

# Africa's Deep-Seabed Resources Project

Third Workshop  
1-3 June 2021



## Day 1 Presentations

Project partners



African Union 



Norad

Workshop co-host



# ***Legal regime governing the exploitation of resources and preservation of the marine environment***

*Third workshop of the Africa's Deep Seabed Resources (ADSR) Project organized by the  
International Seabed Authority (ISA) and the Republic of Mauritius*

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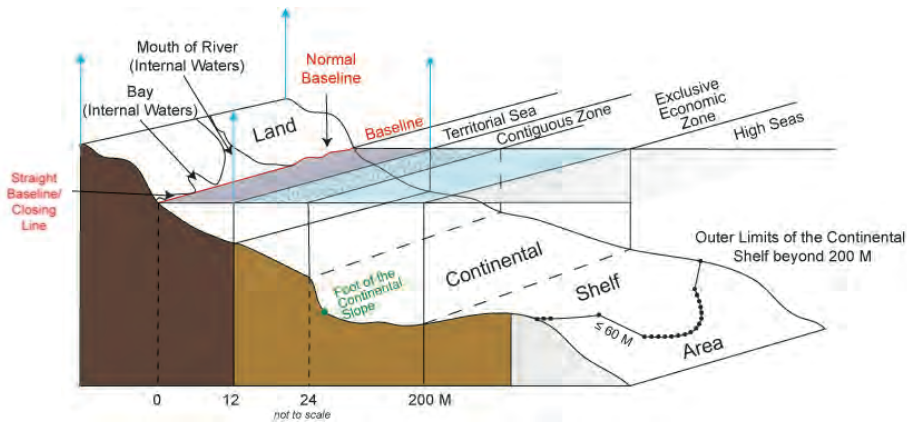
# UNCLOS at a glance

- 168 States Parties
- Known as the 'constitution for the ocean'
- Recognizes that problems concerning the ocean space are closely interrelated and should be considered as a whole



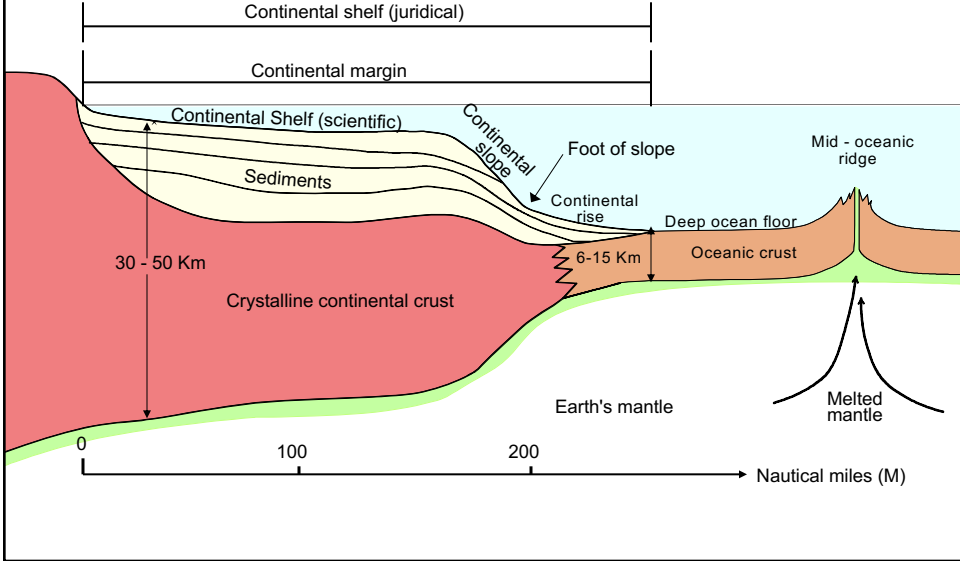
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# Maritime zones - overview



4

# Continental shelf



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## Continental shelf: exploitation of resources

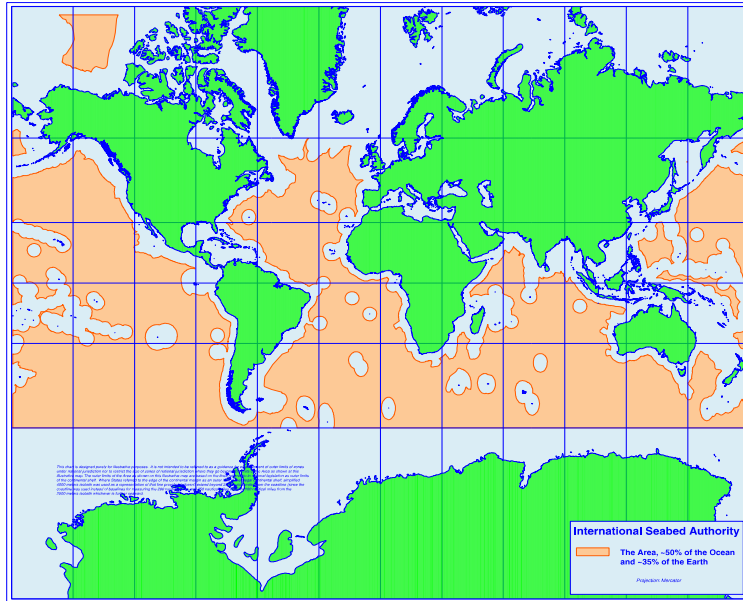
- A coastal State has exclusive sovereign rights for the purpose of exploring the continental shelf and exploiting its natural resources
- Revenue-sharing system: payments and contributions with respect to exploitation of the continental shelf beyond 200 nautical miles
- Such payments and contributions are to be equitably distributed among States Parties through the ISA



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## International Seabed Area



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### Protection and preservation of the marine environment (Part XII)

- General obligation to protect and preserve the marine environment in Part XII
- Qualified by the sovereign right of States to exploit their natural resources pursuant to their environmental policies and in accordance with their duty to protect and preserve the marine environment



Credit: Ocean Image Bank

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## Protection and preservation of the marine environment (Part XII)

- Prevent, reduce and control pollution from any source
- Measures to protect and preserve rare or fragile ecosystems and the habitat of depleted, threatened or endangered species and other forms of marine life
- Duty not to transfer damage or hazards or transform one type of pollution into another
- Measures to prevent harmful use of technologies or introduction of species



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## Protection and preservation of the marine environment (Part XII)

- Global and regional cooperation
- Assistance to developing states
- Monitoring and assessment
- Adoption of national laws and regulations
- Enforcement
- Responsibility and liability

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## Protection and preservation of the marine environment in the Area (Part XI, Art. 145)

- Necessary measures must be taken in accordance with the Convention with respect to activities in the Area to ensure effective protection for the marine environment from harmful effects which may arise from activities in the Area



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## 2011 Advisory Opinion of the Seabed Disputes Chamber

Due diligence obligation of sponsoring States to ensure that activities in the Area are conducted in compliance with UNCLOS, the ISA's rules and regulations, and the exploration contract



To perform the due diligence obligation, sponsoring States must apply or carry out:

- The Precautionary Approach
- Best Environmental Practices
- Environmental Impact Assessments



Standard of due diligence not differentiated for developing sponsoring States

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Photo: iStock/IvanaOK

## Conservation and sustainable use of marine biodiversity of areas beyond national jurisdiction



Photo: UN Photo/Cia-Pak

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*Thank you for your attention!*



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# INTERNATIONAL SEABED AUTHORITY: STRUCTURE AND DECISION-MAKING

Yongsheng Cai  
Senior Legal Officer

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isa.org.jm

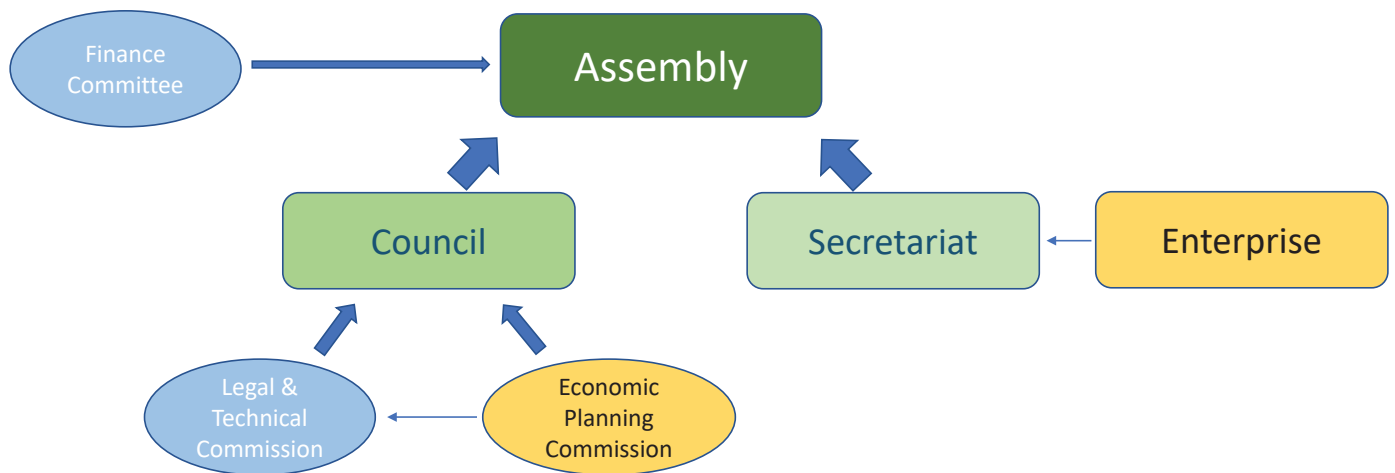


International Seabed Authority



## Structure and Decision-making

## Structure



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## Structure and Decision-making

# Assembly

### Overview

- ❖ 167 member States + EU
- ❖ Establish General Policy
- ❖ Functions
  - Elect members of the Council
  - Elect Secretary-General
  - Approve the budget
  - Approve exploration & exploitation regulations
  - Periodic review
  - Strategic plan and high-level action plans

### Decision-Making

- ❖ Consensus
- ❖ Questions of procedure
- ❖ Questions of substance
- ❖ Two limitations by 1994 Agreement
  - Based on the recommendations of the Council
  - Based on the recommendations of the Finance Committee

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## Structure and Decision-making

# Council

### Overview

- ❖ 36 members for terms of 4 years
  - Group A (4 representing largest consumers)
  - Group B (4 representing major investors)
  - Group C (4 representing land-based producers)
  - Group D (6 representing special interest)
  - Group E (18 geographical distribution)
- ❖ Functions
  - Propose a list of candidates for SG election
  - Approve plans of work for exploration & exploitation
  - Adopt rules, regulations and procedures relating to activities in the Area
  - Exercise control over activities in the Area

### Decision-Making

- ❖ Consensus
  - Protection measures for developing countries from adverse economic effects
  - Adoption of rules, regulations and procedures
  - Amendments to Part XI
- ❖ Voting Chambers
  - Group A
  - Group B
  - Group C
  - Group D+E (developing States only)
- ❖ Questions of procedure/Substance
- ❖ Two limitations by 1994 Agreement

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## Structure and Decision-making

# Secretariat

- ❖ Secretary-General
  - Annual report to the Assembly
- ❖ International character of the secretariat
  - Staff members
  - Staff Regulations and Rules
- ❖ Offices
  - EOSG, OLA, OEMMR, OAS
- ❖ Functions
  - Provide support to SG in fulfilling his functions
  - Convene annual session of the Authority
  - Implement & coordinate to implement decisions made and policies set out by other organs
  - Organize workshops and seminars to implement its work programme
  - Others

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## Structure and Decision-making

# Finance Committee

### Overview

- ❖ 15 members for a term of 5 years + 5 years
- Including one representative from 5 largest contributors to the budget
- ❖ Functions
  - Draft financial rules, regulations and procedures;
  - Propose and administration of budget
  - Assessment of contributions to budget
  - Draft rules, regulations and procedures on the equitable sharing of financial and other economic benefits
- ❖ Report of the Finance Committee

### Decision-Making

- ❖ Consensus
- ❖ Question of procedure: a majority
- ❖ Question of substance: consensus

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## Legal & Technical Commission

### Overview

- ❖ 30 members for a term of 5 years + 5 years, elected by the Council
- ❖ Functions
  - Considering applications for approval of plans of work for exploration & exploitation
  - Formulating rules, regulations and procedures relating to conduct of activities in the Area
  - Issuing Recommendations for guidance
  - Supervising activities in the Area
  - Making recommendations on protection of marine environment, including REMPs

### Decision-Making

- ❖ Consensus
- ❖ Voting: a majority

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Norad



Supporting Africa's Blue Economy

INTERNATIONAL SEABED AUTHORITY SEVEN VOLUNTARY COMMITMENTS TO SUPPORT THE IMPLEMENTATION OF SDG14 OCEANACTION16374

## WORKSHOP

### FOR THE PROMOTION OF SUSTAINABLE DEVELOPMENT OF AFRICA'S DEEP SEABED RESOURCES IN SUPPORT TO AFRICA'S BLUE ECONOMY

# The Outer Limit of the Continental Shelf in Africa: Present Situation and Prospects

Prof. Maurice K. Kamga

Judge, International Tribunal for the Law of the Sea (Hamburg)

## Introduction

### Maritime zones under national jurisdiction, including the continental shelf

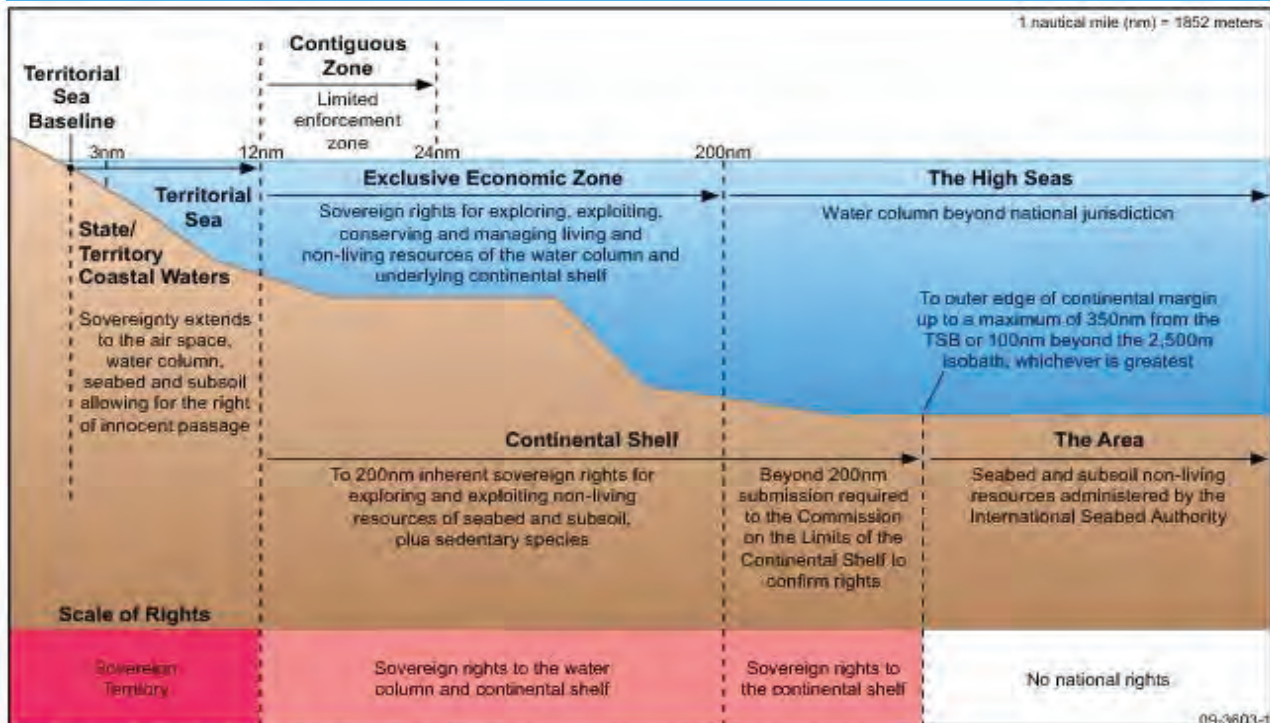


Figure 1: Offshore extent of the maritime zones recognized under international law

## Introduction

- ◆ For geologists, "**continental shelf**" is that part of the continental margin which is between the shoreline and the shelf break or, where there is no noticeable slope, between the shoreline and the point where the depth of the superjacent water is approximately between 100 and 200 metres.
- ◆ Legal caveat with its roots in the history of notion of the continental shelf, as it appeared in the 1958 Convention: either "**the seabed and subsoil of the submarine areas adjacent to the coast but outside the area of the Territorial Sea to a depth of 200 metres,**" or, alternatively, "**to a depth beyond that limit where exploitation of resources was possible.**"
- ◆ The 1982 Convention marked a distinct shift away from the unsatisfactorily open-ended definition

## Introduction

- ◆ Article 76 of the 1982 Convention offer a **complex series of formulae for the establishment establish the outer limit of its continental shelf:**

*"1. The continental shelf of a coastal State comprises the seabed and subsoil of the submarine areas that extend beyond its territorial sea throughout the natural prolongation of its land territory to the outer edge of the continental margin, or to a distance of 200 nautical miles from the baselines from which the breadth of the territorial sea is measured where the outer edge of the continental margin does not extend up to that distance.*

*2. The continental shelf of a coastal State shall not extend beyond the limits provided for in paragraphs 4 to 6.*

*3. The continental margin comprises the submerged prolongation of the land mass of the coastal State, and consists of the seabed and subsoil of the shelf, the slope and the rise. It does not include the deep ocean floor with its oceanic ridges or the subsoil thereof.*

## Introduction

4. (a) For the purposes of this Convention, the coastal State shall establish the outer edge of the continental margin wherever the margin extends beyond 200 nautical miles from the baselines from which the breadth of the territorial sea is measured, by either:

(i) a line delineated in accordance with paragraph 7 by reference to the outermost fixed points at each of which the thickness of sedimentary rocks is at least 1 per cent of the shortest distance from such point to the foot of the continental slope; or

(ii) a line delineated in accordance with paragraph 7 by reference to fixed points not more than 60 nautical miles from the foot of the continental slope.

(b) In the absence of evidence to the contrary, the foot of the continental slope shall be determined as the point of maximum change in the gradient at its base.

5. The fixed points comprising the line of the outer limits of the continental shelf on the seabed, drawn in accordance with paragraph 4 (a)(i) and (ii), either shall not exceed 350 nautical miles from the baselines from which the breadth of the territorial sea is measured or shall not exceed 100 nautical miles from the 2,500 metre isobath, which is a line connecting the depth of 2,500 metres.

## Introduction

6. Notwithstanding the provisions of paragraph 5, on submarine ridges, the outer limit of the continental shelf shall not exceed 350 nautical miles from the baselines from which the breadth of the territorial sea is measured. This paragraph does not apply to submarine elevations that are natural components of the continental margin, such as its plateaux, rises, caps, banks and spurs.

7. The coastal State shall delineate the outer limits of its continental shelf, where that shelf extends beyond 200 nautical miles from the baselines from which the breadth of the territorial sea is measured, by straight lines not exceeding 60 nautical miles in length, connecting fixed points, defined by coordinates of latitude and longitude.

8. Information on the limits of the continental shelf beyond 200 nautical miles from the baselines from which the breadth of the territorial sea is measured shall be submitted by the coastal State to the Commission on the Limits of the Continental Shelf set up under Annex II on the basis of equitable geographical representation. The Commission shall make recommendations to coastal States on matters related to the establishment of the outer limits of their continental shelf. The limits of the shelf established by a coastal State on the basis of these recommendations shall be final and binding.

9. The coastal State shall deposit with the Secretary-General of the United Nations charts and relevant information, including geodetic data, permanently describing the outer limits of its continental shelf. The Secretary-General shall give due publicity thereto.

10. The provisions of this article are without prejudice to the question of delimitation of the continental shelf between States with opposite or adjacent coasts.”



## Introduction

◆ The notion of “outer limit of the continental shelf” refers then to a situation where a coastal claims an extended continental shelf in application of the provisions Article 76.

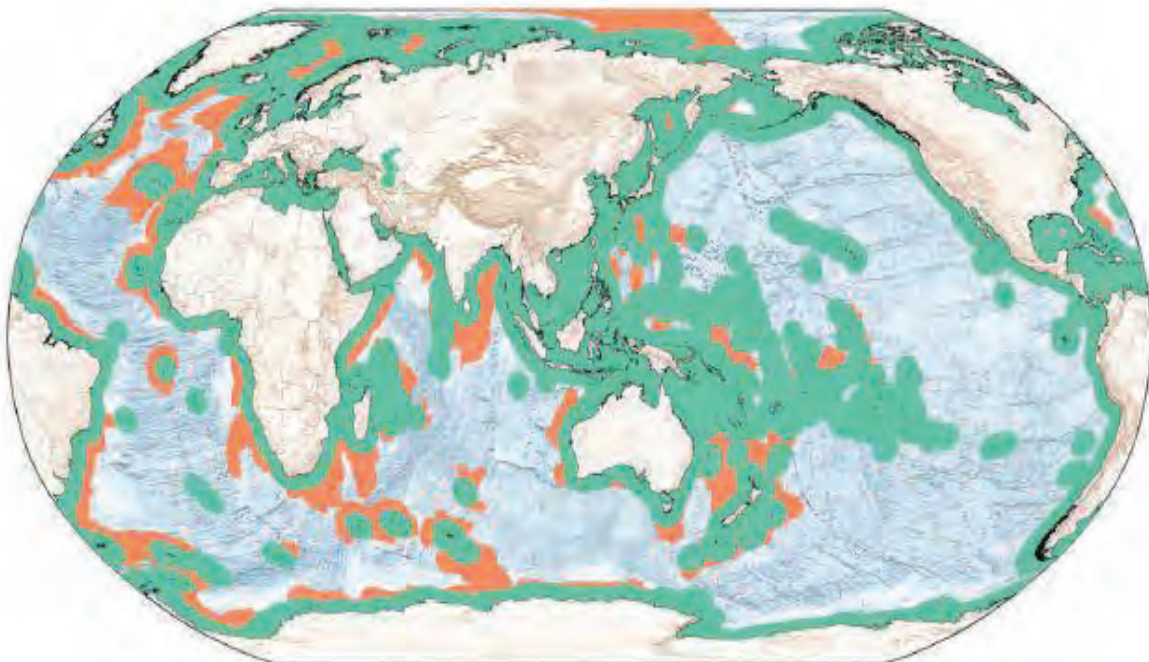
◆ In Africa, 53 States of the continent, only 15 are land locked states, this makes that many littoral states depend heavily on the maritime economy.

◆ In fact, any African coastal State that wishes to establish a extended continental shelf shall submit information before the Commission on the Limits of the Continental Shelf (the “Commission”) to demonstrate that the natural prolongation of its submerged land territory to the outer edge of the continental margin extends beyond 200 miles.

◆ If the State is able to pass this test and demonstrate its entitlement to an extended continental shelf, it may proceed with the delineation of the outer limits of the continental shelf in accordance with the set of rules defined in the above-mentioned Article 76, paragraphs 4 to 10.

## Introduction

◆ African countries fully participate in the world movement to grasp extended continental shelf (in orange)





## Part I – The progress and current situation of extended continental shelf delineation in Africa

◆ In order to understand the progress of the delineation of extended continental shelf in Africa, necessity to analyse:

(A) the question of the deadline and the timing of the submissions of information on the proposed outer continental shelf limit to Commission;

(B) the first vague of Preliminary submissions in 2009, and

(C) the actual submissions some years later.

### A – The question of the deadline and the timing of the submissions of information on the proposed outer continental shelf limit to Commission

◆ Original deadline: **10 years after its entry into force of the Convention** for any State Party.

