, geochemical data on the deposit, inferred tonnage, mineral content, methods and operating equipment sketch, preliminary data on environmental impacts.	NPV>0	NPV<0	Go ahead	Stop/abandonment

GEOLOGICAL, MINING & ENVIRONMENTAL DATA & INFORMATIONS: A USEFULL TOOL IN DECISION MAKING PROCESSES IN MINING ACTIVITIES INVESTMENT IN THE AREA

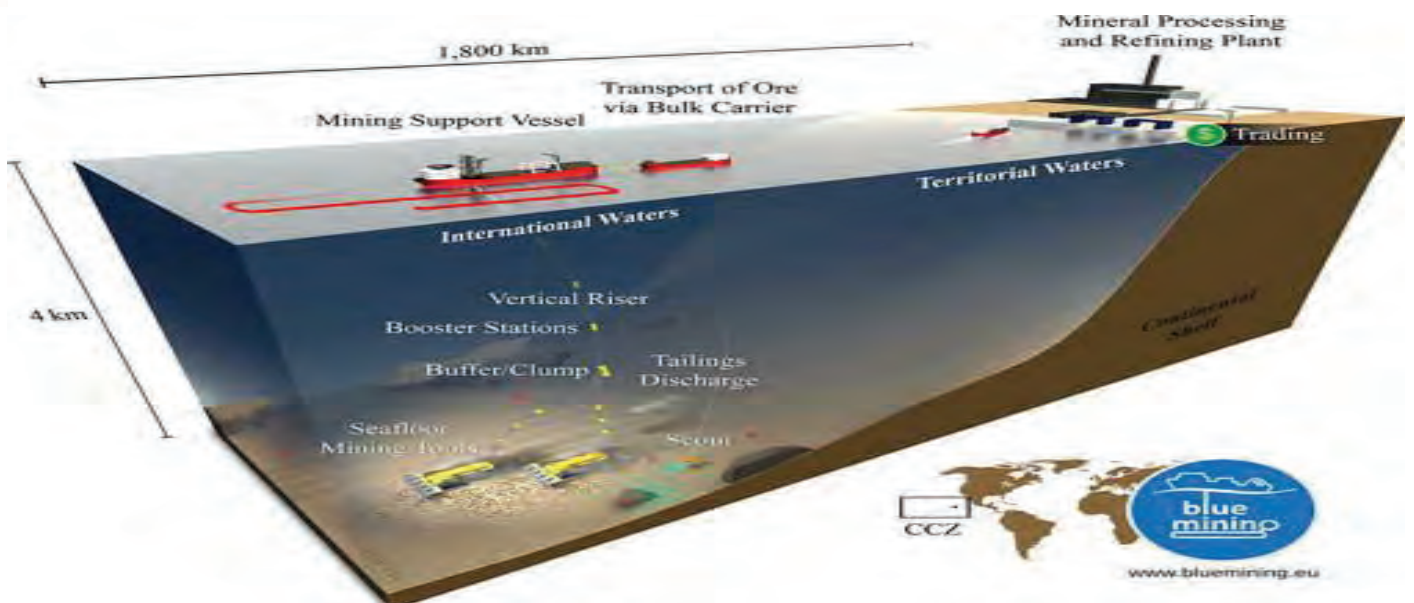
Phase	Step	Duration (yrs)	Types of data & information required	Decision		Observation	
				Ok	No	Ok	No
Exploration (End)	Feasibility study	04	Feasibility study: Refinement of geological, geophysical, geochemical data and information on the deposit, determination of probable and proven mineral reserves, mineral content, determination of mining and mineral processing methods and equipment, determination of impacts and completion of EIA and proposal for environmental protection measures.	NPV>0	NPV<0	Go ahead for investment	Stop /abandonment
Exploitation	Investment	03	Investment: Order & purchase of production and processing equipments, refinement of information on the effects of these equipments on marine ecosystems, refinement of the impact management plan, setting up equipment and production tests.	Complies with the environmental requirements	Improper	Go ahead	Recalibration of equipment to comply

GEOLOGICAL, MINING & ENVIRONMENTAL DATA & INFORMATIONS: A USEFULL TOOL IN DECISION MAKING PROCESSES IN MINING ACTIVITIES INVESTMENT IN THE AREA

Phase	Step	Duration (yrs)	Types of data& information required	Decision		Observation	
				Ok	No	Ok	No
Exploitation (end)	Production	≥20	Update of geoscientific, mining & environmental information: Monitoring and evaluation of the production plan, Monitoring and evaluation of the implementation of the measures to protect the marine environment and the management of environmental impacts, evaluation of compliance with the requirements of production plans, protection of the marine environment and environmental impact management.	Compliant	Not compliant	Production continue	Stop & remediation
	Closure & remediation	≤05?	Update of environmental information: Monitoring and evaluation of closure and dismantling, monitoring and evaluation of the behaviour of the marine environment.	Meets environmental requirements?	Not compliant?	Environment preserved?	?

GEOLOGICAL, MINING & ENVIRONMENTAL DATA & INFORMATIONS: A USEFULL TOOL IN DECISION MAKING PROCESSES IN MINING ACTIVITIES INVESTMENT IN THE AREA

PLACE OF GEOSCIENTIFIC & MINING KNOWLEDGE IN THE INVESTMENT DECISION CHAIN



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VI

CONCLUSIONS & RECOMMANDATIONS

GEOLOGICAL, MINING & ENVIRONMENTAL DATA & INFORMATIONS: A KEY TOOL FOR A GOOD GOVERNANCE OF THE MINING ACTIVITIES IN THE AREA



Good governance of mining activities implies sustainable, optimal management of mineral resources through an inclusive and participatory process of all the stakeholders of the CHM.



- ❑ It is the responsibility of the Contractor under the supervision of the Authority, on the basis of geoscientific, mining and environmental data, knowledge and information, to proceed to: (1) the reservation of sectors, (2) the definition of reference for the conservation of marine ecosystems and reserved areas (Annex 3, art.8 of UNCLOS), (3) the inventory of data and information to be provided for the protection of the environment by the Contractor (ISBA / 19 / C / 17, arts.18b, c & d, 31).
- ❑ In order to effectively protect the marine environment, the Authority and the sponsoring States apply the precautionary principle of Principle 15 of the Rio Declaration and the Best Environmental Practices (ISBA / 16 / A / 12 / Rev.1) by carrying up evaluations.

GEOLOGICAL, MINING & ENVIRONMENTAL DATA & INFORMATIONS: A KEY TOOL FOR A GOOD GOVERNANCE OF THE MINING ACTIVITIES IN THE AREA