◆ As the Convention entered into force on 16 November 1994, the ten-year deadline, was set as **16 November 2004**.

◆ However, many countries, **struggled to meet the deadline**.

◆ Moreover, the Commission established only in 1997, did not adopt its Scientific and Technical Guidelines until 13 May 1999 → New deadline: **13 May 2009**

◆ States still struggled → possibility to submit **“preliminary information indicative of the outer limits of the continental shelf beyond 200 nautical miles and a description of the status of preparation and intended date of making a submission”** on 13 May 2009

## B – African Preliminary Submissions before the expiration of the deadline on 13 May 2009

- ◆ Between the 14 April and the 12 May 2009, **21** African Coastal States sent mainly preliminary submissions to the Commission.
- ◆ Either **individually** or in **conjunction** with another State.
- ◆ In an alphabetical order: Angola, Benin, Benin/Togo (joint submission), Cameroon, Cabo Verde, Comoros, Congo, Democratic Republic of Congo, Equatorial Guinea, Gabon, Gambia, Guinea, Guinea-Bissau, Mauritania, Mauritius, Mozambique, Sao Tome and Principe, Senegal, Seychelles, Sierra Leone, Somalia and Togo.

## C – African Actual submissions and some recommendations by the Commission

- ◆ Around **25 African coastal States** have made formal submissions to the Commission.
- ◆ Submissions made either **individually** or in **conjunction with another State**.
- ◆ The Commission **has already made its recommendations** on five submissions, while **the rest are still pending**.

## 1 – The recommendations of the Commission on five submissions

- ◆ While the full text of the recommendations is kept confidential, the summaries of recommendations are duly made available to the public.
- ◆ The summaries give a rough idea of the deliberation of the submissions.
- ◆ The Commission chiefly examines : (i) whether it has the authority to consider the submission, (ii) the geological and geographical description of the region concerned, (iii) the natural prolongation of the land mass of the coastal State, and (iv) the determination of the location of the foot of the continental slope, the outer edge of the continental margin, and the outer limits of the continental shelf.

### a) The Commission's recommendation on the joint submission by Mauritius and Seychelles

- ◆ Submission on **1 December 2008**.
- ◆ Commission's recommendations on **30 March 2011**, by consensus.
- ◆ Commission **agreed with the determination of the proposed points establishing the outer edge of the continental margin in the Mascarene Plateau region and recommended that the delineation of the outer limits of the continental shelf of the two coastal States be established in accordance with article 76**, paragraph 7, of the Convention by straight lines not exceeding 60 M in length, connecting fixed points, defined by precise coordinates of latitude and longitude.

## b) The Commission's recommendation on Ghana's submission

◆ Initial Submission on **28 April 2009**, additional data and information in **June 2013**, and a revised executive summary of the submission on **12 September 2013**.

◆ Commission's recommendations on **5 September 2014**.

◆ the Commission, *inter alia*, **agreed with the determination of the proposed fixed points**, establishing the outer edge of the continental margin of Ghana in the Gulf of Guinea, and then **recommended that the delineation of the outer limits of the continental shelf be conducted in accordance with article 76, paragraph 7, of the Convention**, by straight lines not exceeding 60 M in length, connecting fixed points, defined by coordinates of latitude and longitude.

## c) The Commission's recommendation on South Africa's submission

◆ Submission made on **5 May 2009**.

◆ Commission's recommendation On **17 March 2017**.

◆ The Commission (i) **agreed with the determination of the fixed points establishing the outer edge of the continental margin in the West Coast of the South African mainland**, and recommended that **the delineation of the outer limits of the continental shelf in the West Coast of the South African mainland be conducted in accordance with paragraph 7 of article 76 of the Convention** by straight lines not exceeding 60 M in length, connecting fixed points, defined by coordinates of latitude and longitude;

(ii) with a precise exception, the Commission **agreed with the principles applied in establishing the outer limits of the continental shelf for the West Coast region**, including the determination of the fixed formula points, and the construction of the straight lines connecting those points, and recommended that South Africa proceeds to establish the outer limits of the continental shelf in the West Coast region accordingly;

(iii) the Commission **agreed with the determination of the fixed points establishing the outer edge of the continental margin for the eastern margin of the Mozambique Ridge**, and recommended that **the delineation of the outer limits of the continental shelf for the Mozambique Ridge margin be conducted in accordance with paragraph 7 of article 76 of the Convention** by straight lines not exceeding 60 M in length, connecting fixed points, defined by coordinates of latitude and longitude.

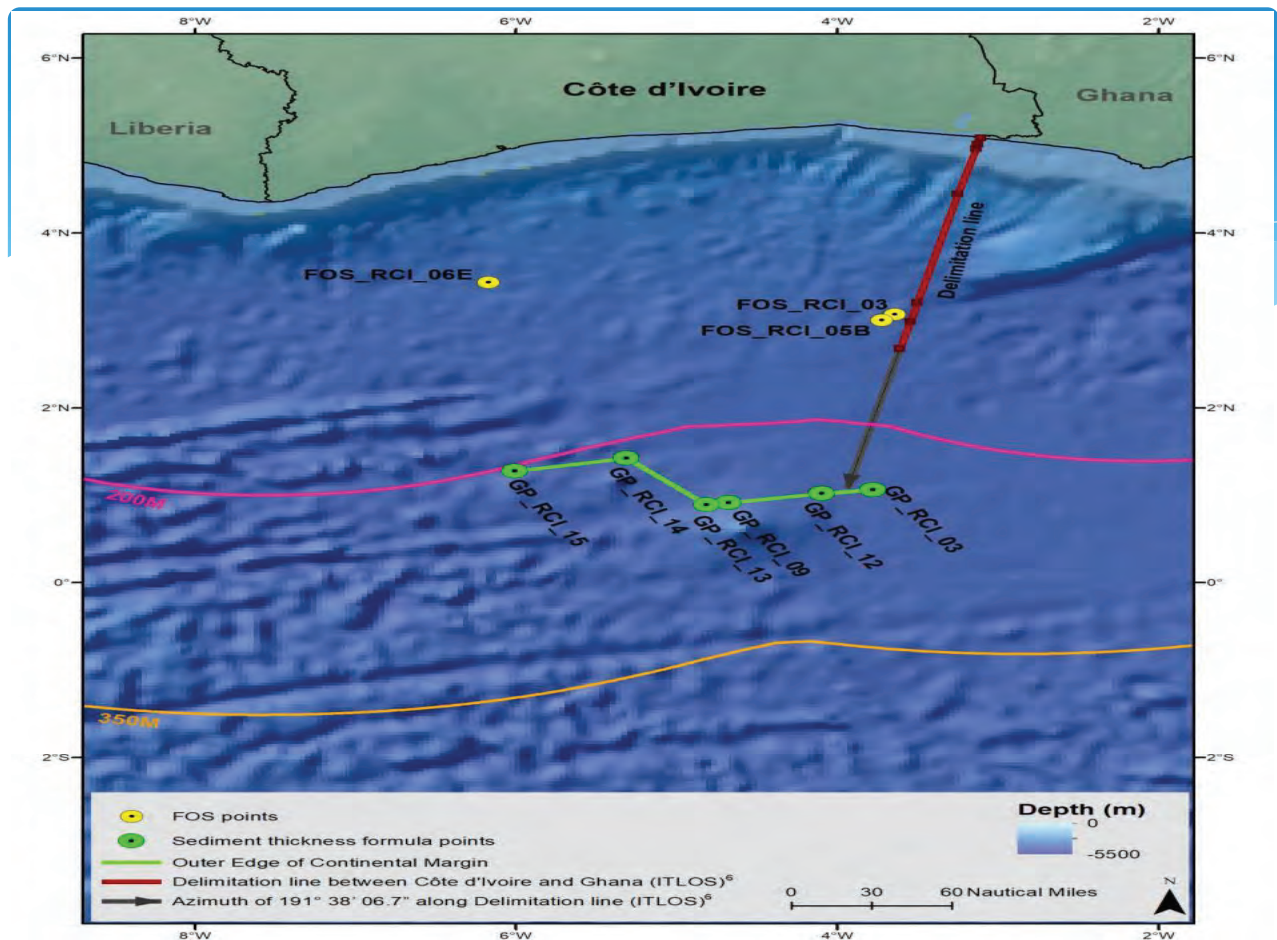


## d) The Commission's recommendation on the Seychelles' submission

- ◆ Submission on **7 May 2009**.
- ◆ Recommendation on **27 August 2018**.
- ◆ The Commission, inter alia, **agreed with the determination of the proposed fixed points establishing the outer edge of the continental margin in the Northern Plateau Region, and then recommended that the delineation of the outer limits of the continental shelf in this region be conducted in accordance with paragraph 7 of article 76 of the Convention, by straight lines not exceeding 60 M in length, connecting fixed points, defined by coordinates of latitude and longitude.**

## e) The Commission's recommendation on Cote d'Ivoire submission

- ◆ Submission on **8 May 2009** and amended information on **24 March 2016**.
- ◆ Commission's recommendations on **5 February 2020**.
- ◆ The Commission **recommended that the proposed fixed points be used as the basis for delineating the outer limits of the continental shelf in this region, subject to the application of the relevant constraints.**



## 2 – 15 African submissions are still pending before the Commission

- ◆ **a) Joint Partial Submission by France and South Africa** regarding the area of the Crozet Archipelago and the Prince Edward Islands on 6 May 2009.
- ◆ Its consideration was included in the **agenda of August-September 2009**.
- ◆ In **March 2013**, the two countries submitted an addendum to their initial Executive Summary.

2 – 15 African submissions are still pending before the Commission

◆ **b) Submission by the Republic of Kenya on 6 May 2009**

◆ Its consideration was included in the **agenda of August-September 2009**.

◆ It should be noted that **Sri Lanka** and **Somalia** sent a Note verbale to the Commission in order to draw the latter attention on certain fact regarding their rights which might be affected by Kenya's claim.

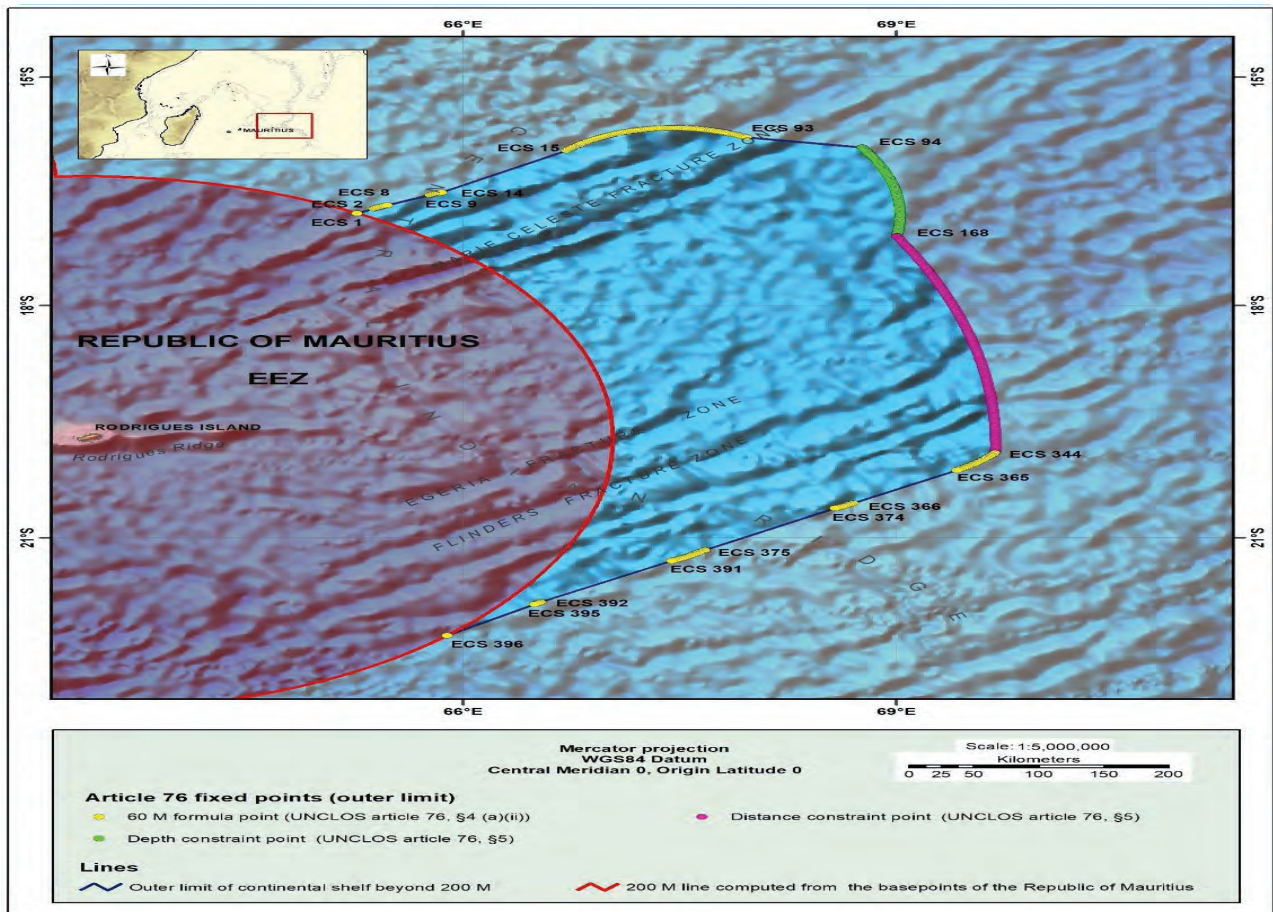
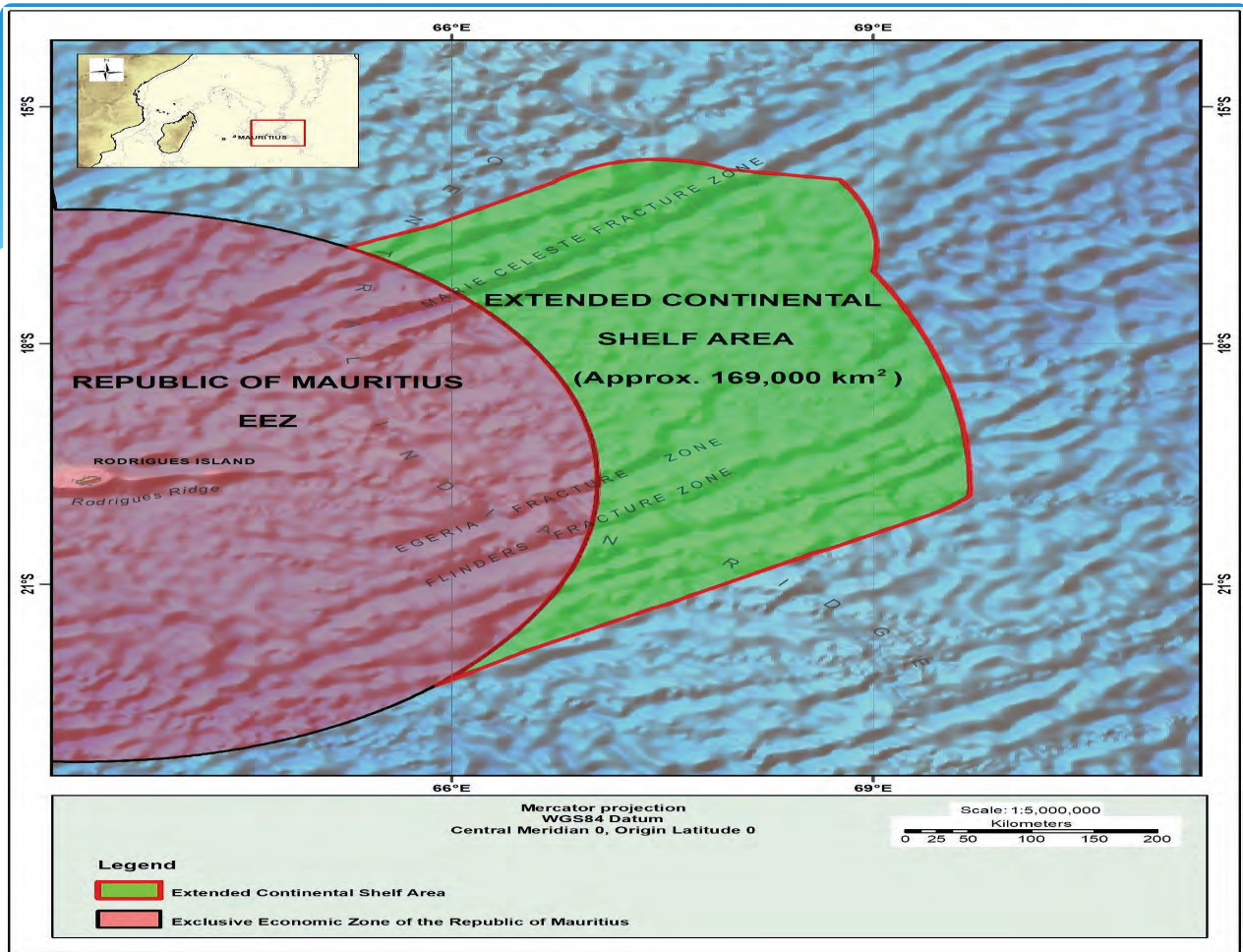
2 – 15 African submissions are still pending before the Commission

◆ **c) Partial Submission by the Republic of Mauritius on 6 May 2009**, regarding on the outer limits of the continental shelf in the region of Rodrigues Island. On **8 October 2015**, a revised executive summary of the partial submission. On **3 March 2020**, an amendment to its partial submission.

◆ Its consideration was included in the agenda of **August-September 2009**.

◆ The area claimed appeared on the following maps





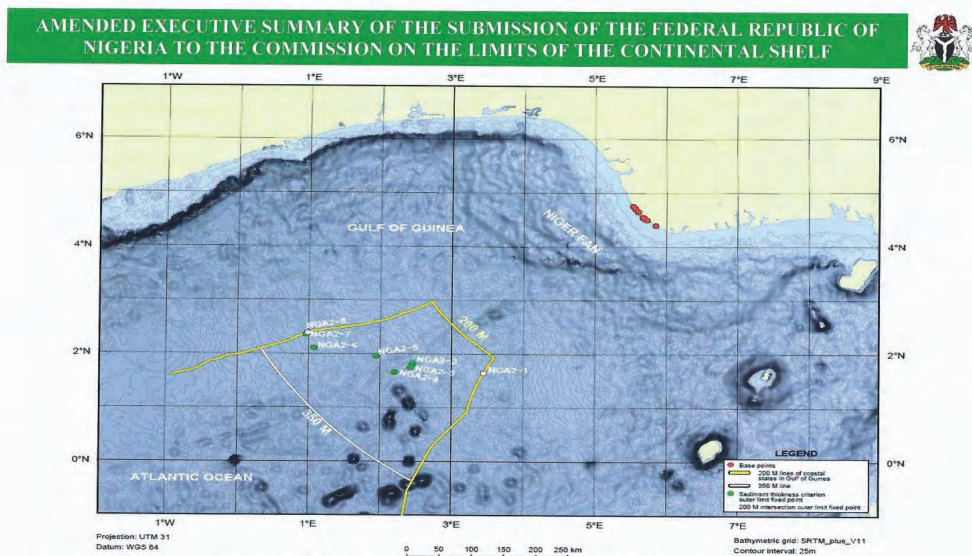


## 2 – 15 African submissions are still pending before the Commission

◆ **d) Submission by Nigeria** on 7 May 2009. On 18 November 2016, an amendment to its submission.

◆ Its consideration was included in the agenda of **August-September 2009**.

◆ The area claimed appeared on the following maps.





AMENDED EXECUTIVE SUMMARY OF THE SUBMISSION OF THE FEDERAL REPUBLIC OF NIGERIA TO THE COMMISSION ON THE LIMITS OF THE CONTINENTAL SHELF

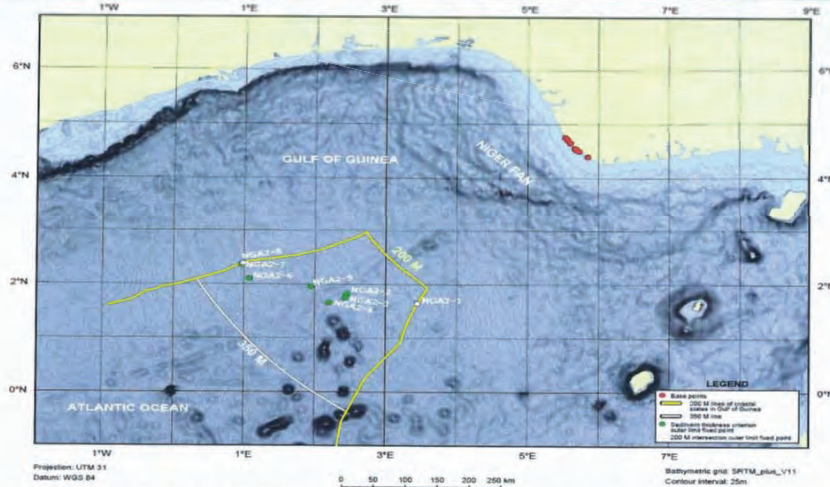


Figure 1. The six fixed points at which the sediment thickness is at least 1% of the shortest distance from such points to the FOS, and two fixed points established at the intersection of the formula line and the 200 M line of Ghana in the west and Sao Tome and Principe in the east. None of these fixed points exceed the 350 M distance constraint of Article 76, Paragraph 5. The fixed points are numbered according to Table 1.

## 2 – 15 African submissions are still pending before the Commission

### ◆ e) Submission by Namibia on 12 May 2009.

◆ Its consideration was included in the agenda of March-April 2010.

### ◆ f) Submission by Mozambique on 7 July 2010

◆ Its consideration was included in the agenda of March-April 2010.