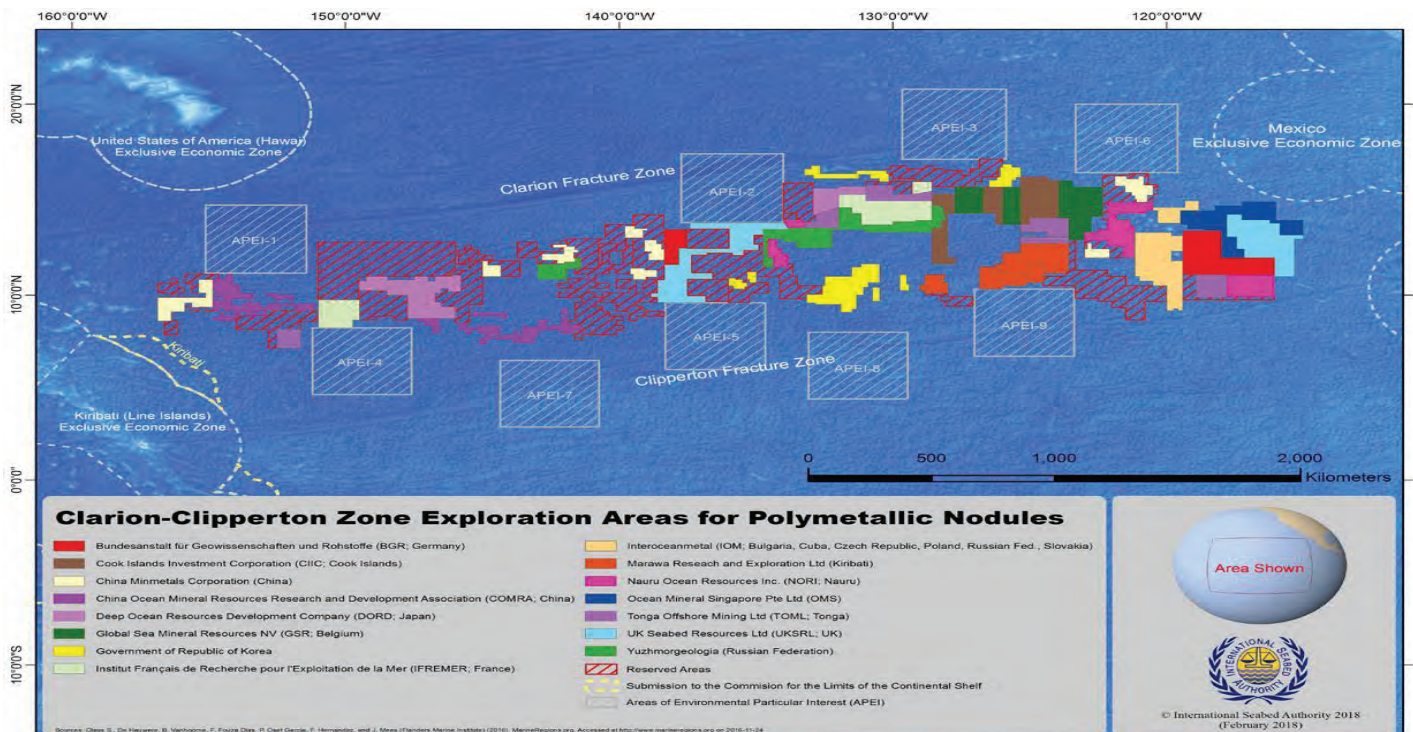


Good governance of mining activities implies sustainable, optimal management of mineral resources through an inclusive and participatory process of all the stakeholders of the CHM (end).



- Recommendation ISBA / 19 / LTC / 8 sets guidelines for the assessment of potential environmental impacts related to the exploration of marine minerals in the Area, while ISBA / 21 / LTC / 15, Annex V sets ISA standards for reporting on mineral exploration assessments, mineral resources and mineral reserves.

GEOLOGICAL, MINING & ENVIRONMENTAL DATA & INFORMATIONS: A KEY TOOL FOR A GOOD GOVERNANCE OF THE MINING ACTIVITIES IN THE AREA



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CONCLUSIONS & RECOMMANDATIONS



GEOLOGICAL, MINING & ENVIRONMENTAL DATA MANAGEMENT AND THE RELATIONSHIP WITH THE AFRICA'S BLUE ECONOMY



- ❑ Africa's blue economy is made up of resources contained in mainland rivers and lakes, groundwater, oceans and seas. Several states have initiated its implementation at the national level by its inclusion in the national strategic development plans (exple: Côte d'Ivoire, Mauritius, Comoros, etc.)
- ❑ A large number of African states (46) are UNCLOS State Parties, which means that, they have the right to actively participate in the collection and management of geoscientific, mining and environmental data and information in the Area, within the framework of UNCLOS, in order to implement at the national or regional level their blue economy policy.



GEOLOGICAL, MINING & ENVIRONMENTAL DATA MANAGEMENT AND THE RELATIONSHIP WITH THE AFRICA'S BLUE ECONOMY (end)



- It is imperative to create at the level of the African States the interest relating to the collection of geoscientific, mining and environmental data and information by pooling efforts for their participation in the activities carried out in the Area, in accordance with the provisions of Article 148 of UNCLOS, because who holds such data even being preliminary information, can easily play the role of the sponsoring State for exploration and exploitation activities, in view of the fact that they constitute an essential element in the decision making process for investment in exploration activities, prior to the exploitation of deposits discovered.

CONTENT



DEFINITIONS OF KEY CONCEPTS & TERMS



LEGAL FOUNDATIONS GEOLOGICAL, MINING & ENVIRONMENTAL DATA MANAGEMENT AS A CONSTRAINT OF MINING ACTIVITIES IN THE AREA



GEOLOGICAL, MINING & ENVIRONMENTAL DATA & INFORMATIONS: A USEFULL TOOL IN DECISION MAKING PROCESSES IN MINING ACTIVITIES INVESTMENT IN THE AREA



GEOLOGICAL, MINING & ENVIRONMENTAL DATA & INFORMATIONS: A KEY TOOL FOR A GOOD GOVERNANCE OF THE MINING ACTIVITIES IN THE AREA



GEOLOGICAL, MINING & ENVIRONMENTAL DATA MANAGEMENT AND THE RELATIONSHIP WITH THE AFRICA'S BLUE ECONOMY



CONCLUSIONS & RECOMMANDATIONS

CONCLUSIONS & RECOMMENDATIONS

Geoscientific, mining and environmental data & information constitute a key tool for a sustainable management and implementation of good governance in the Area's mining activities. In that vein it becomes urgent for Africa's States for their active participation in that movement to set up:

1. The pooling of efforts for the acquisition and compilation of historical data and information concerning the Area.
2. The development of legal instruments to incentive frameworks at the national and sub-regional level, in order to make them being capable to stimulate private investment in data collection and the establishment of mineral resource database systems, not only on the continental shelf (CS) but also beyond the CS.

CONCLUSIONS & RECOMMENDATIONS

3. The development of a cooperation mechanism similar to that of the maritime safety of the courts, which encourages cooperation in the framework of marine scientific research on the one hand, and that which deals with the sponsorship of entities in the framework of exploration contracts that are sources of geo-scientific, mining and environmental data collection & information, on the other hand.

4. The development within the Centres of Excellence of a database of African expertise deployed worldwide in the collection of geo-scientific, mining and environmental data and information.



***THANK YOU FOR YOUR KIND
ATTENTION***

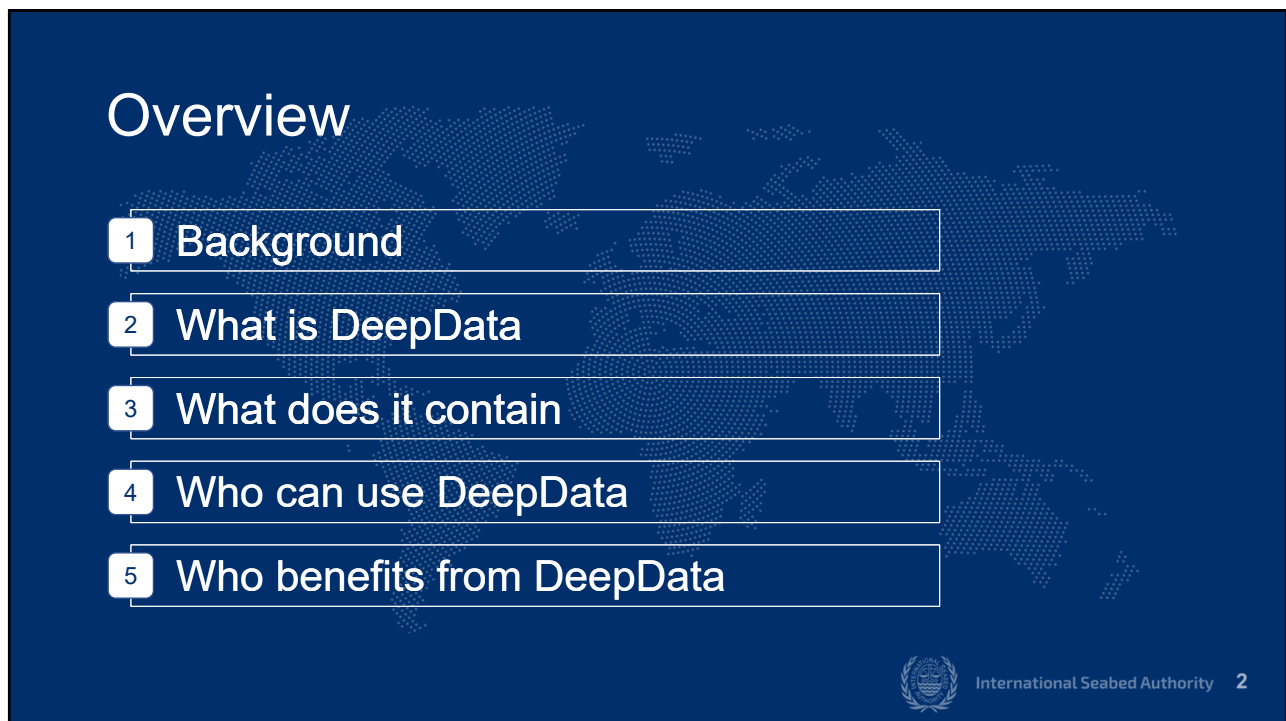


Available data and role of ISA in sharing Environmental information

Sheldon Carter
Data Manager

International Seabed Authority

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Overview

- 1 Background
- 2 What is DeepData
- 3 What does it contain
- 4 Who can use DeepData
- 5 Who benefits from DeepData