## 2 – 15 African submissions are still pending before the Commission

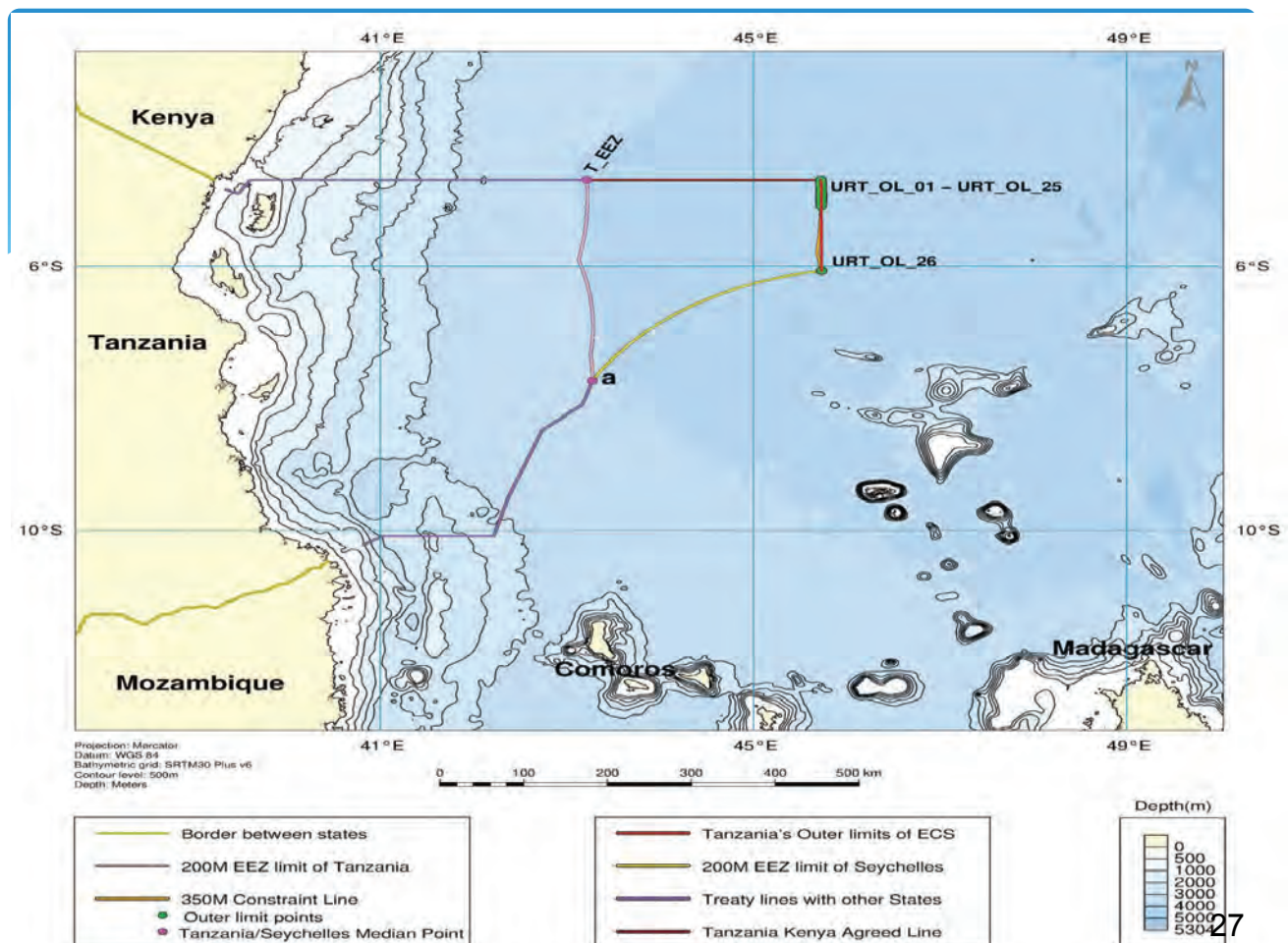
### ◆ g) Submission by of Madagascar on 29 April 2011.

◆ Its consideration was included in the agenda of August-September 2011.

### ◆ h) Submission by Tanzania on 18 January 2012

◆ Its consideration was included in the agenda of **July-August 2012**.

◆ The area claimed appeared on the following map.



2 – 15 African submissions are still pending before the Commission

◆ **i) Submission by Gabon** on 10 April 2012.

◆ Its consideration was included in the agenda July-August 2012.

◆ **Angola** and **Congo** send Notes verbales to draw the attention of the Commission on their rights which might be affected by the Gabon's claim.

2 – 15 African submissions are still pending before the Commission

◆ **j) Submission by Angola** on 6 December 2013 .

◆ Its consideration was included in the agenda **July-August 2014**.

◆ **DRC, Congo** and **Gabon** send Notes verbales to draw the attention of the Commission on their rights which might be affected by the Angola's claim

## 2 – 15 African submissions are still pending before the Commission

◆ **k) Submission by Somalia on 21 July 2014**; an amended executive summary of its submission transmitted on 16 July 2015

◆ Its consideration was included in the agenda in **2015**.

◆ **Tanzania, Yemen and Kenya** send Notes verbales to draw the attention of the Commission on their rights which might be affected by the Somalia's claim.

## 2 – 15 African submissions are still pending before the Commission

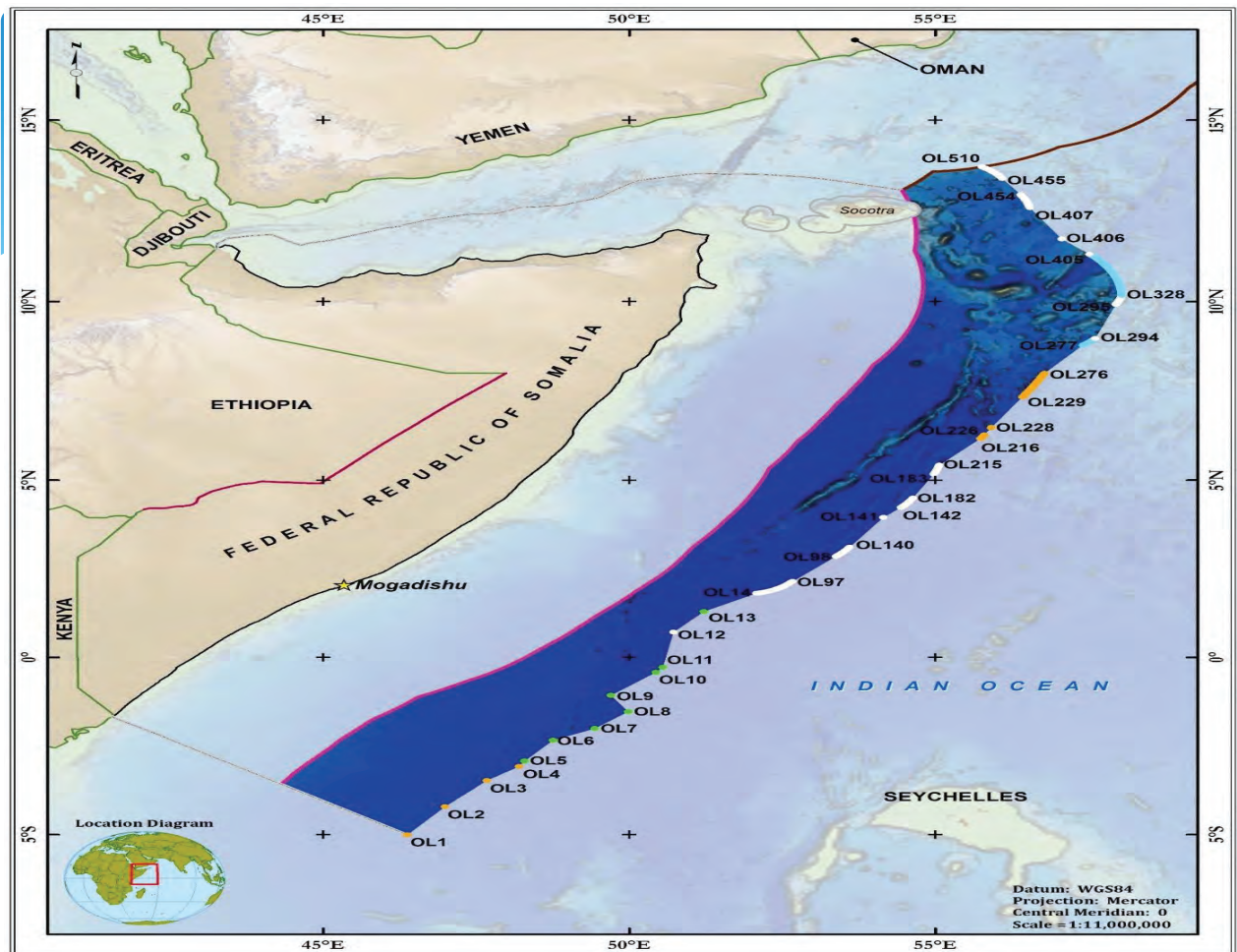
◆ **k) Submission by Somalia on 21 July 2014**; an amended executive summary of its submission transmitted on 16 July 2015

◆ Its consideration was included in the agenda in **2015**.

◆ **Tanzania, Yemen and Kenya** send Notes verbales to draw the attention of the Commission on their rights which might be affected by the Somalia's claim.

◆ The area claimed appeared on the following map.

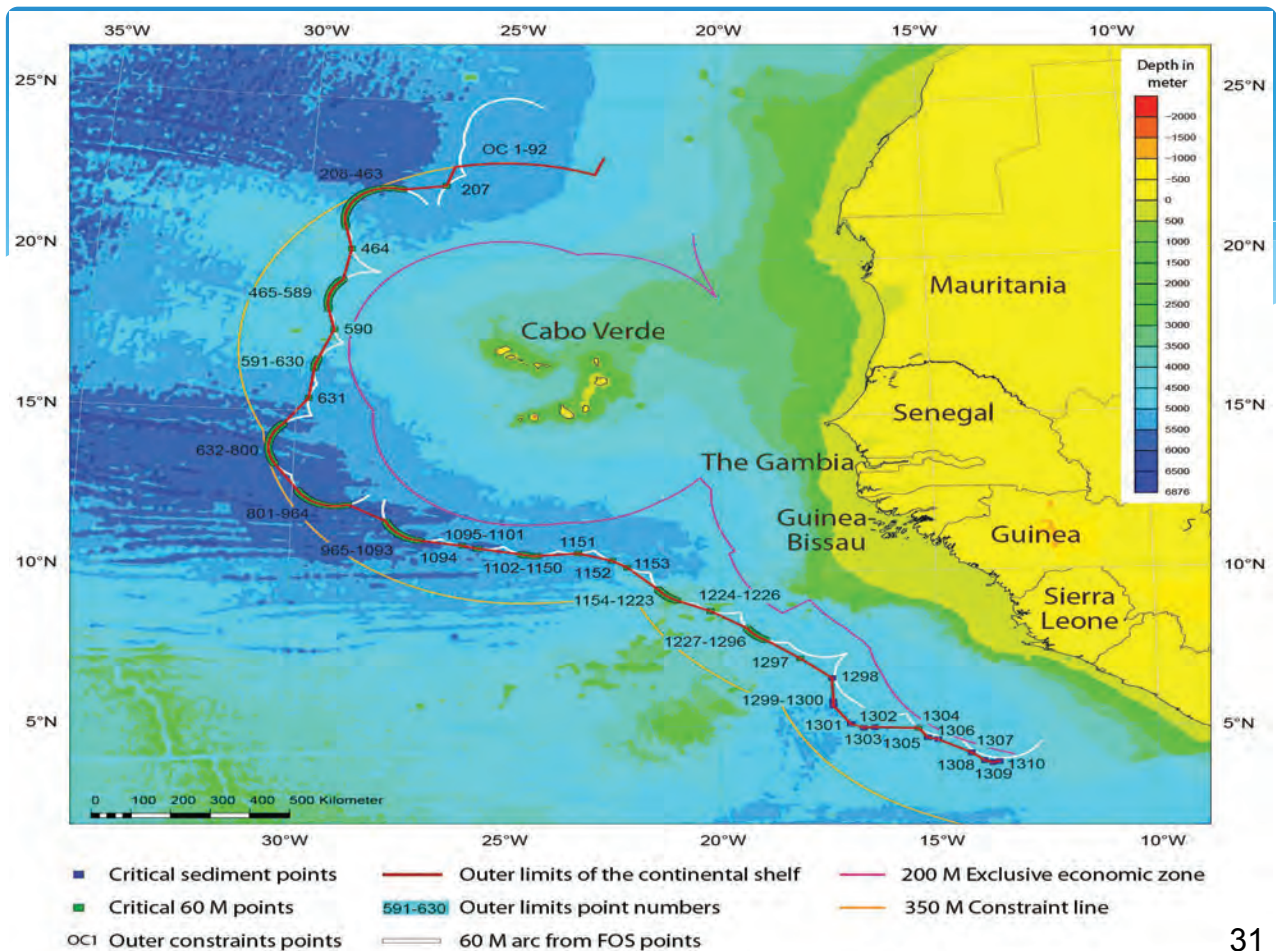
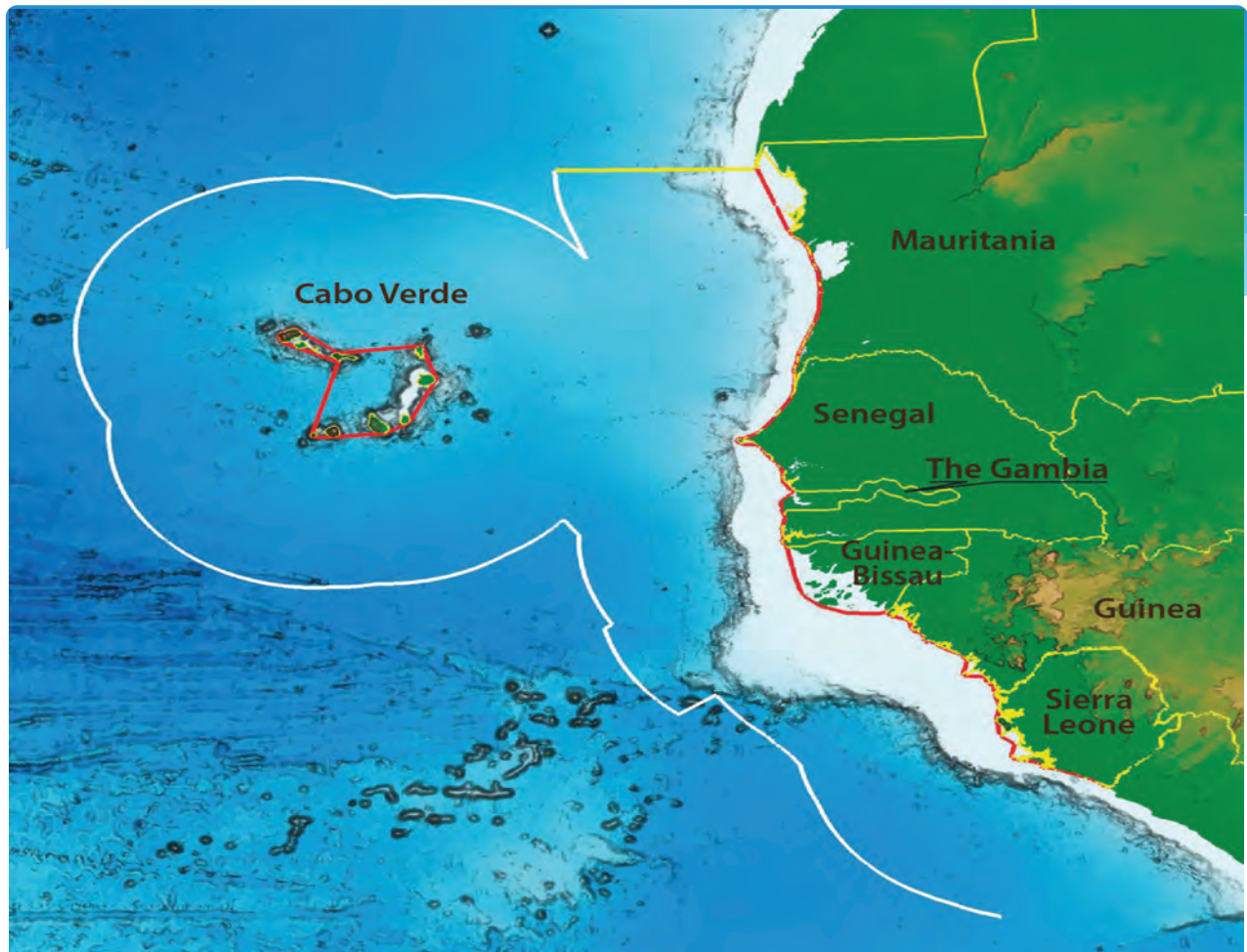




## 2 – 15 African submissions are still pending before the Commission

- ◆ I) Joint Submission by Cabo Verde, The Gambia, Guinea, Guinea-Bissau, Mauritania, Senegal and Sierra Leone, on 25 September 2014.
- ◆ Its consideration was included in the agenda in February-March 2015.
- ◆ Morocco sent a Note verbale by which it drew the Commission's attention on its rights which might be affected by the joint claim.
- ◆ The area claimed appeared on the following maps.







## 2 – 15 African submissions are still pending before the Commission

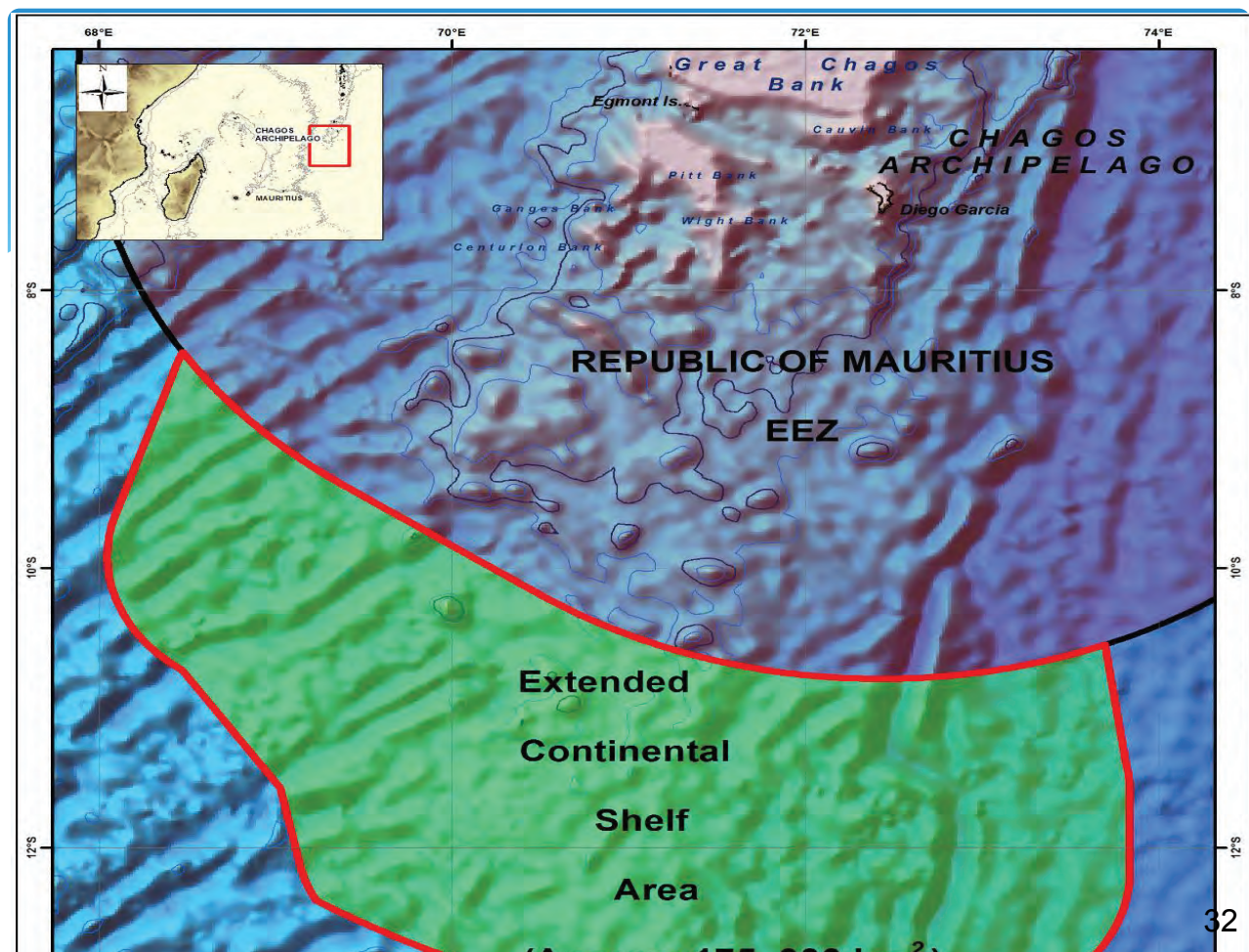
### ◆ m) Submission by Liberia on 23 October 2018.

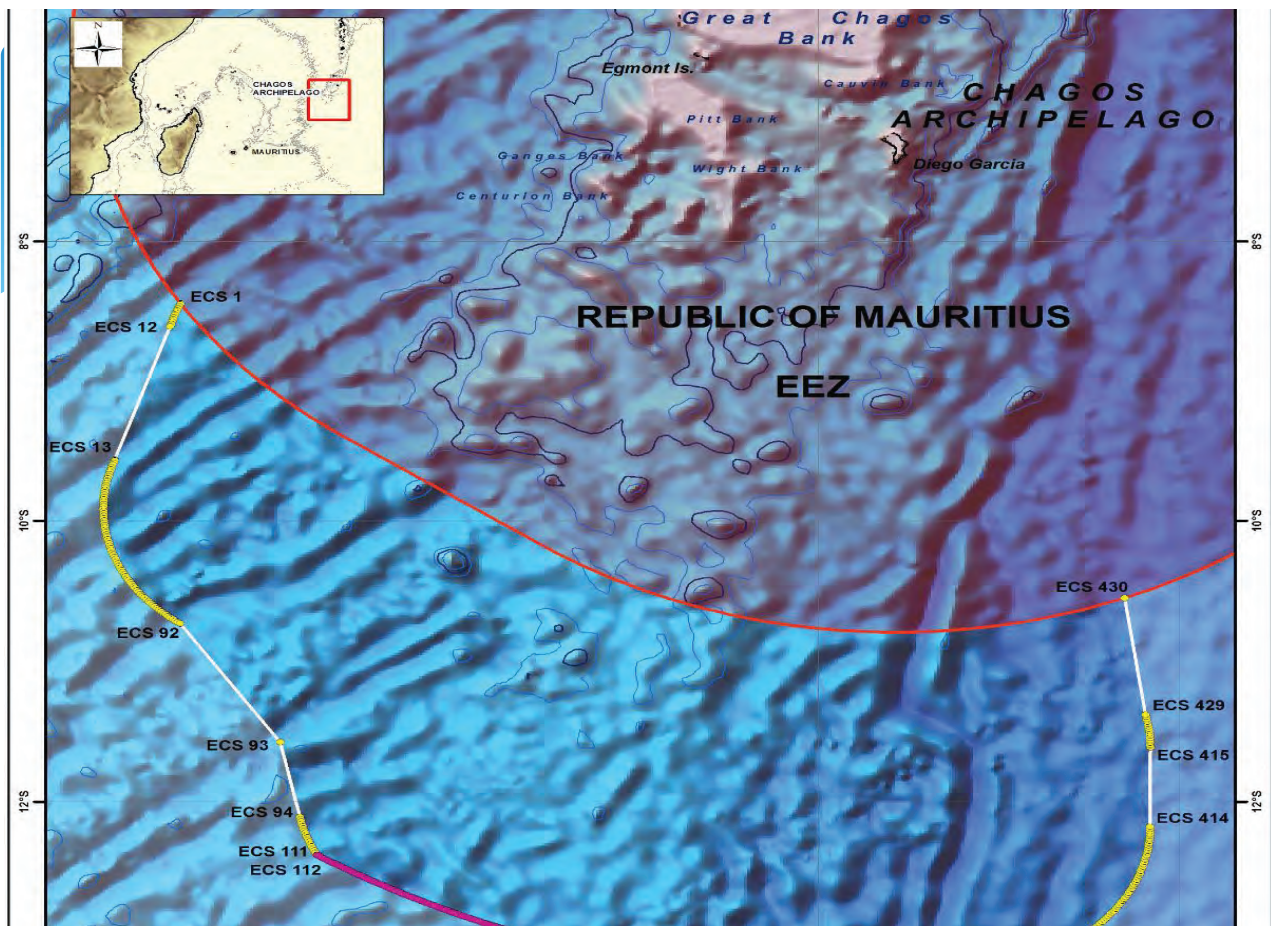
◆ Its consideration was included in the agenda in **January-March 2019**.

◆ n) Submission by Mauritius concerning the Southern Chagos Archipelago region on 26 March 2019

◆ Its consideration was included in the agenda in **July-August 2019**.

◆ The area claimed appeared on the following maps.





◆ Before closing this first Part of our presentation, let's recall that after the recommendations of the Commission, **the outer limits established by the coastal State on the basis of such recommendations shall be final and binding.**

◆ The **chart and other relevant information** permanently describing the outer limits are then deposited with the UN Secretary-General, who is required **to give such due publicity.**

◆ After this brief exploration, what are the prospects and challenges facing African countries regarding the necessity to secure the resources of their extended continental shelf?



## Part II – Securing the resources of the extended continental shelf: prospects and challenges

- ◆ Resources on the extensive extended continental shelf areas subject to submissions are of **increasing interest from a marine resource development perspective**.
- ◆ This is particularly the case as **offshore exploration and exploitation technologies have advanced significantly** in recent years.
- ◆ Key emerging seabed resource opportunities in extended continental shelf areas include energy resources such as **oil, gas, and gas hydrates** as well as **seabed minerals and marine genetic resources**.

## Part II – Securing the resources of the extended continental shelf: prospects and challenges

- ◆ In order to secure those resources, African countries **should first proceed to any potential maritime delimitation** with any other relevant State(s) (A).
- ◆ They may also **explore the possibility of joint exploitation of the overlapping extended continental shelves**, especially when a joint submission has been made to the Commission (B).
- ◆ After securing their extended continental shelf and its resources, African States **should be prepare to make some payments and contributions with respect to the exploitation of their continental shelf beyond 200 nautical miles** (C).

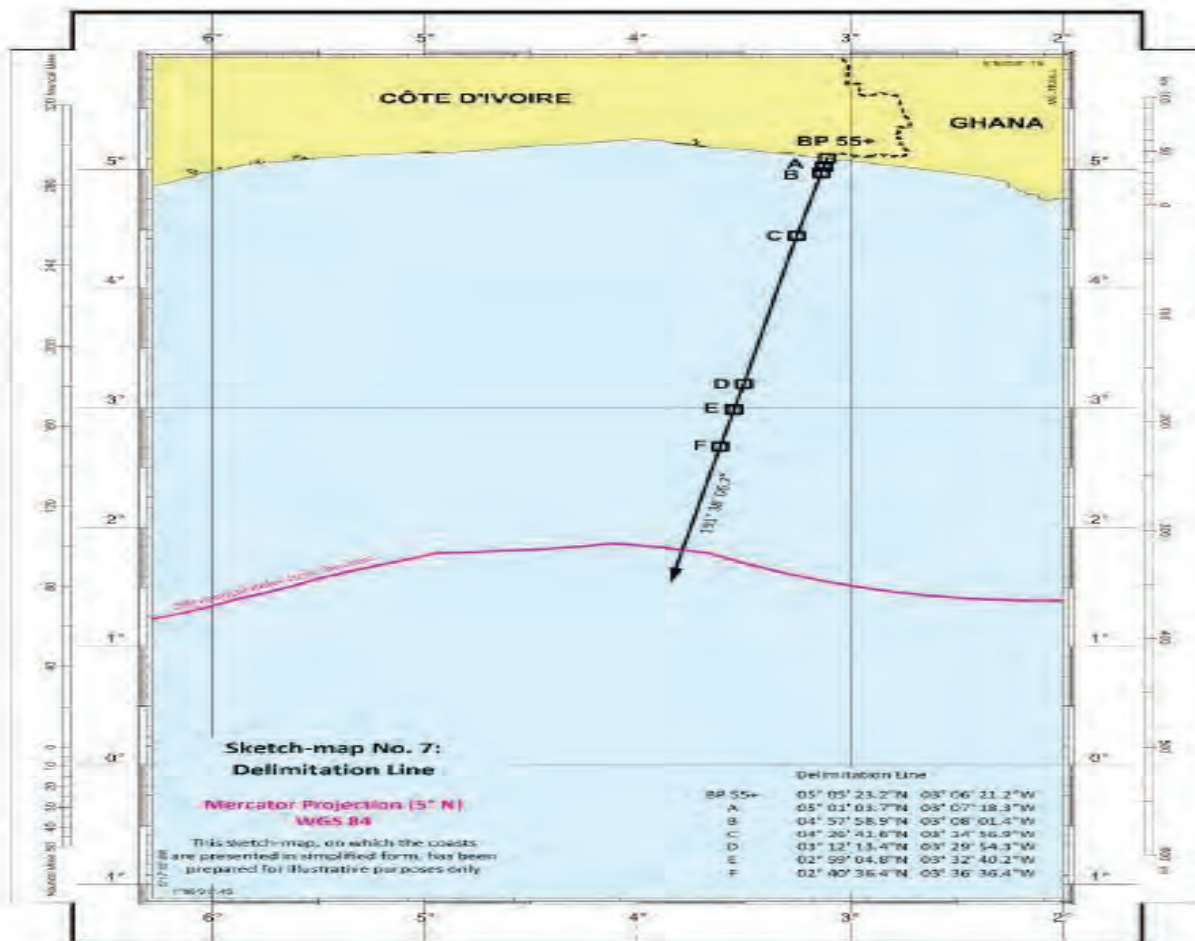
## A – The issue of overlapping claims and the necessity of maritime delimitation on the extended continental shelf

- ◆ Maritime delimitation involves the **establishment of a maritime boundary where the legal title of two or more adjacent and opposite States overlap.**
- ◆ Maritime delimitation **is beyond the competence of the Commission.**
- ◆ There is a **clear difference between the delineation of the outer limit of the continental shelf and the establishment of a maritime boundary** in case of overlapping extended continental shelves.

## A – The issue of overlapping claims and the necessity of maritime delimitation on the extended continental shelf

- ◆ **1) The difference between the delineation of the outer limit of the continental shelf and the establishment of a maritime boundary in case of overlapping extended continental shelves**
- ◆ The above has been clarified by ITLOS in *Bay of Bengal Judgment* where it stated: *“There is a clear distinction between the delimitation of the continental shelf under article 83 and the delineation of its outer limits under article 76. Under the latter article, the Commission is assigned the function of making recommendations to coastal States on matters relating to the establishment of the outer limits of the continental shelf, but it does so without prejudice to delimitation of maritime boundaries. The function of settling disputes with respect to delimitation of maritime boundaries is entrusted to dispute settlement procedures under article 83 and Part XV of the Convention, which include international courts and tribunals”.*
- ◆ The Commission is then only competent for recommendations on the validity of the national claims of extended continental shelf.
- ◆ Maritime delimitation can only be made by diplomatic or judicial means





## A – The issue of overlapping claims and the necessity of maritime delimitation on the extended continental shelf

◆ States can follow the existing jurisprudence or State practice regarding maritime delimitation of the continental shelf within the distance of 200 nautical miles from the coastline.

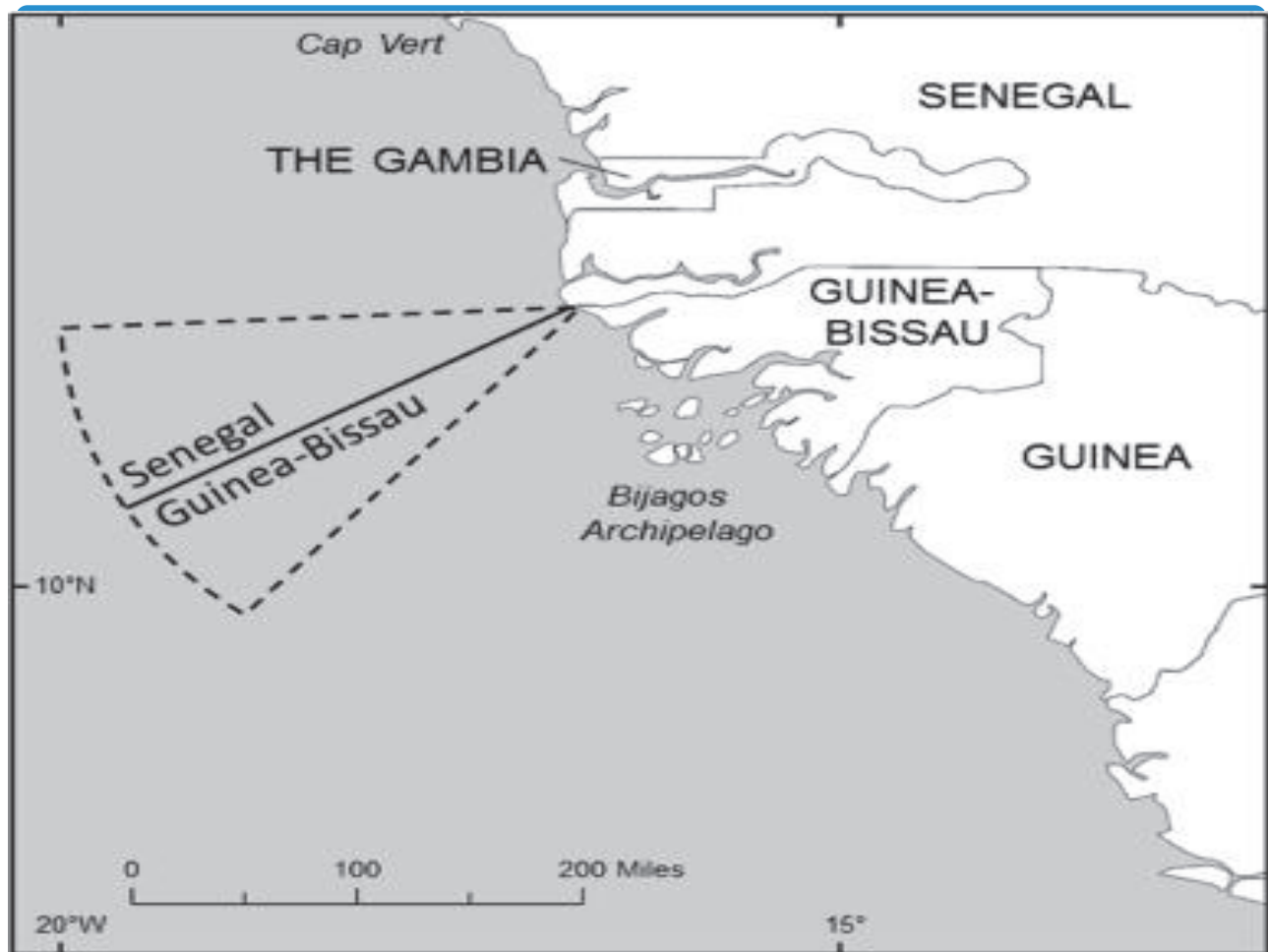
◆ The applicable law in this regard can simply be transposed on the extended continental shelf, as the jurisprudence appear to suggest. The judgment in the case between Ghana and Cote d'Ivoire before a special Chamber of the International Tribunal for the Law of the Sea by can serve as an example : the Chamber indicated that the delimitation of the extended continental shelf would be in the continuity, by following the same direction, of the delimitation line within the 200 nautical miles, as it appear on this map.

## B – The possibility of joint exploitation of the overlapping extended continental shelves

- ◆ In certain circumstances, if the States are not ready or are not willing to draw a maritime delimitation, **they might choose to exploit jointly, in part or in total, the area where their extended continental shelf overlap.**
- ◆ **Africa has already some useful examples of joint exploitation before or after the determination of a maritime boundary.**
- ◆ For the first instance, we have the **Nigeria/Sao Tome and Principe Joint development Zone**

### Formation of gulf of Guinea EEZs





## B – The possibility of joint exploitation of the overlapping extended continental shelves

◆ In 1974 Guinea-Bissau contested its boundary with Senegal. Although they attempted to resolve the matter through arbitration and a contest at the ICJ, they later settled for a more amicable process, by adopting a **Join Development Zone across the maritime boundary**.

◆ In fact, Guinea-Bissau and Senegal resolved to enter an agreement on 14th October 1998, both parties signed a **“Management and Co-operation Agreement”** in Dakar, aimed at providing among other things, the joint exploitation management and administration of both petroleum and fishing activities and seeks to provide a framework for cooperation and joint development between the two countries.

## C – Payments and contributions with respect to the exploitation of extended continental shelf (Art.82)

“1. The coastal State shall make payments or contributions in kind in respect of the exploitation of the non-living resources of the continental shelf beyond 200 nautical miles from the baselines from which the breadth of the territorial sea is measured.

2. The payments and contributions shall be made annually with respect to all production at a site after the first five years of production at that site. For the sixth year, the rate of payment or contribution shall be 1 per cent of the value or volume of production at the site. The rate shall increase by 1 per cent for each subsequent year until the twelfth year and shall remain at 7 per cent thereafter. Production does not include resources used in connection with exploitation.

3. A developing State which is a net importer of a mineral resource produced from its continental shelf is exempt from making such payments or contributions in respect of that mineral resource.

4. The payments or contributions shall be made through the Authority, which shall distribute them to States Parties to this Convention, on the basis of equitable sharing criteria, taking into account the interests and needs of developing States, particularly the least developed and the land-locked among them.”

## C – Payments and contributions with respect to the exploitation of extended continental shelf (Art.82)

◆ This is a mechanism by which State with extended continental shelf make a sort of compensation because of the extension of their jurisdiction to what is normally the Area, the Common heritage of mankind.



◆ Thank you very much for your kind attention!

# The mechanism of 'reserved areas': overview and practical implications

Workshop for the promotion of sustainable development of Africa's deep seabed resources in support to Africa's Blue Economy  
Mauritius, 1<sup>st</sup> June 2021 (remotely)



Pedro Madureira  
Legal & Technical Commission of the ISA  
Task Group for the Extension of the Continental Shelf



1



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## Summary:


- Historical setting;
- III Conference on the Law of the Sea and the 'parallel system';
- UNCLOS and ISA regulations;
- Opportunities for developing States;
- Final remarks.

2

2





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Source: <https://www.unmultimedia.org/>

**Arvid Pardo**



**1970**

2749 (XXV) Declaration of Principles Governing the Seabed and the Ocean Floor, and the Subsoil Thereof, beyond the Limits of National Jurisdiction

1. *The seabed and ocean floor, and the subsoil thereof, beyond the limits of national jurisdiction (hereinafter referred to as the area), as well as the resources of the area, are the common heritage of mankind.*
4. *All activities regarding the exploration and exploitation of the resources of the area and other related activities shall be governed by the international régime to be established.*
7. *The exploration of the area and the exploitation of its resources shall be carried out for the benefit of mankind as a whole, irrespective of the geographical location of States, whether land-locked or coastal, and taking into particular consideration the interests and needs of the developing countries.*

*1933<sup>rd</sup> plenary meeting, 17 December 1970*

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**Third United Nations Conference on the Law of the Sea**




Source: <http://legal.un.org/avl/ha/uncls/uncls.html>

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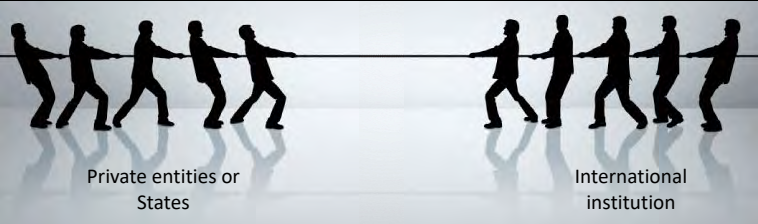
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**Third United Nations Conference on the Law of the Sea**  
**1973-1982**





Developed (industrialized) States      Developing States



Private entities or States      International institution

5

5


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**1982**




**The 'parallel system'**  
**System of exploration and exploitation (Article 153 of UNCLOS)**



1. *Activities in the Area shall be organized, carried out and controlled by the Authority on behalf of mankind as a whole [...].*  
 2. *Activities in the Area shall be carried out [...]:*  
 (a) *by the Enterprise, and*  
 (b) *in association with the Authority by States Parties, or state enterprises or natural or juridical persons which possess the nationality of States Parties or are effectively controlled by them or their nationals [...].*



Source: [https://www.un.org/Depts/los/convention\\_agreements/convention\\_20years/Montego%20Bay.htm](https://www.un.org/Depts/los/convention_agreements/convention_20years/Montego%20Bay.htm)

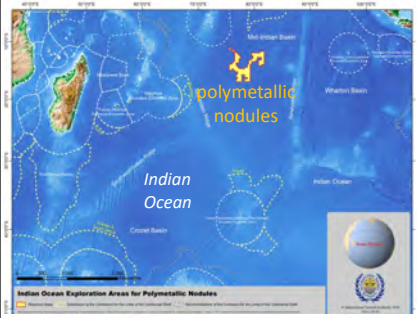
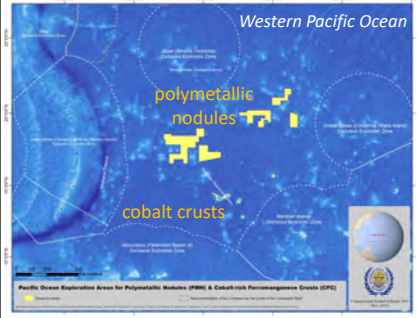
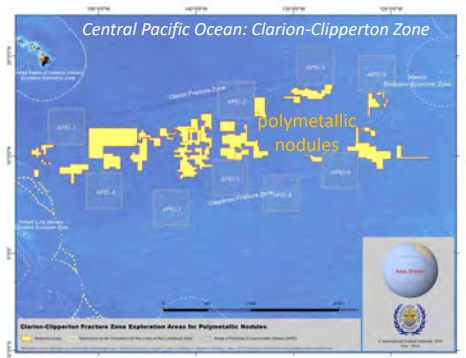
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### Reservation of areas (Article 8 of Annex III, UNCLOS)

*Each application, other than those submitted by the Enterprise or by any other entities for reserved areas, shall cover a total area, which need not be a single continuous area, sufficiently large and of sufficient estimated commercial value to allow two mining operations [...].*

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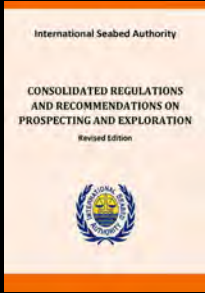
### Regulations on Exploration of mineral resources in the Area

**Regulation 16, Polymetallic Nodules**  
*Data and information to be submitted before the designation of a reserved area*

1. *Each application shall contain sufficient data and information, as prescribed in section II of annex II to these Regulations, with respect to the area under application to enable the Council, on the recommendation of the Legal and Technical Commission, to designate a reserved area based on the estimated commercial value of each part. Such data\* and information shall consist of data available to the applicant with respect to both parts of the area under application, including the data used to determine their commercial value.*



[...]

*\*e.g. Geological and physical properties, abundance, thickness, average grade, etc...*




8

8


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## Regulations on Exploration of mineral resources in the Area



**Regulation 16, Polymetallic Sulphides, Cobalt Crusts**  
 Applicant's election of a reserved area contribution or equity interest in a joint venture arrangement



*Each applicant shall, in the application, elect either to:*

- (a) Contribute a reserved area to carry out activities pursuant to Annex III, article 9, of the Convention, in accordance with regulation 17; or*
- (b) Offer an equity interest in a joint venture arrangement in accordance with regulation 19.*

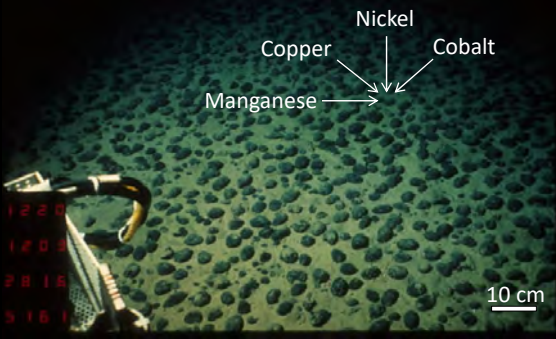


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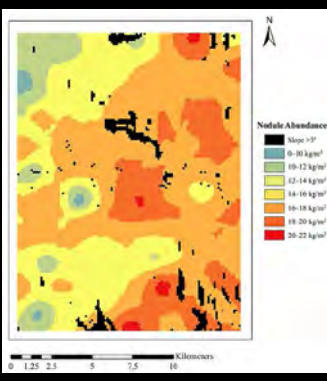
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## Polymetallic Nodules



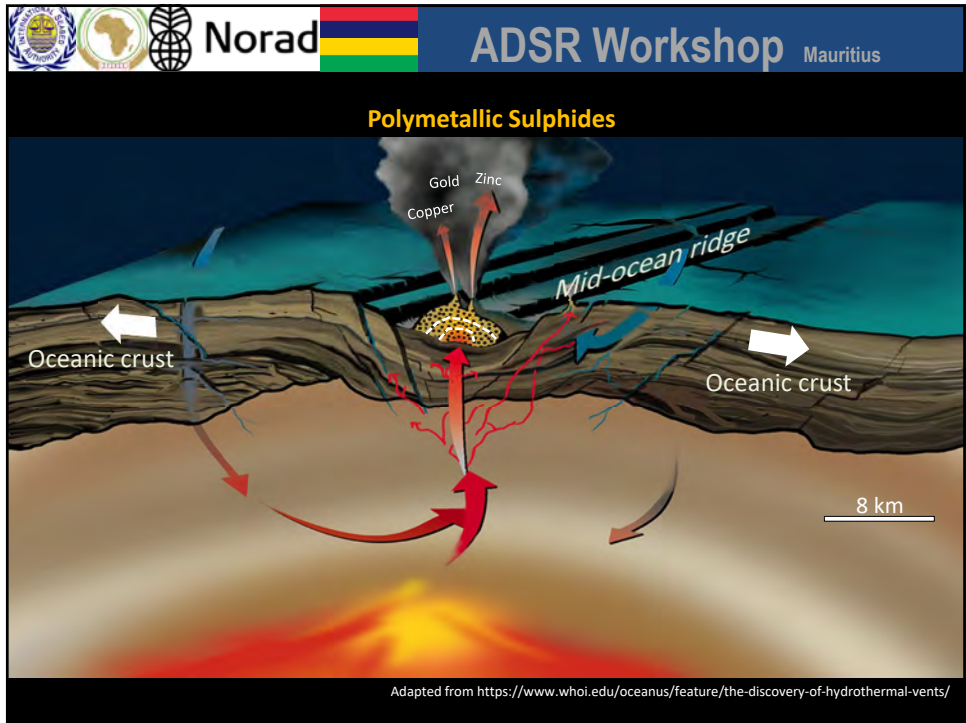
© IFREMER, 2004



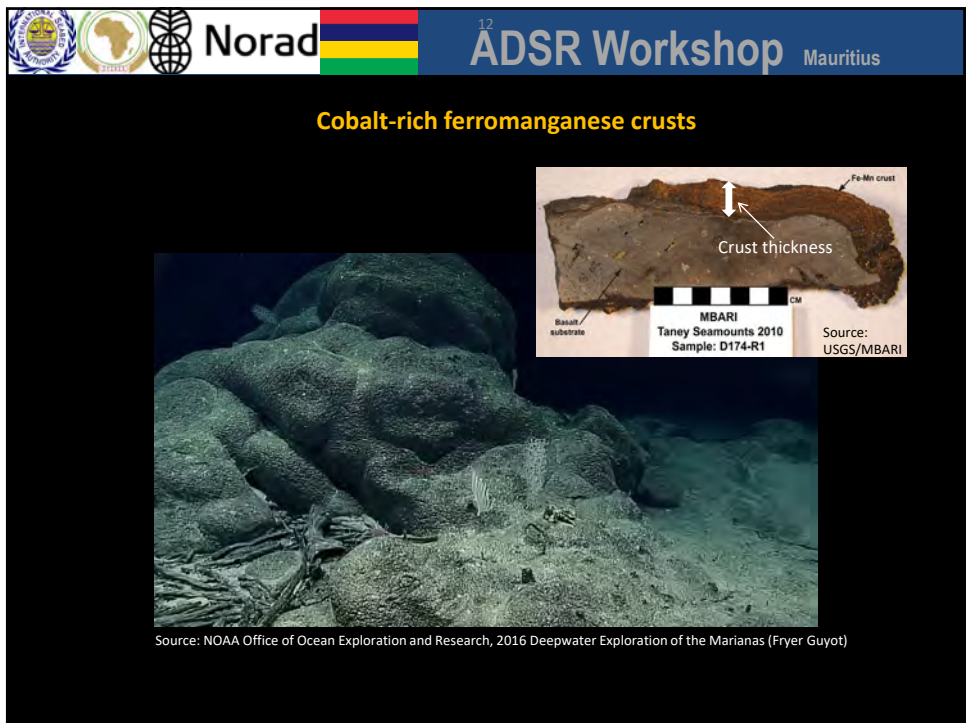
Volkmann & Lehnen, 2017

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## Regulations on Exploration of mineral resources in the Area



**Regulation 17, 18, 18**  
*Applications for approval of plans of work with respect to a reserved area*

1. Any State which is a developing State or any natural or juridical person sponsored by it and effectively controlled by it or by any other developing State, or any group of the foregoing, may notify the Authority that it wishes to submit a plan of work for exploration with respect to a reserved area.