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Background

- ISA administers the mineral resources
- Control and organize current & future exploration activities
- Under Article 143, Par 2 of UNCLOS, ISA required to promote and encourage MSR
- ISA SD 4.3 – Share data in an open and transparent manner
- ISA SD 4.4 – Promote access to non-confidential information & data



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History

- Database started as POLYDAT
- Evolved to become CDR in 2003
- DeepData born from LTC Data Management Strategy request in 2015
- ISA **Deep** Seabed and Ocean **Database** (DeepData was launched during 25th Session of ISA)



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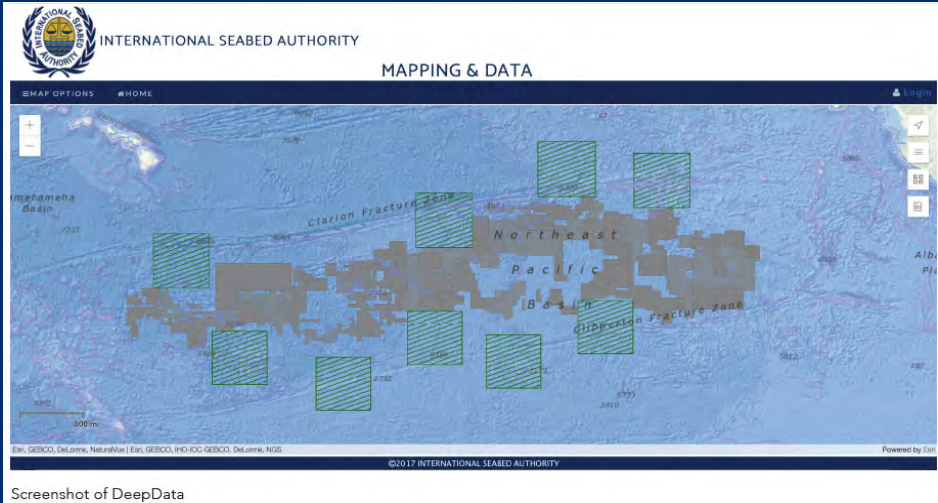
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What is DeepData

DeepData

5

What is DeepData



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MAPPING & DATA

MAP OPTIONS HOME Login

Mikhaeha Basin Clarion Fracture Zone Northeast Pacific Basin Chiriqui Fracture Zone

300m

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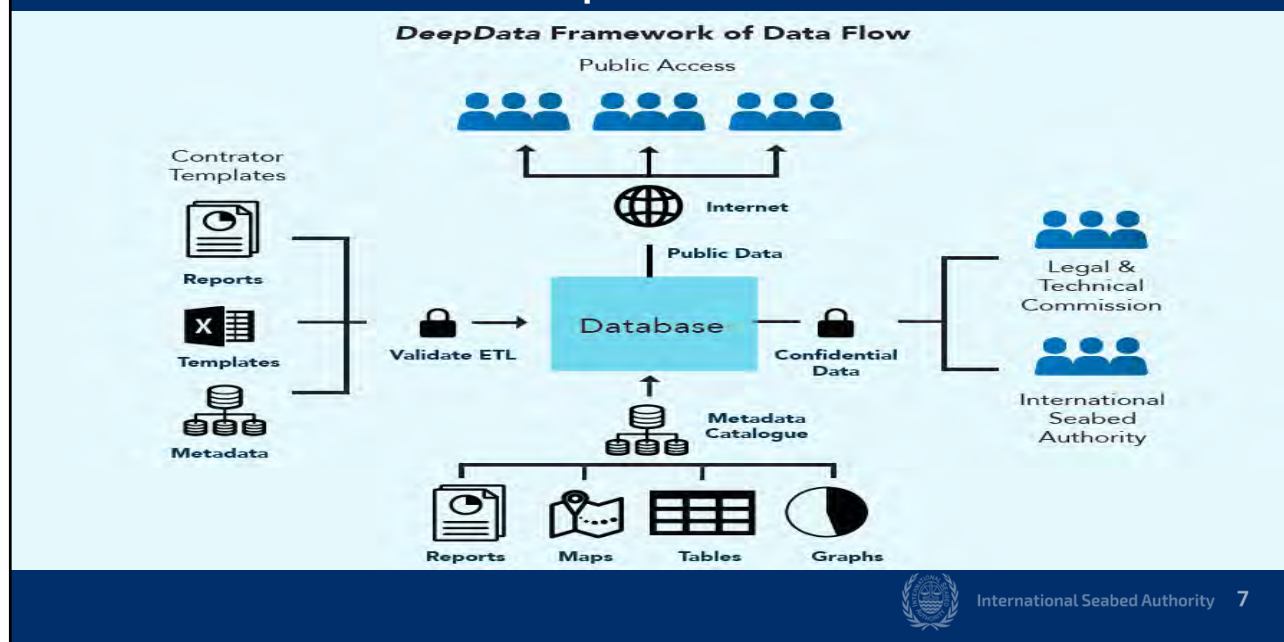
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Screenshot of DeepData