[...]



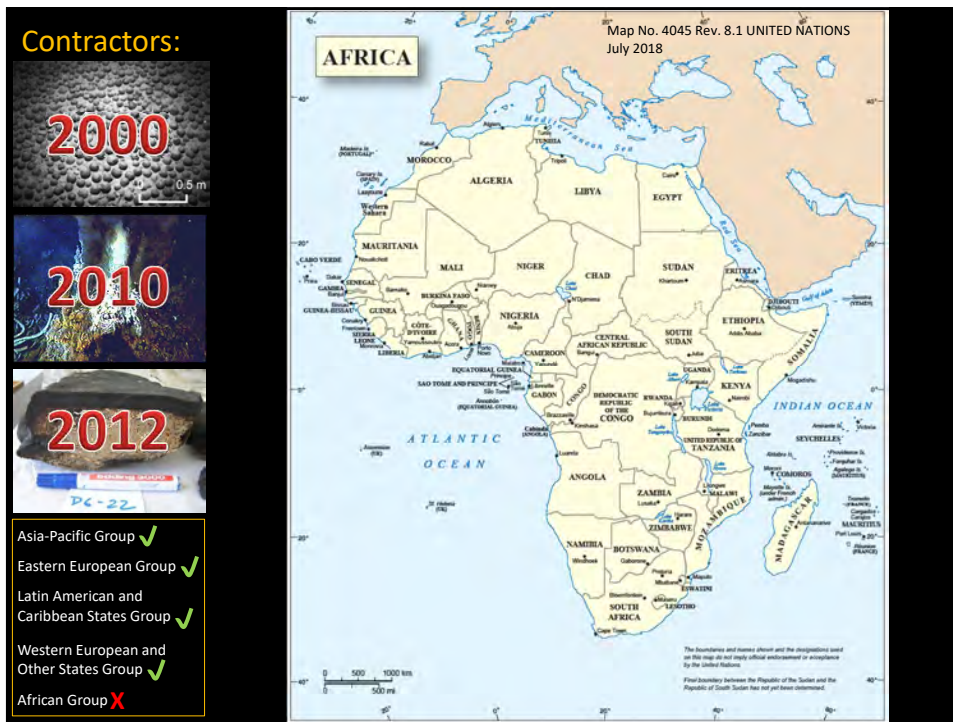
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### Contractors:

	China Ocean Mineral Resources Research and Development Association (COMRA), <b>China Minmetals Corporation</b> , Beijing Pioneer Hi-Tech Development Corporation, <b>People's Republic of China</b> - 2001, 2011, 2014, 2017, 2019; Deep Ocean Resources Development Company (DORD) and Japan Oil, Gas and Metals National Corporation (JOGMEC), <b>Japan</b> - 2011, 2014; <b>Government of the Republic of Korea</b> - 2001, 2014, 2018; Yuzhmorgeologiya, Government of the Russia Federation and the Ministry of Natural Resources and Environment, <b>Russian Federation</b> - 2001, 2012, 2015;
	Institut français de recherche pour l'exploitation de la mer (IFREMER), <b>France</b> - 2001, 2014; Interoceanmetal Joint Organization (IOM), a consortium formed by <b>Bulgaria, Cuba, Czech Republic, Poland, Russian Federation and Slovakia</b> - 2001; <b>Government of India</b> - 2002, 2016; Federal Institute for Geosciences and Natural Resources, <b>Germany</b> - 2006, 2015;
	<b>Nauru Ocean Resources Inc., Nauru</b> - 2011; <b>Tonga Offshore Mining Limited, Kingdom of Tonga</b> - 2012; <b>G-TEC Sea Mineral Resources NV, Belgium</b> - 2013; <b>UK Seabed Resources Ltd, United Kingdom</b> - 2013, 2016;
<b>Asia-Pacific Group</b> ✓ <b>Eastern European Group</b> ✓ <b>Latin American and Caribbean States Group</b> ✓ <b>Western European and Other States Group</b> ✓ <b>African Group</b> ✗	<b>Marawa Research and Exploration Ltd, Republic of Kiribati</b> - 2015; <b>Ocean Mineral Singapore Pte Ltd., Singapore</b> - 2015; <b>Companhia de Pesquisa de Recursos Minerais, Brazil</b> - 2015; <b>Cook Islands Investment Corporation, Cook Islands</b> - 2016; <b>Government of Poland</b> - 2018; <b>Blue Minerals Jamaica Ltd., Jamaica</b> - 2021.

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**Final remarks**

- The 'parallel system' and the reserved areas provide an opportunity for the participation of developing States in the activities in the Area;
- More than 810,000 km<sup>2</sup> remains available as reserved area for Polymetallic Nodules and 3,000 km<sup>2</sup> for Cobalt crusts;
- The reserved areas enclose mineral resources, which commercial value was preliminary estimated as being similar to an area that is already being explored under a contract with the ISA;
- One of the responsibilities of the ISA Secretariat is the evaluation of the mineral resources contained in reserved areas. This implies the validation of the available data and information, geostatistical analysis and harmonization of different protocols used by contractors.

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## Final remarks

International Seabed Authority

English Français Español

ABOUT THE AUTHORITY OUR WORK DOCUMENTS AND RESOURCES MEDIA CENTRE SESSIONS

# DeepData

## DeepData Database

DeepData About Contact Manual

The ISA Deep Seabed and Ocean Database has been designed to serve as a spatial, internet-based data management system. Its main function is to host all deep seabed activities related data and in particular, data collected by the contractors on their exploration activities, as well as any other relevant environmental and resources related data for the Area.

[Launch application](#)

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# Thank you!

Indian Ocean Exploration Areas for Polymetallic Nodules

Western Pacific Ocean

Clarion-Clipperton Fracture Zone Exploration Areas for Polymetallic Nodules

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18



**Africa Mining Vision and  
contribution of deep-seabed  
exploration and exploitation  
to the development of Africa's  
Blue Economy**

*Mr. Frank Mugenyi, Interim  
Coordinator, African Minerals  
Development Center, Africa Union  
Commission*

*Addis Ababa, Ethiopia  
June 01, 2021*



1

## Quick Facts

- Minerals and other natural resources contributes to economic growth and sustainable development, if wisely exploited;
- Africa's abundant mineral resources are not yet contributing equitably and effectively towards improving the living conditions of its populations;
- Increasing competition and demand for Africa's raw mineral resource and imposition of trade conditionalities,
- Urgency of the continent's policy space to accommodate the local beneficiation, value addition, and resource-based industrialization.

2

## The Africa Mining Vision (AMV)

- The African Heads of State and Government adopted the Africa Mining Vision in 2009 with the long-term goal of attaining...

“ transparent, equitable and optimal exploitation of mineral resources to underpin broad-based sustainable growth and socio-economic development ”

It is not about **mining**; it is about **development**! It essentially seeks to use Africa's natural resources sector to transform the continent's social and economic development.

3

## Africa Mining Vision (AMV)-Linkage Based Approach

*“A knowledge-driven African mining sector that catalyses & contributes to the broad-based growth & development of, and is fully integrated into, a single African market through:*

- **Downstream linkages** into mineral beneficiation and manufacturing;
- **Upstream linkages** into mining capital goods, consumables & services industries;
- **Side-stream linkages** into infrastructure (power, logistics; communications, water) and skills & technology development (HRD and R&D);
- **Mutually beneficial partnerships** between the state, the private sector, civil society, local communities and other stakeholders; and
- A **comprehensive knowledge** of its mineral endowment.”

4



## AMV – Mineral Led development

- The AMV begins with the notion that Africa’s mineral comparative advantage would build competitive advantages and unleash structural economic transformation towards “knowledge-driven” economies.
- It is anchored on the understanding that mineral resources are part of the stock of natural capital that can spur Africa’s development.
- The Vision underscores the fact that development can occur if Africa succeeds in transforming transient mineral wealth into other forms of lasting capital which outlive the currency of mining.

5

## AMV – Relevant Policies Instruments

The AMV Policy Instruments include:

- **The Geological and Mineral Information Systems Strategy (GMIS)** -to improve geological and geospatial information.
- **African Minerals Governance Framework** to improve the governance of minerals development for sustainable development
- **African Mineral and Energy Resources Classification and Management System (AMREC)** - African continental and national system for comprehensive resource management.
- **Pan-African Reserves and Resources Reporting Code (PARC)**- Pan-African Code for public disclosure
- **AMV – Private Sector Compact** – to ensure mutual and shared benefits

6

## Africa's Opportunities: Maximize the 5 resource Linkages

1. **FISCAL:** Capture & invest of resource rents (RRT) in long-term economic physical & human infra (inter-generational-IGE)
2. **SPATIAL:** Puts in critical infra-structure to realise other economic potential & could stimulate lead industrial development.
3. **BACKWARD;** Inputs: Capital goods, consumables, services, (also export)
4. **KNOWLEDGE Linkages (HRD & R&D):** "Nursery" for new tech clusters, adaptable to other sectors
5. **FORWARD;** Value-addition: (beneficiation), Export of resource-based articles

7

## African Minerals Development Center (AMDC)

- To promote domestication of the AMV, the African Minerals Development Centre (AMDC) was established in 2013 as an agency of the AU Commission.
- In January 2016, the AU Heads of State adopted Statutes establishing the AMDC as a Specialized Agency of the AU.
- July 2018, the AU Summit selected the Republic of Guinea as host of the AMDC Secretariat.
- 27 May 2021, the AMDC Host Agreement was signed between the African Union Commission and the Republic of Guinea.
- Currently, the Centre its in transition from Addis Ababa to Guinea.

8



## Deep-seabed Resources' development in Africa

- The African continent is endowed with massive aquatic and marine resources including oceans, seas, rivers and lakes with potential for blue economy growth.
- The continent has 38 coastal states and a number of island states such as Cape Verde, Sao Tomé and Príncipe, Mauritius, Seychelles, Madagascar and the Comoros.
- These water bodies and wetlands are certainly of strategic importance to the continent and provide opportunities for fisheries, aquaculture, shipping, coastal tourism, offshore oil and gas energy mobilization and other blue economy related activities.

9

## Challenges in realizing the full benefits of Blue Economy in Africa

- The increasing menace of illegal fishing in the Exclusive Economic Zones (EEZ).
- Sea piracy and illegal drug trafficking.
- Pollution through dumping of toxic wastes.
- Climate change and its variability.
- Significant institutional and governance challenges

10

## AU Polices in addressing the challenges

- The African Union recognizes these challenges and thus established a clear vision for the continent as encapsulated in;
  1. Policy Framework and Reform Strategy for Fisheries and Aquaculture in Africa (PFRS)
  2. The 2050 African Integrated Maritime Strategy (AIMS)
  3. The 2016 Lomé Charter
  4. African Union Agenda 2063, the Africa We Want
  5. The Africa Blue Economy Strategy, 2019.

11

## The AMDC Areas of Interventions in the African Blue Economy

**The following aspirations will be meet by the Centre in the long run:**

- Increase deep-seabed and seawater mining production for meeting demand and economic prosperity.
  - Create conducive regulatory frameworks for exploration of deep seawater.
  - Promote sustainable and environmentally friendly deep-seawater exploration.
  - Capacity building and technology transfer
- The AMDC will under the overall guidance of the AU Commission will embarks on initiating partnerships to achieve the above objectives.

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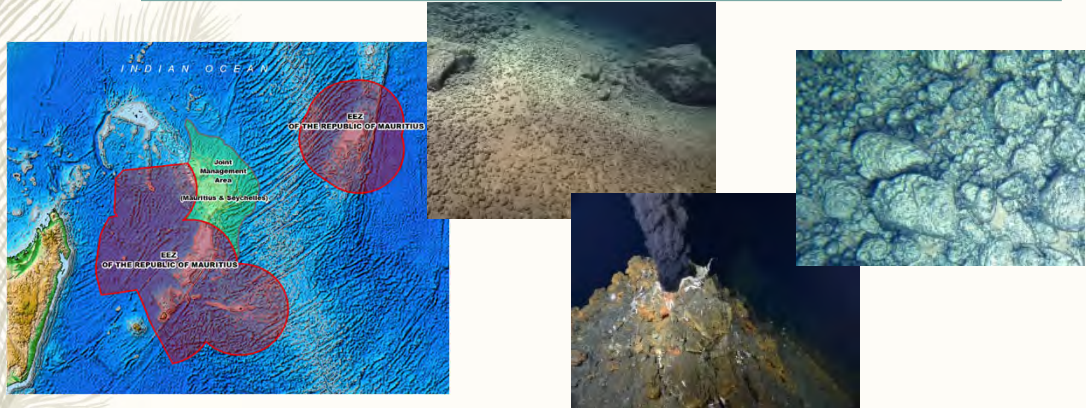
# Thank You!

*Mr. Frank Dixon Mugenyi, Interim Coordinator,  
African Minerals Development Center,  
MugenyiF@africa-union.org  
Africa Union Commission, Addis Ababa, Ethiopia ,  
June 01, 2021*





## Importance of deep seabed exploration to support the development of a national blue economy - The case of Mauritius



Department for Continental Shelf, Maritime Zones Administration & Exploration  
Prime Minister's Office

01 June 2021

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## Outline

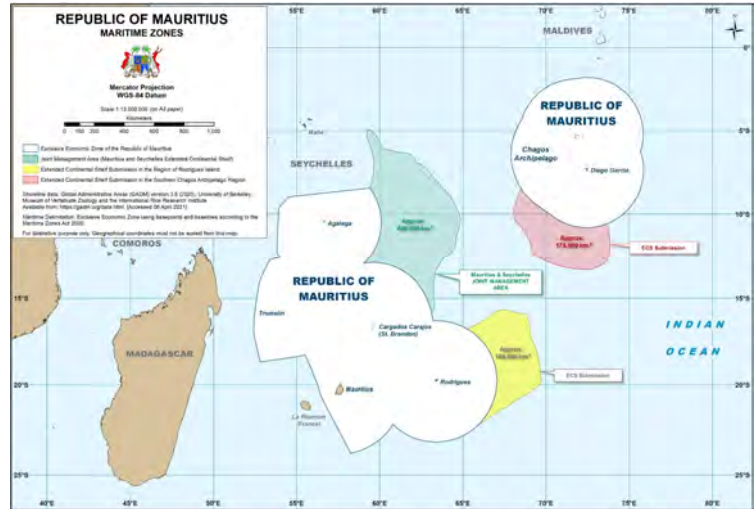
1. Mauritius maritime jurisdiction
2. Distribution of known mineral deposits
3. ISA contracts in the Indian Ocean
4. Mineral deposits sites within Mauritius jurisdiction
5. Importance of deep seabed exploration
6. The Department, CSMZAE
7. Legal frameworks
8. Issues and Gaps

2



# 1. Mauritius maritime jurisdiction

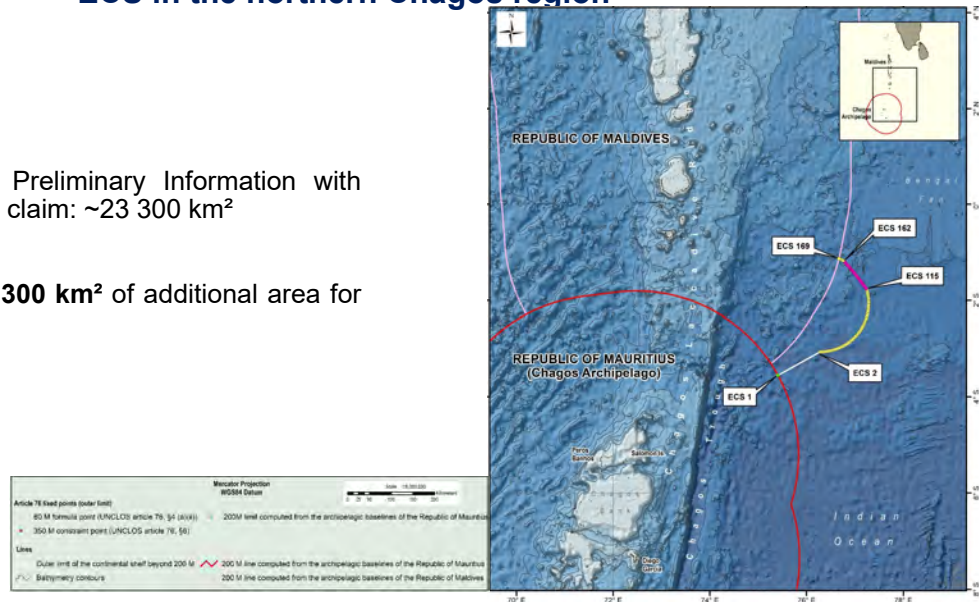
- Mauritius EEZ: ~2.3 M km<sup>2</sup>
- Submission for Extended Continental Shelf (ECS)
  - East of Rodrigues: ~169 000 km<sup>2</sup>
  - South of Chagos: ~175 000 km<sup>2</sup>
- Mauritius jurisdiction over the seabed and subsoil: **~2.644 M km<sup>2</sup>**
- +
  - Joint ECS with Seychelles / JMA ~400 000 km<sup>2</sup>
- Potential area for exploration: **~3.044 M km<sup>2</sup>**



3

# 1. Mauritius maritime jurisdiction ECS in the northern Chagos region

- Submission of Preliminary Information with regards to ECS claim: ~23 300 km<sup>2</sup>
- Potentially **23 300 km<sup>2</sup>** of additional area for exploration

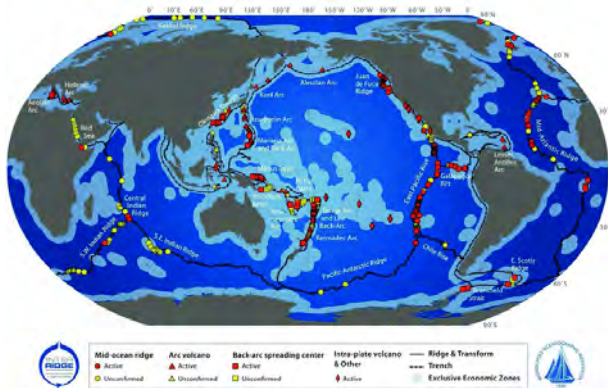


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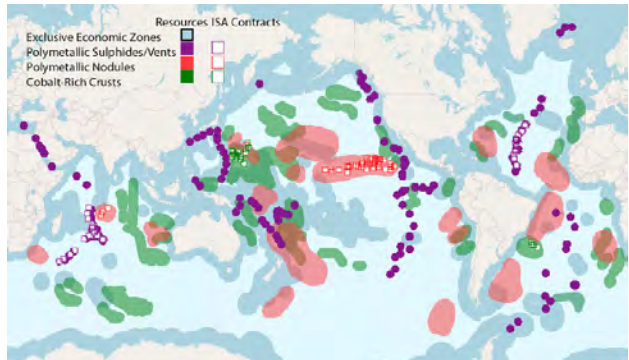
## 2. Distribution of known mineral deposits

### 3 categories of seabed minerals

- Polymetallic Nodules (PN): abyssal plains, mid-ocean basins → vast areas of the seafloor
- Seafloor Massive (polymetallic) Sulfides (SMS): hydrothermal vents → along mid-ocean ridges
- Cobalt-Rich Crusts (CRC): topography highs in areas of significant volcanic activity → seamounts, ridges, plateaus



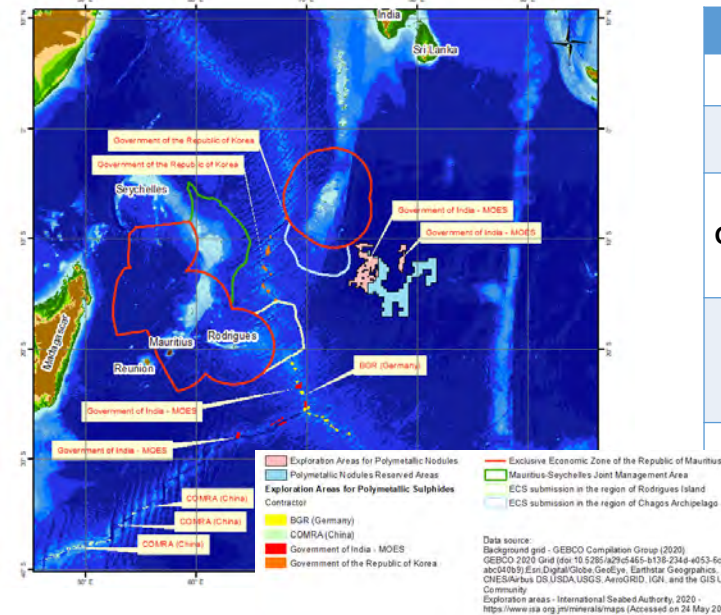
Global distribution of hydrothermal vents  
(Source: InterRidge cruise database, 2011)



Global distribution of mineral deposits  
(source: Miller et al., 2018)

5

## 3. ISA contracts in the Indian Ocean



Minerals	PN	SMS	CRC
Country			
China		South West Indian Ridge	
Germany		Central Indian Ridge + South East Indian Ridge	
India	Central Indian Basin	Central Indian Ridge + South West Indian Ridge	
Korea		Central Indian Ridge	

Note: ISA was notified that some contract areas are very close to the MRU national jurisdiction to avoid overlap.

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## 4. Mineral deposits sites within Mauritius jurisdiction Chagos Area



Earth-Science Reviews 60 (2002) 67–130



### The Indian Ocean Nodule Field: prototectonic evolution and ferromanganese deposits

Ranadhir Mukhopadhyay<sup>a,\*</sup>, Sridhar D. Iyer<sup>b</sup>, Anil K. Ghosh<sup>c,1</sup>

<sup>a</sup>Mauritius Oceanography Centre, Prince Centre, Quatre Bornes, Mauritius  
<sup>b</sup>Geological Oceanography Division, National Institute of Oceanography, Dona Paula, Goa 410 004, India  
<sup>c</sup>Department of Geology, University of Calicut, 31 B.C. Road, Kullath 700 019, India

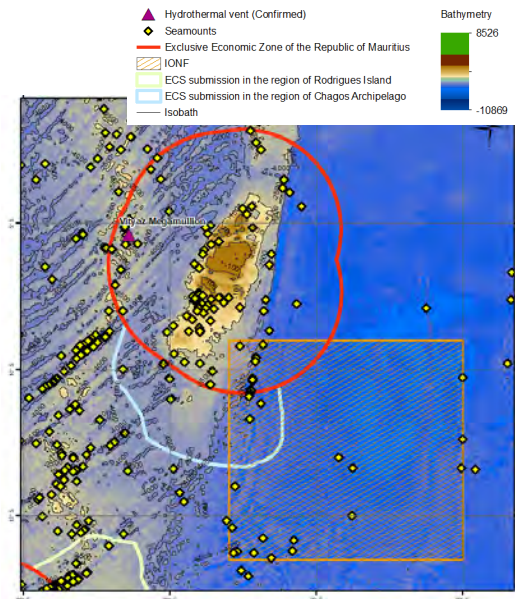
Received 12 October 2000; accepted 5 April 2002

This paper is dedicated to the memory of a visionary oceanographer of India, the late Dr. Hanuman Nandan Siddiqui, former Director of the National Institute of Oceanography, Goa. He initiated India's deep-sea research program and laid the RM and SDI in researching the mysteries of the oceans.

#### Abstract

The Indian Ocean Nodule Field (IONF) is significant from several points of view. Roughly bordered by 10°S to 16°30'S and 72°E to 80°E and located within the Central Indian Ocean Basin (CIOB), the field hosts the world's second largest and second high grade manganese nodule deposit, after the equatorial nodule belt in the north Pacific Ocean. Moreover, the crust underlying this field is characterised by unique morphotectonic signatures owing to its formation between 60 and 49 Ma under three variable spreading conditions, fast, intermediate and slow, from the Indian Ocean Ridge System (IORS). The nodule field has been surveyed both extensively (more than 6.4 million km<sup>2</sup> area) and intensively (comprising of a large geophysical data set and geological sample inventory) during the last two decades. Several morphotectonic features, such as seamounts, hills, ridge-

Seamounts  
→ CRC ?



- South of Chagos Archipelago (within EEZ + ECS)  
Indian Ocean Nodules Field (IONF) → PN
- West of Chagos along the Central Indian Ridge (within EEZ)  
1 hydrothermal vent field (Vityaz Megamullion) → SMS

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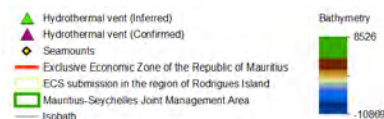
## 4. Mineral deposits sites within Mauritius jurisdiction Rodrigues area

- East of Rodrigues island along the CIR (within EEZ)
  - 2 hydrothermal vent fields discovered
    - Dodo Vent field
    - Solitaire Vent field
  - 1 plume detected @ 19°29'S (CIR 19°29'S)

→ SMS

- Seamounts → CRC ?

Note: Presence of more hydrothermal vent fields along the CIR (outside of EEZ) → SMS



8



## 4. Mineral deposits sites within Mauritius jurisdiction Mascarene Basin

Marine Mining, Volume 10, pp. 303-335  
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0149-0397/91 \$3.00 + .00  
Copyright © 1991 Taylor & Francis

### Manganese Nodules in the Exclusive Economic Zone of Mauritius

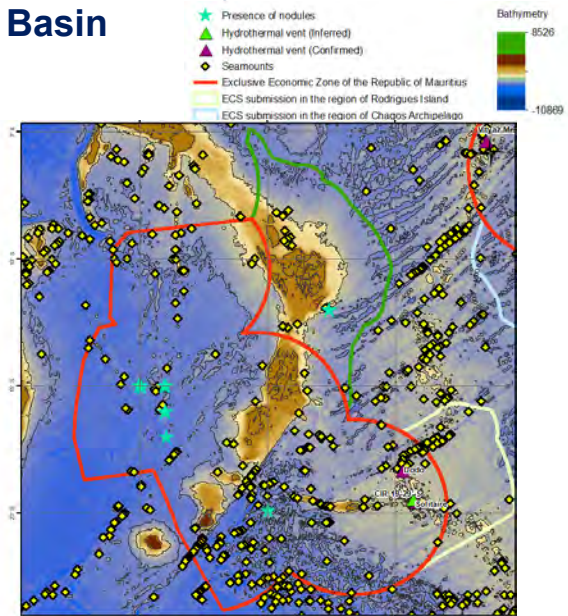
B. NAGENDER NATH  
M. SHYAM PRASAD

Geological Oceanography Division, National Institute of Oceanography  
Dona Paula, Goa-403 004, India

**Abstract** *The distribution of manganese nodules in the Exclusive Economic Zone of the island nation Mauritius was delineated during cruise SK-35 of O.R.V. Sagar Kanya in 1987. The areas surveyed included Saya de Malha and Nazareth Banks, the Cargados Carajos shoals, Rodriguez Ridge, and the Soudan Bank of the Mascarene Plateau and Mascarene Basin. Of the 57 locations sampled, manganese nodules were recovered at 11 sampling stations. The nodules were confined to a small area of approximately 11,900 km<sup>2</sup> in the Mascarene Basin off Tromelin Island. Nodule*

→ PN

Seamounts → CRC ?



9

## 5. Importance of deep seabed exploration

Considering the existing and potential mineral resources of the Mauritius maritime jurisdiction and immediate areas, the possibility of an emerging seabed minerals sector in the region exists. However, it requires a legal framework, good technical knowledge/skills and important financial investment.

→ Investment in marine scientific (deep sea) research which is the basis for any judicious development

→ Training of highly qualified and competent marine scientists

→ Better understanding of the deep sea environment and marine ecosystem

→ Understanding of life on earth

→ Development of new technologies and remedies/drugs

→ Discovery of seabed minerals sites/fields

→ Depending on extent/quantity and extraction costs → Seabed minerals **exploitation**

→ Depending on supply and demand → Eventual decrease/control of future metal prices

→ Development of an emerging seabed minerals sector and related supporting activities

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## 6. Main functions of the Department- Seabed Minerals

---

- **Develop strategies and policies** to minimise and manage the impacts of seabed mineral activities on the marine environment;
- **provide a regulatory regime** for the conduct of seabed mineral activities;
- **facilitate the conduct of seabed mineral activities** to maximise benefits to Mauritius and the people of Mauritius;
- **Build-up capacity** in seabed mineral exploration; and
- **Management of seabed mineral activities.**

11



## 7. Mineral Act 1966

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- In Mauritius, the legislation governing prospection and mining of minerals in or under any land is the **Mineral Act 1966**. The Government of Mauritius has the **exclusive right to prospect for minerals** and the responsible Minister can authorize in writing any person to carry out prospecting operations in or under any land on behalf of the Government.
- The Act defines minerals as:
  - (i) **metalliferous minerals** containing aluminium, antimony, arsenic, barium, bismuth, cadmium, cerium, chromium, cobalt, columbium, copper, iron, lead, lithium, magnesium, manganese, mercury, molybdenum, nickel, potassium, sodium, tantalum, tin, titanium, tungsten, uranium, vanadium, zinc, zirconium, and all other substances of a similar nature to any of them, and all ores containing them and combinations of any of them with each other or with any other substance, other than those occurring in the form of precious minerals;
  - (ii) **combustible carbonaceous minerals** including coal, lignite, which includes brown coal and any coal which the President may prescribe to be lignite;
  - (iii) **other minerals**, including those used for their abrasive or refractory qualities and asbestos, barytes, bauxite, china clay, crystals, fuller's earth, graphite, laterite, marble, mica, nitrates, pipeclay, potash, pumice, quartz, slate, soda, sulphur, talc, and all other substances of a similar nature to any of them; and
  - (iv) **precious minerals** including precious stones such as diamonds, emeralds, opals, rubies, sapphires, turquoises, and such other stones as may be prescribed to be precious stones for the purposes of this Act and semi-precious stones including amber, amethyst, beryl, cat's eye, chrysolite, garnet and all other semi-precious stones, whether of the same kind as those enumerated or not.

12




## 7. Development of a new legal framework for Seabed Minerals

---

- The Government, in collaboration with the Commonwealth Secretariat, has developed **2 separate Seabed Minerals Bills** to provide for :
  - management of seabed mineral activities within the **maritime zones of Mauritius-EEZ and Areas Beyond National Jurisdiction (ABNJ)**.

13



## 7. Seabed mineral activities within the maritime zones of Mauritius

---

- The new bill aims at regulating seabed mineral activities in the maritime zones of Mauritius.
  - Including:
    - prospection,
    - exploration,
    - retention,
    - mining or,
    - abandonment mineral activities.
- The Bill shall also address environmental impacts and safety aspects.

14



## 7. Seabed Minerals Bill for the ABNJ

---

- The primary objective of the Seabed Mineral Bill for the ABNJ is to establish a **legal framework for the sponsorship and the effective control** of stakeholders involved in seabed mineral activities in the Area.
- The Bill shall **comply with all relevant standards of ISA and obligations under UNCLOS.**

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## 7. Safeguard of the marine environment

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- 

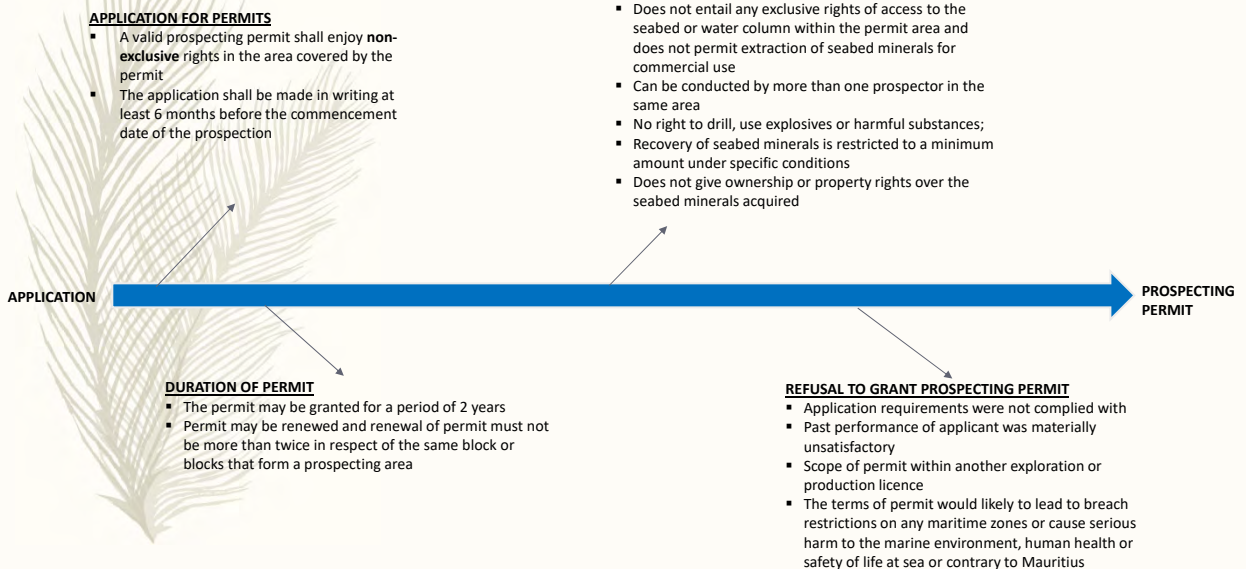
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## 7. The precautionary principle

- “the precautionary principle” means that, in order to **protect the environment**, where there are **threats of serious and irreversible damage** to the marine environment or **threats to human health**, **lack of full scientific certainty** regarding the extent of adverse effects **shall not be used as a reason for postponing measures to prevent or minimise environmental degradation** arising in any way from a matter or person or activity regulated;

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## 7. Example of Prospecting permit



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## 7. Expression of Interest (EOI) for sponsorship

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- In 2016, an EOI was launched for sponsorship by the Government of Mauritius, for seabed mineral exploration in **areas beyond the limits of national jurisdiction**.
- The exercise demonstrated some interest, but a comprehensive list of eligible companies need to identified and evaluated.

19



## 8. Issues and Gaps

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- The country faces certain challenges in terms:
  - **financial capacity** to support mineral activities and the safeguard of the marine environment;
  - **expertise, technology and research vessel** to undertake deep sea marine resource surveys;
  - **evaluation of mineral prospect** in our waters;
  - need to **strengthen our institutional capacity** associated with the implementation of recommended regulatory regime, including human resources and technological know-how.

Mauritius is in the process of seeking international collaboration.

20



Thank you for watching & listening

Presenters

Dr. Dass Bissessur & Dr. Beenesh Motah

**Department for Continental Shelf, Maritime Zones Administration & Exploration**

Email: [mzadministration@govmu.org](mailto:mzadministration@govmu.org)

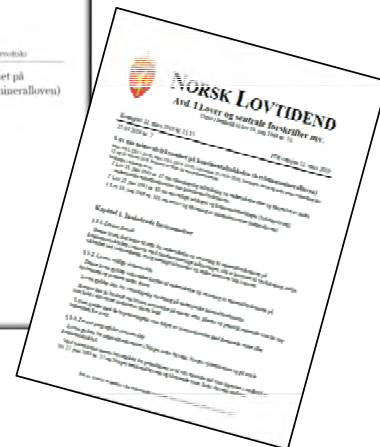
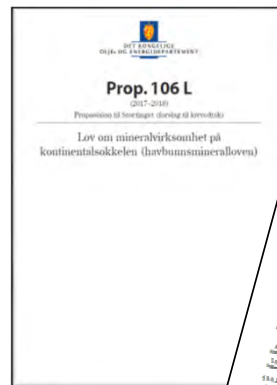
## Exploration of mineral resources in national jurisdiction: case study about Norway

Sissel H. Eriksen, Senior Geologist,  
Norwegian Petroleum Directorate,  
Norway

1

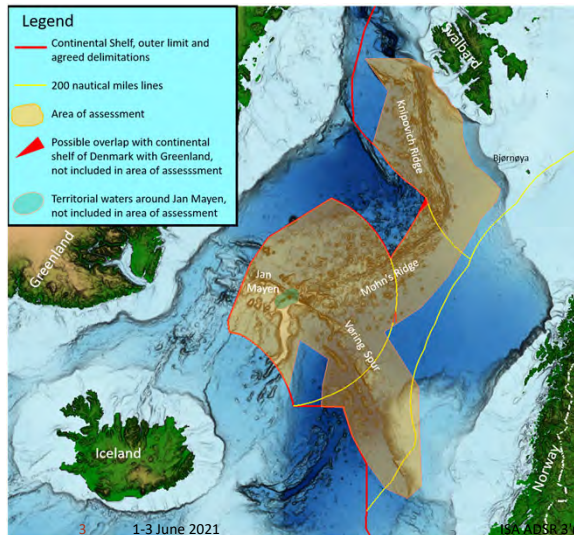
## Regulations of activity on the NCS

- Subsea Minerals Act:
  - Entered into force 1. July 2019
- Opening process
  - Impact Assessment
  - Resource Evaluation
- This forms the decision base on which a decision of opening is made.



2

## Opening process – Study area



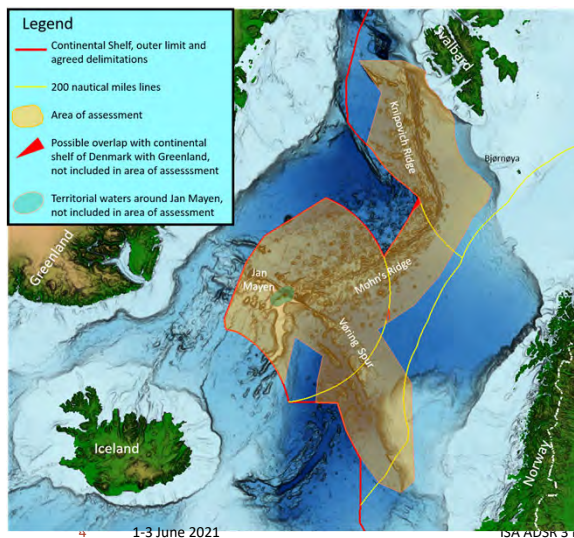
## Impact Assessment & Resource Assessment

The Competence lies with the Ministry of Petroleum and Energy (MPE)

- The NPD is the expert agency of the MPE
- The MPE has initiated the opening process as stipulated in the Act
- The NPD is tasked with the assessment study, including mapping and estimating resources

3

## Opening process – Study area



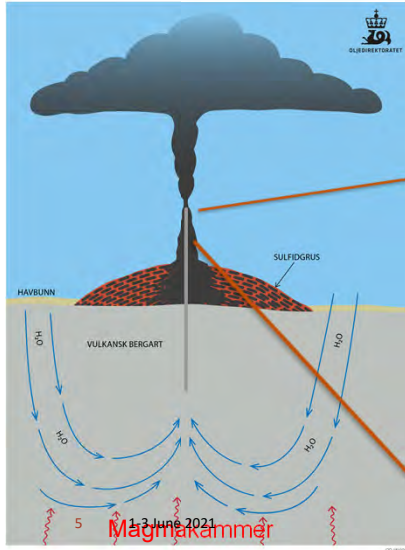
## 2 types of Sea-Bed Minerals on the NCS

- Sulphides – along the Spreading ridges
- Mn-Crusts – grows on bare Rock
- Third type: Nodules – Pacific Sea

4

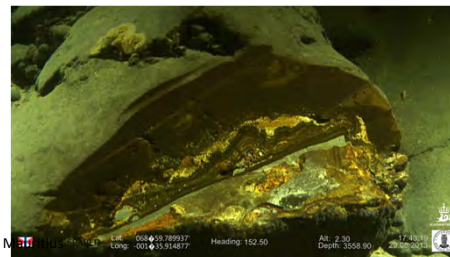
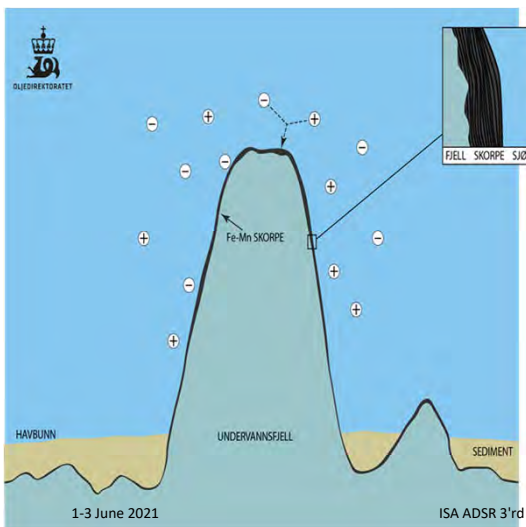


# Norwegian shelf- Sulphides



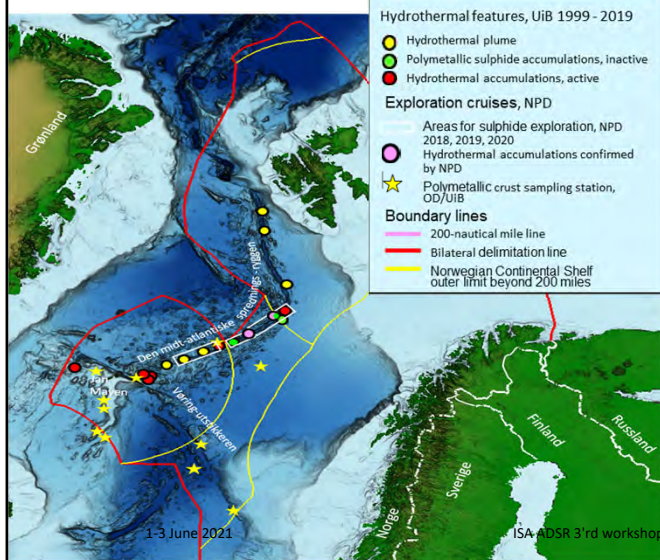
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# Norwegian shelf - Mn-crusts



6

# Exploration Sea-bed minerals 1999-2020

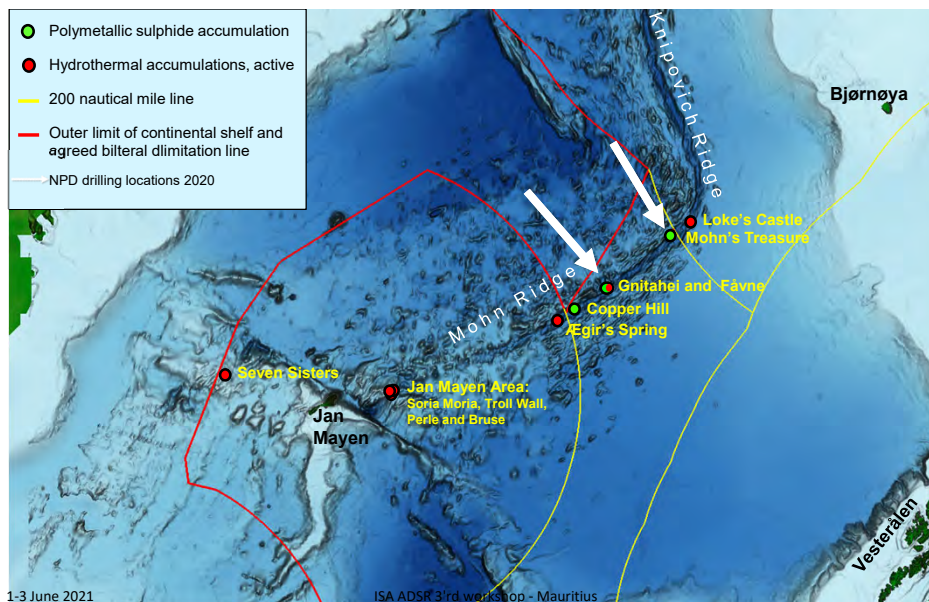


## Database, Sulphides and Mn-crusts

- 1999 – 2020: UiB, annual scientific research cruises
- 2011 – 2020: NPD-UiB joint annual scientific research cruises
- 2016: NTNU, scientific research cruise (MARMINE)
- 2020: NPD – UiT joint scientific research cruise
- **2018 - 2020: NPD, annual cruises for exploration and data acquisition based on commercial tenders – Mohns Ridge**
- **2021: Geophysical cruise,**
  - Knipovitsj ridge

7

# Known hydrothermal accumulations within the NCS



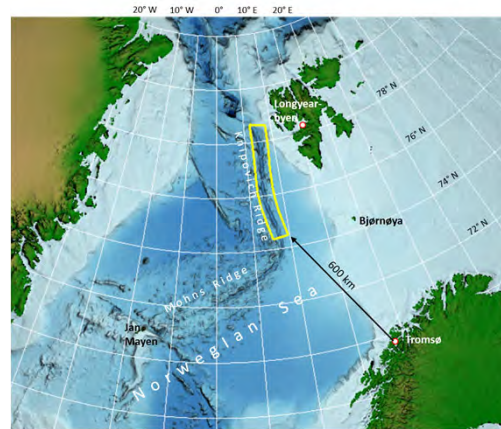
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## NPD Cruise 2021 – southern part of the Knipovitsj-ridge



- Detailed mapping of southern part of the Knipovitsj-ridge by ROV & AUV
- Focus:
  - 2 possible Hydrothermal plumes
- Announcement (Merrell og Doffin)
  - <https://www.merrell.com/en/tender/148393965/innsamling-av-geodata-for-kartlegging-av-sulfidforekomster-i-norskehavet---prekvalifisering-tender.aspx>
- Plan to sign contract June 2021



9 1-3 June 2021

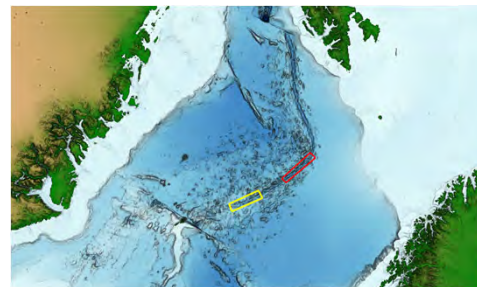
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9

## NPD cruise 2019 – Mohns ridge, sulphides



- Pionér cruise, 3 AUV's simultaneous acquisition
- Sensors on AUV: MBES, SBP, magnetometry, SP, Metan, PH
- Ocean Infinity – Swire – Ocean Floor Geophysics
- Discovered 3 inactive sulphide-deposits