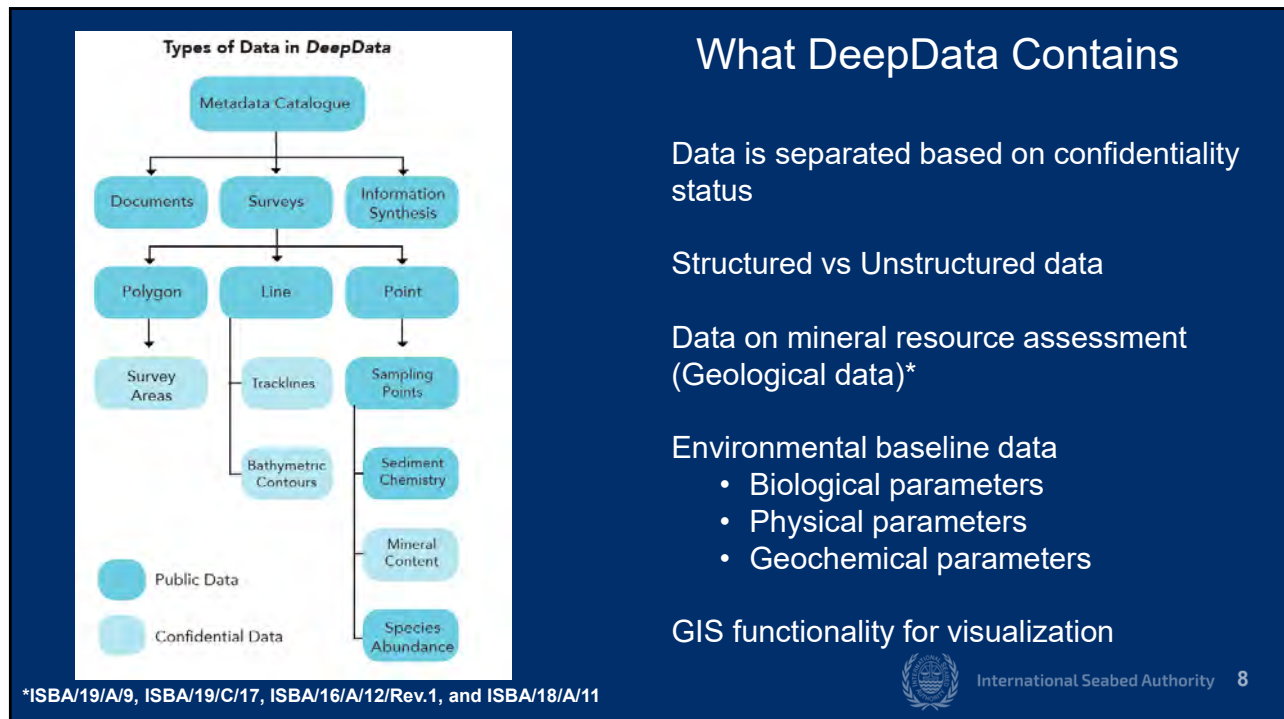
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What DeepData Contains



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Users of DeepData



Contractors - Submit data, annual reports, and supplementary information

LTC members - Review contractor's performance through the review of annual reports, including digital data submission

Secretariat - Manage incoming data, and ensure overall maintenance of *DeepData*

Public (including scientists) - Access /download data relating to marine environment of the Area; analyze and synthesize data and produce various forms of data products



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Benefits of DeepData for Users

- Promote scientific knowledge for mankind
- Ensure regulation of prospecting, exploration and exploitation of deep-seabed mineral resources
- Aid in the protection of the marine environment
- Aid in the evaluation of applications
- Enable data gap analysis to guide contractors
- Assess changes in the marine environment
- Increase knowledge in MSR for the scientific community and general public



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