10 1-3 June 2021

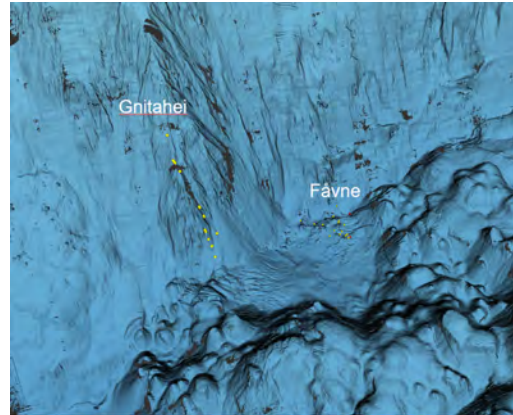
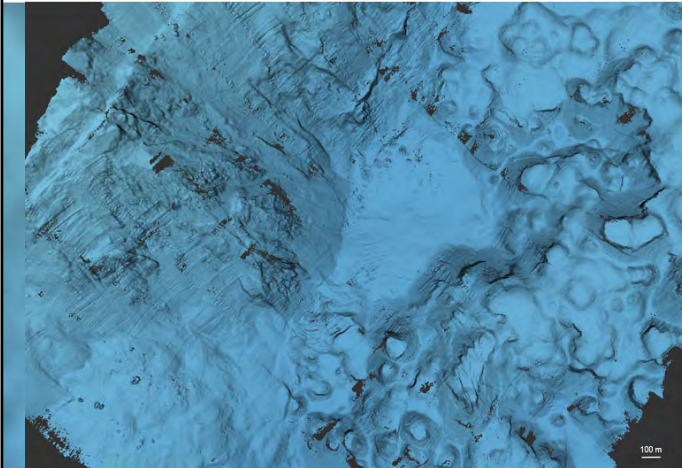


Seabed Constructor

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## Resolution - improved data quality

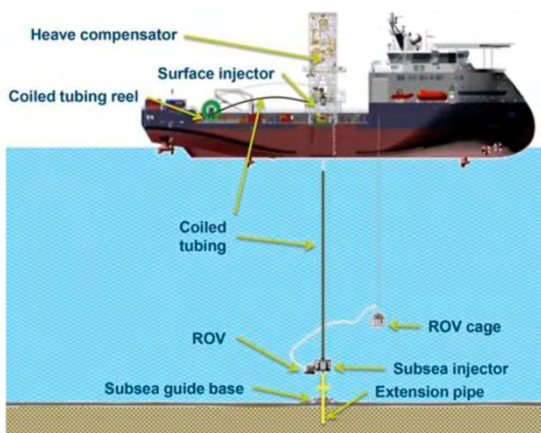


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## NPD - cruise 2020 – Riserless Coiled Tubing core drilling

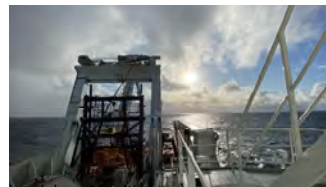


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Island Valiant



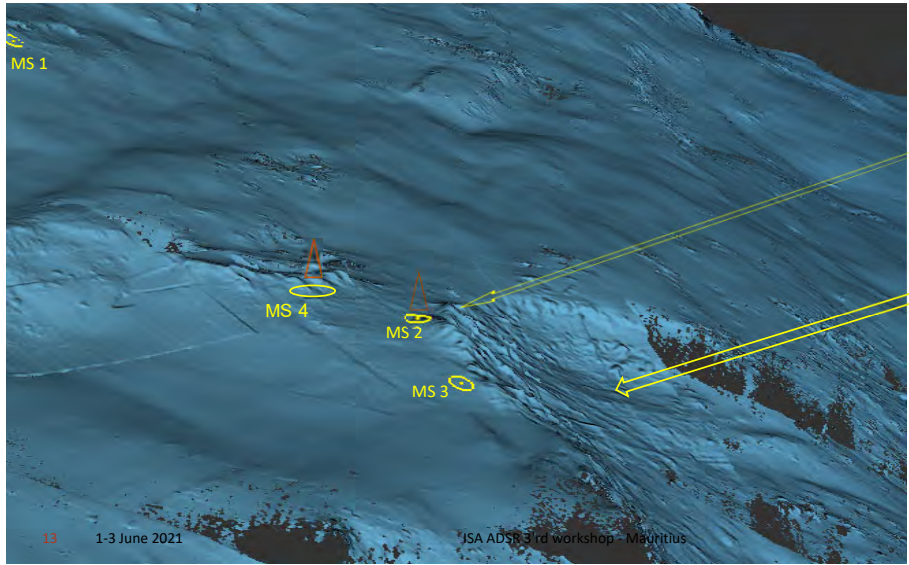
3 happy NPD Geologists



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# Drilling locations MS 1- MS 4, Mohns treasure, NPD 2020



Sulphide chimneys



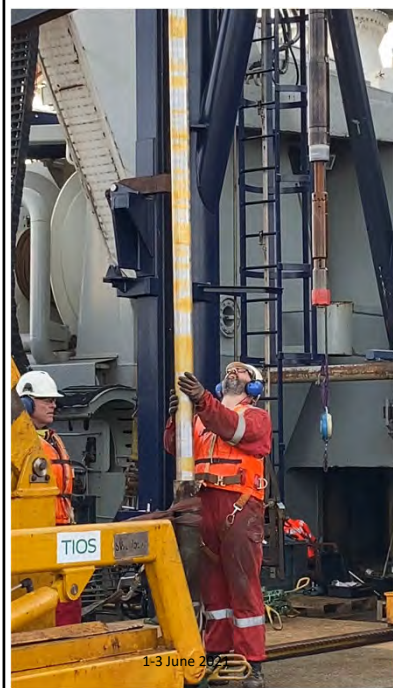
△ = Well

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# Mohns-treasure -Cores on deck

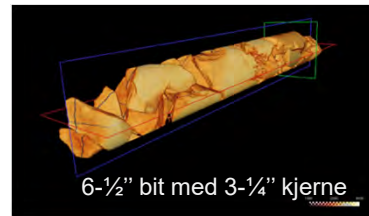
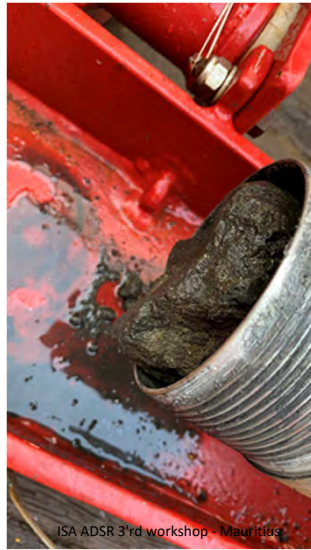
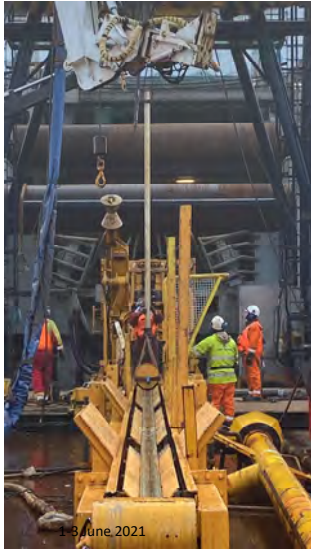


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## Mohns-treasure – Cores on deck



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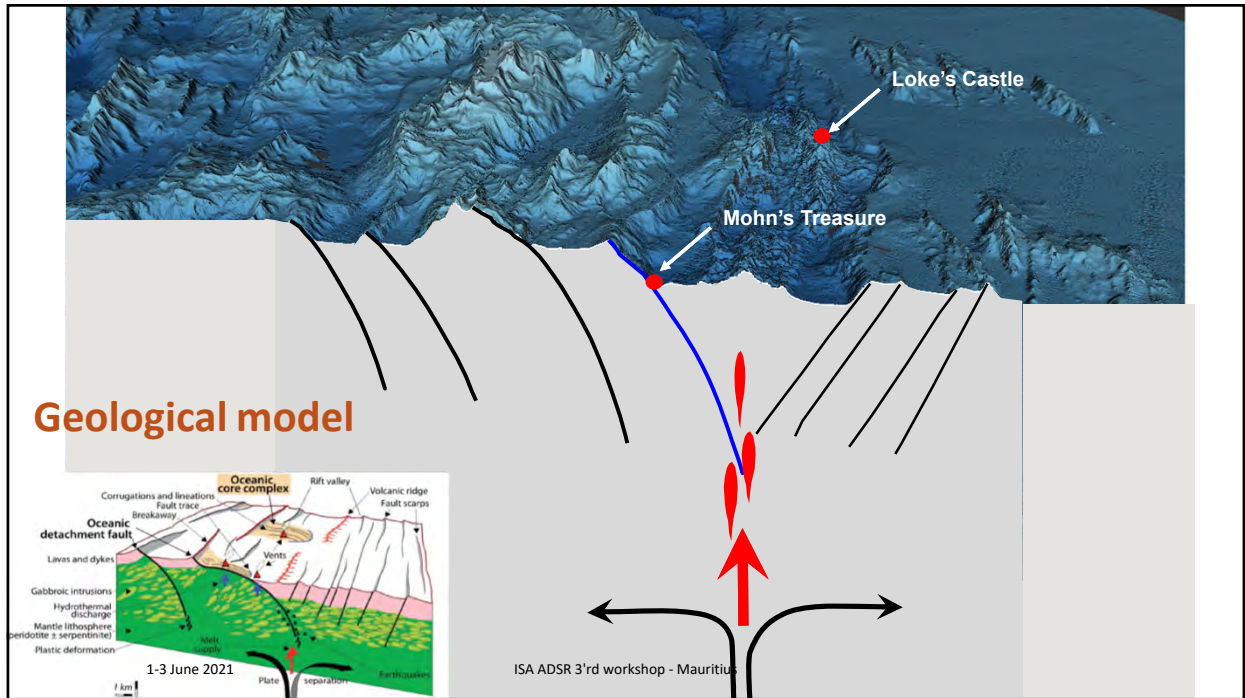


## Sulphide core from MS4

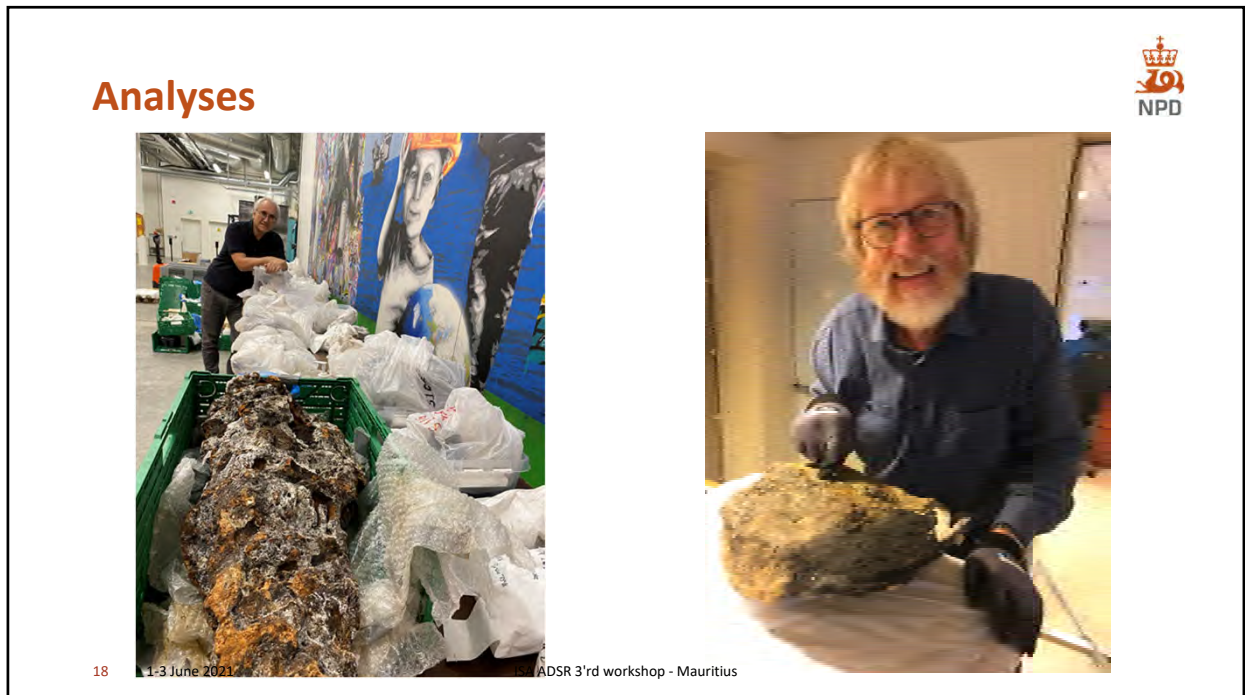


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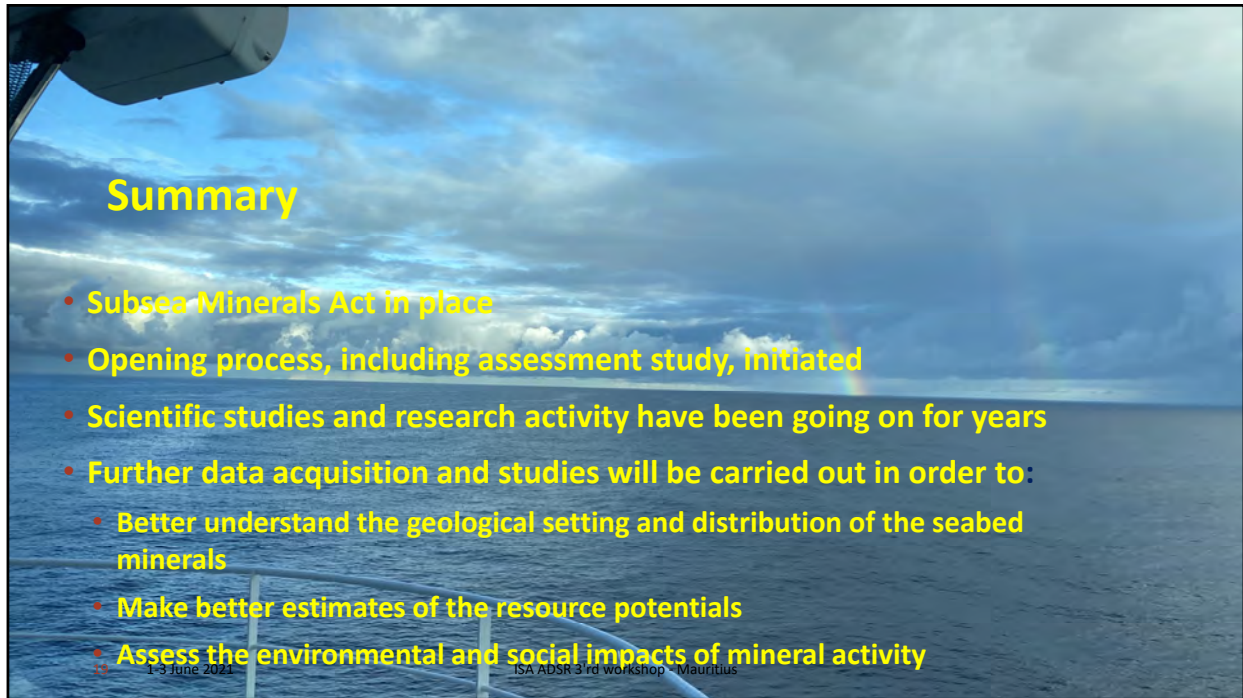




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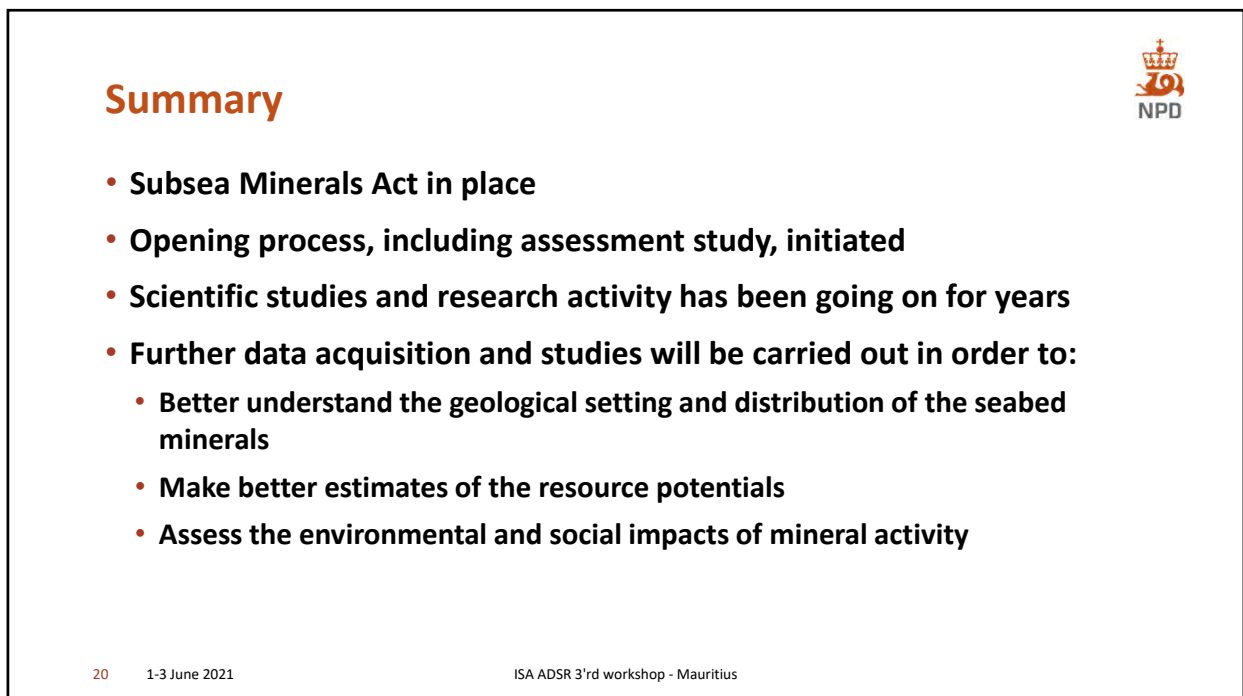


## Summary


- Subsea Minerals Act in place
- Opening process, including assessment study, initiated
- Scientific studies and research activity have been going on for years
- Further data acquisition and studies will be carried out in order to:
  - Better understand the geological setting and distribution of the seabed minerals
  - Make better estimates of the resource potentials
  - Assess the environmental and social impacts of mineral activity

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## Summary



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# The Area

## Mineral resources and technology

Harald Brekke  
Chair of Legal and Technical Commission, ISA  
Norway

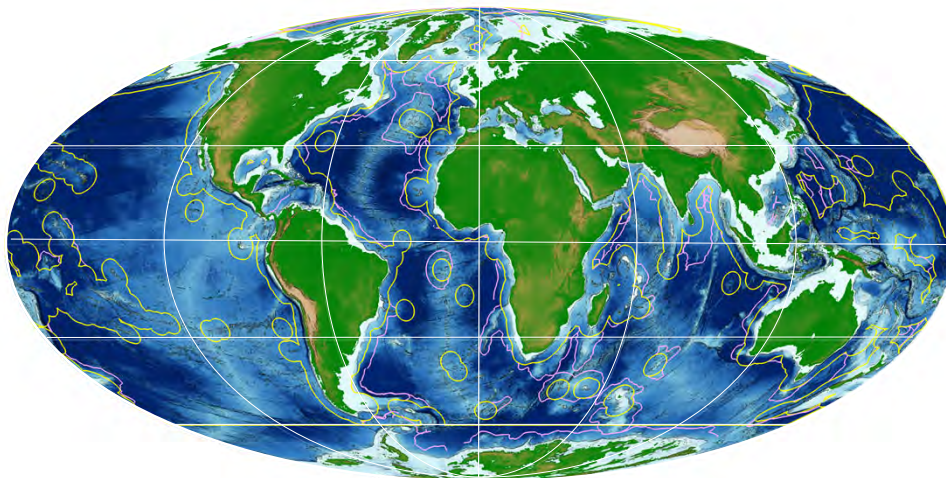
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# The seabed of the Oceans under UNCLOS

## - the Continental Shelf and the Area



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## Seabed Jurisdiction areas

- Percentage of total world ocean seabed:

The Area 53 %

The Continental shelf 46 %

(the EEZ 39 %)

Source - <http://www.grida.no/publications/shelf-last-zone/>

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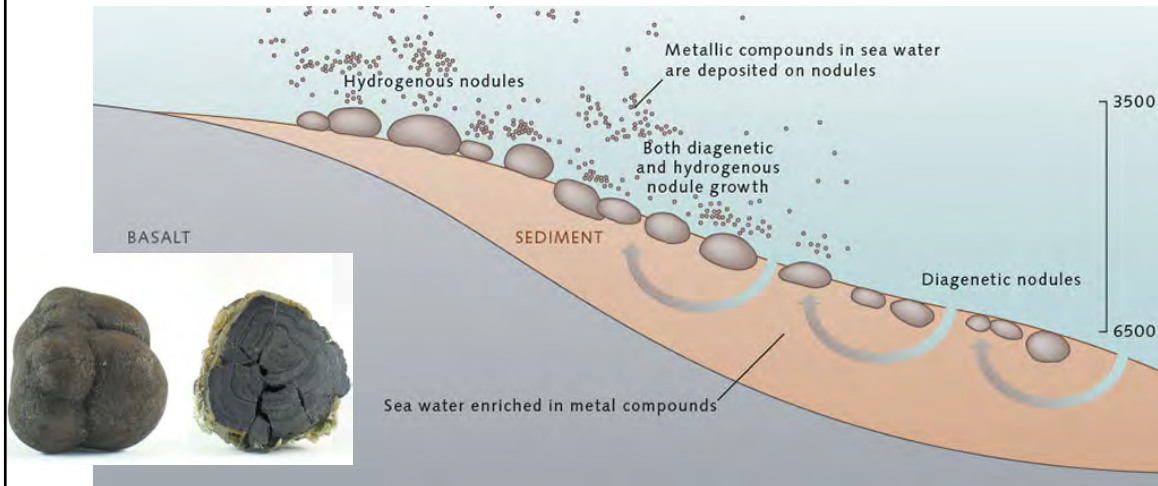
## Seabed mineral resources

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## Polymetallic Nodules



World Ocean Review, <http://worldoceanreview.com/en/>

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## Polymetallic Crusts



J.R. Hein 2004

Norwegian Petroleum Directorate

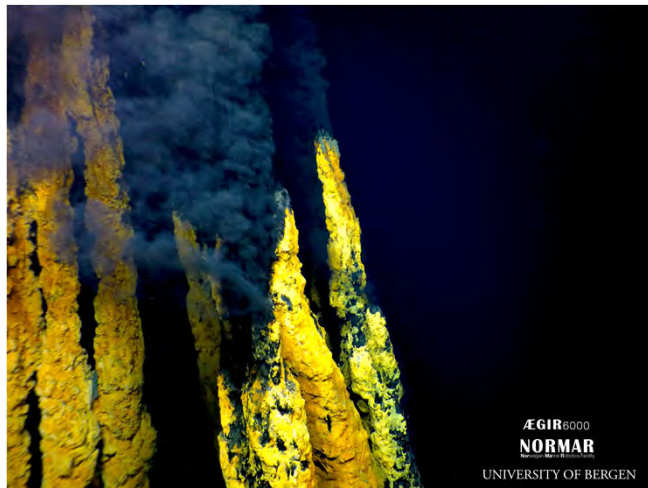
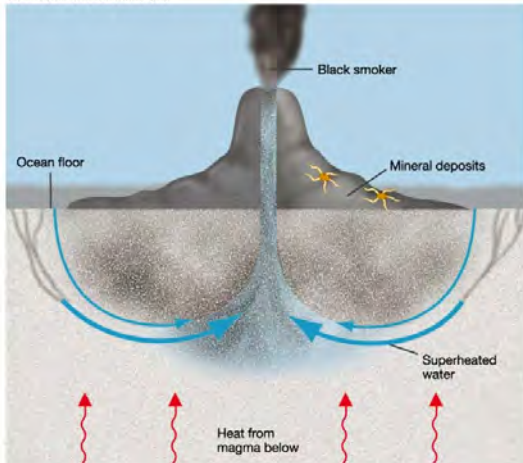
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## Polymetallic Sulphides

Formation of black smokers



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## Metal content of deep sea minerals

- Seabed minerals:
  - PM Nodules – Ni, Cu, Mn, Co (Mo, Li, Ti)
  - PM Crusts – Co, Ni, Mn, Cu (Ti, REE, Pt, Mo, Bi)
  - PM Sulphides – Cu, Zn, Au, Ag (Cd, Ga, Ge, In, Sb)

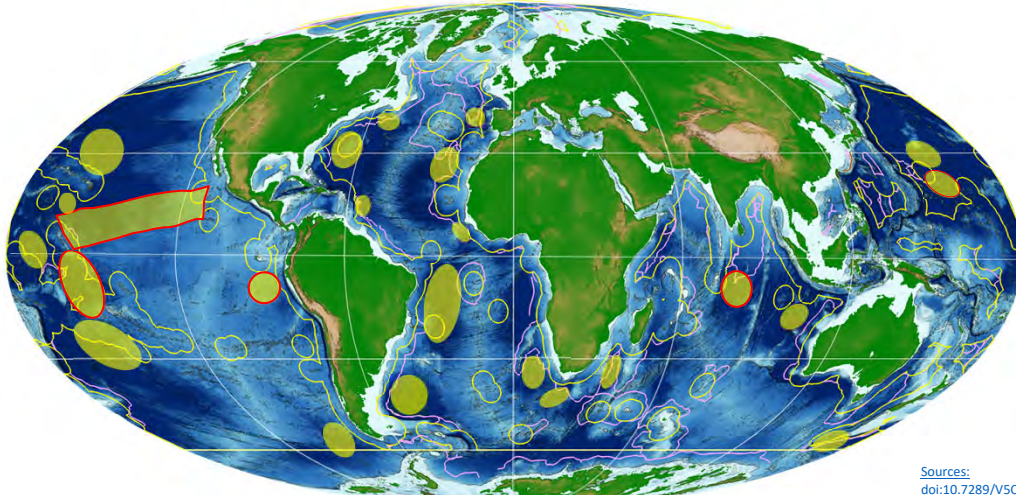
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## Favourable areas for PM nodules



Red borders - areas of current economic interest

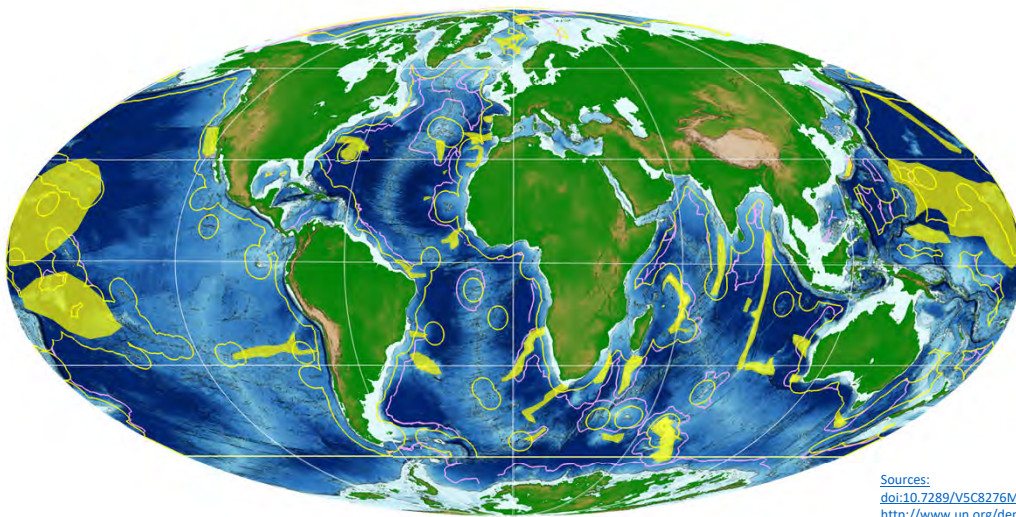
Sources:  
[doi:10.7289/V5C8276M\\_ETOPO1](https://doi.org/10.7289/V5C8276M_ETOPO1)  
<http://www.un.org/depts/los/index.htm>  
Global Maritime Boundaries Database  
T. Khun et al., 2017

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## Favourable areas for PM crusts



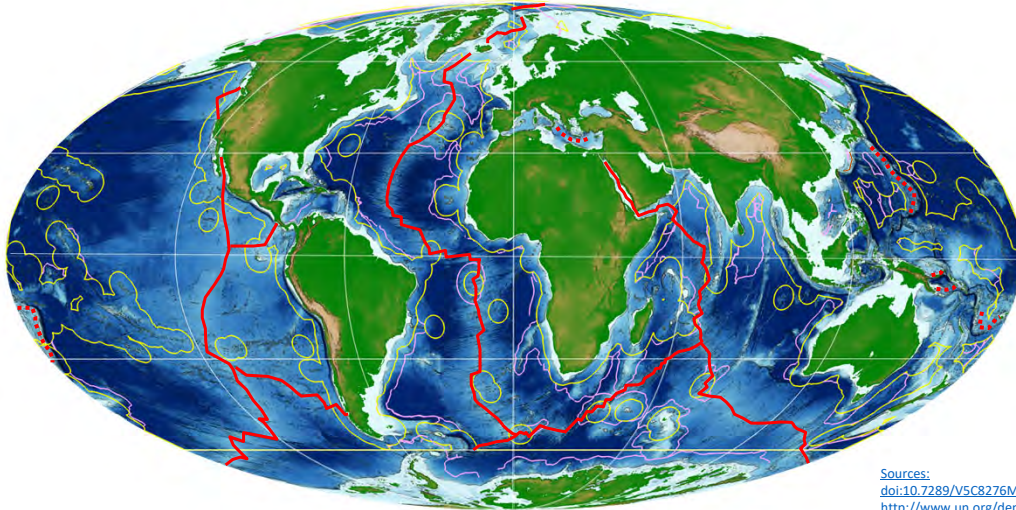
Sources:  
[doi:10.7289/V5C8276M\\_ETOPO1](https://doi.org/10.7289/V5C8276M_ETOPO1)  
<http://www.un.org/depts/los/index.htm>  
Global Maritime Boundaries Database  
P.E. Halbach et al., 2017

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## Favourable areas for hydrothermal sulphide deposits



Sources:  
[doi:10.7289/V5C8276M\\_ETOP01](https://doi.org/10.7289/V5C8276M_ETOP01)  
<http://www.un.org/depts/los/index.htm>  
 Global Maritime Boundaries Database

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## Percentage of favourable mineral areas and total ocean area



	Nodule areas	Crust areas	Sulphide areas	World Ocean seabed area
The Area	81	46	58	53
The CS	19	54	42	47
(The EEZ)	(14)	(44)	(36)	(39)

Petersen et al., 2016, Marine Policy

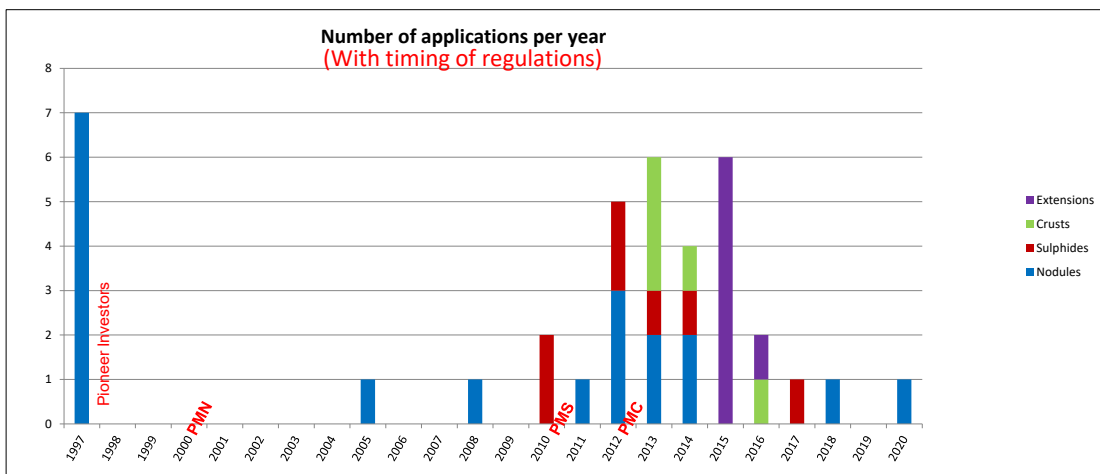
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# Exploration

# Applications for international exploration contracts



## States sponsoring exploration



- Cook Isls
- Jamaica
- Kiribati
- Nauru
- Singapore
- Tonga
- Brazil
- China
- India
- Japan
- South-Korea
- Belgium
- France
- Germany
- Poland
- Russia
- UK

15 24.07.2018

Oslo Summer School

15

## International Seabed Authority (ISA) – Exploration Contracts



• Polymetallic nodules	19
• Polymetallic sulphides	7
• Polymetallic crusts	<u>5</u>
• Contracts total	31

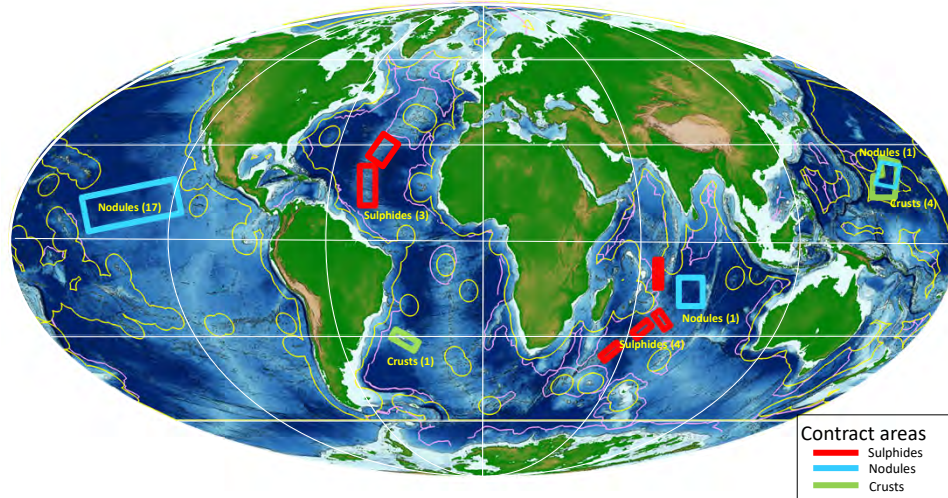
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## Areas of exploration contracts under ISA



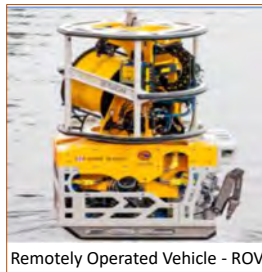
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## Exploration technology – geophysical data



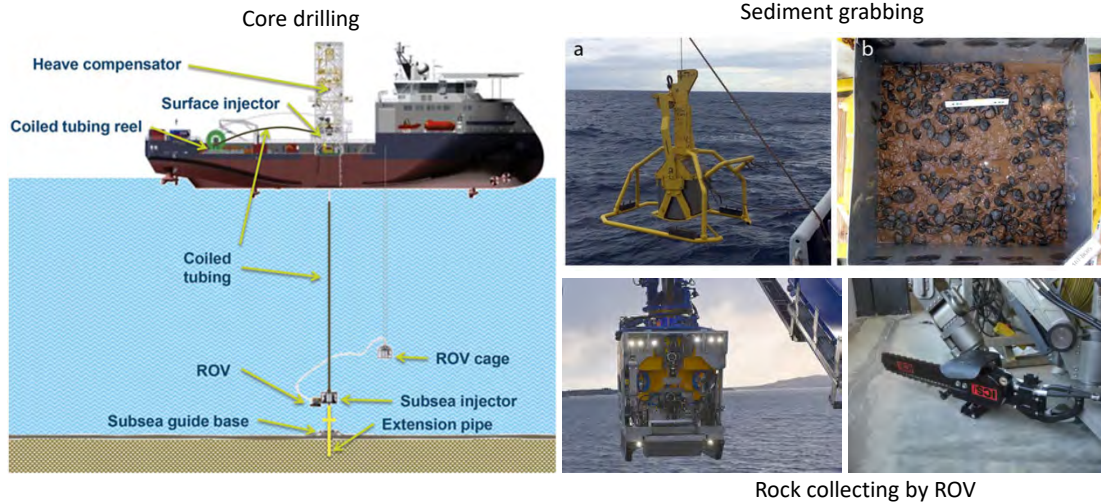
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## Exploration technology - sampling



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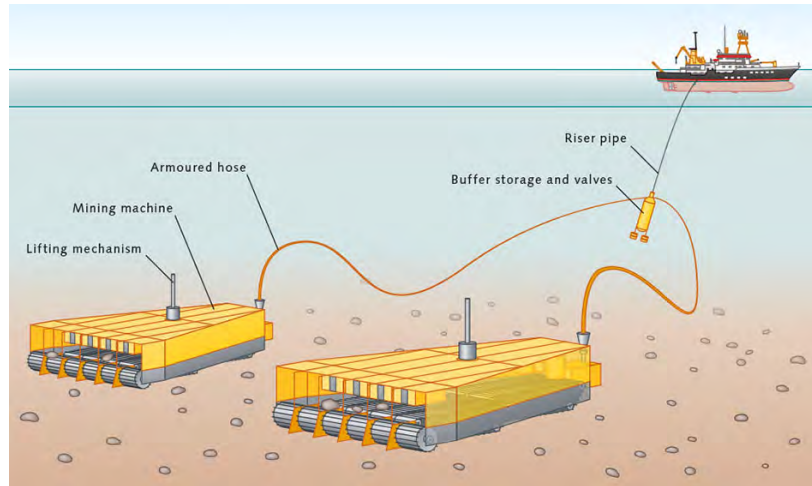
## Exploitation

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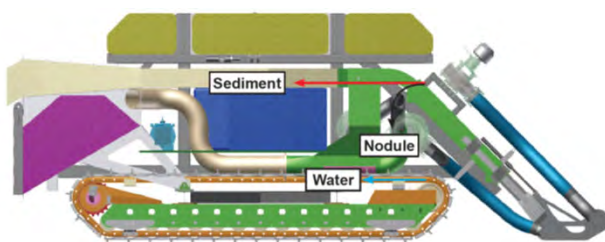
# Exploitation of PM nodules



[Manganese nodules « World Ocean Review](#)

# Polymetallic Nodules

Patania II







## Testing Patania II 2021

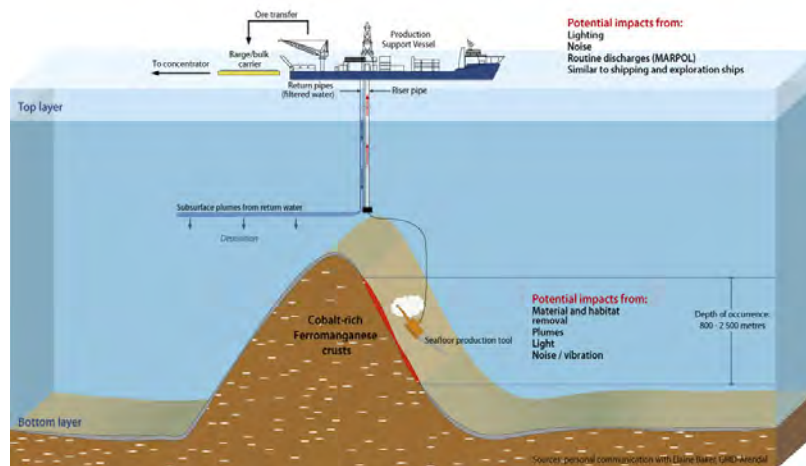


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## Exploitation of crusts



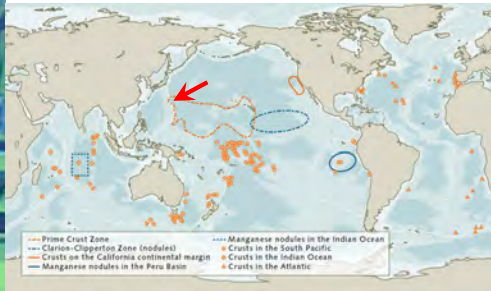
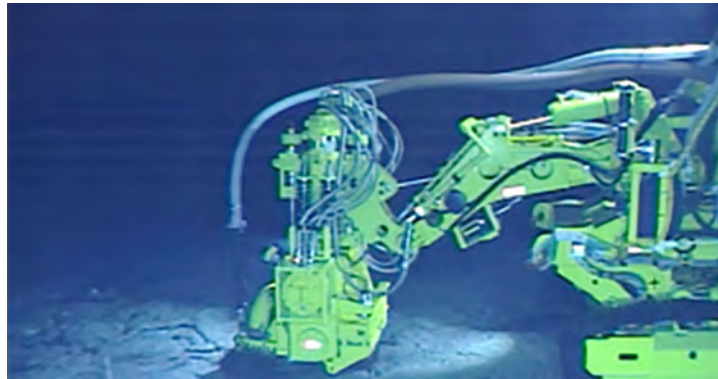
Sea-floor ferromanganese crust mining system and related sources of potential environmental impact. | GRID-Arendal (grida.no)

24 01.06.2021

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# JOGMEC pilot mining of PM crusts, July 2020



[JOGMEC Harvests Cobalt and Nickel from the Seafloor | Industry | News \(oceanminingintel.com\)](https://www.oceanminingintel.com/news/jogmec-harvests-cobalt-and-nickel-from-the-seafloor/)

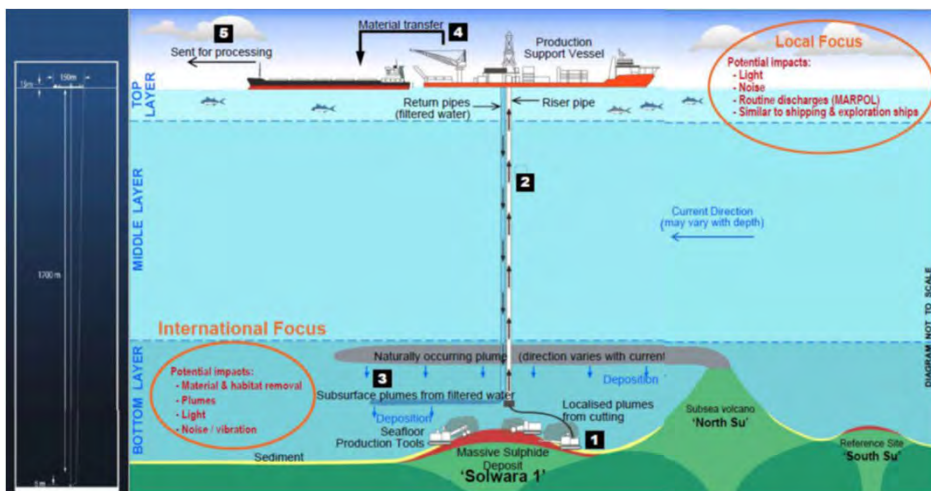
[Cobalt crusts « World Ocean Review](#)

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# PM Sulphides - Solwara 1 production set-up



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April 2016

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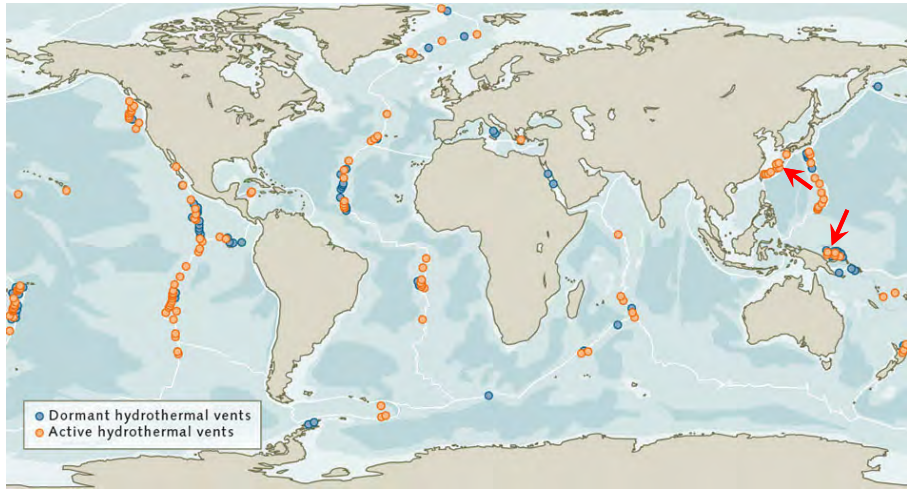
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<http://www.nautilusminerals.com/>

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# Areas of testing and plans for exploitation of PM sulphides

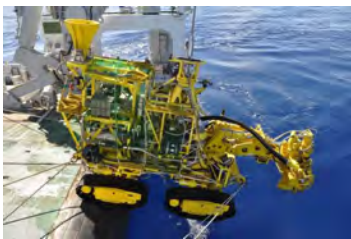


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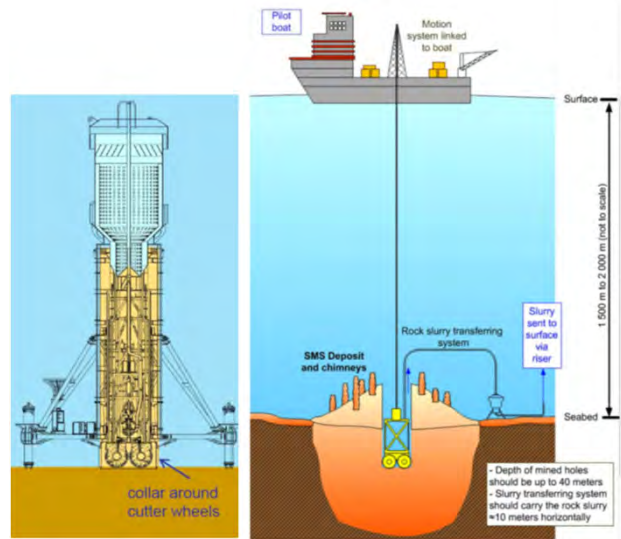
# Polymetallic Sulphides



Okinawa Through



Solwara 1



Possible future technology, Bauer GmbH

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## Summary

- The seabed mineral resources of the Area is managed by the ISA
- Exploration of seabed minerals under the ISA has been going on since 2000
- To apply for a contract with the ISA, the applicant needs the backing of a sponsoring state
- There are currently 31 contracts for seabed mineral exploration in the Area
- Much exploration technology is in place, but further developments are needed for efficient exploration
- No exploitation has taken place so far, but pilot technology is being developed and tested, and ISA is working on regulations for exploitation

# End



**WORKSHOP FOR THE PROMOTION OF SUSTAINABLE DEVELOPMENT OF AFRICA'S DEEP SEABED RESOURCES IN SUPPORT TO AFRICA'S BLUE ECONOMY**

**Role and Responsibilities of Sponsoring States**

**Thembile Joyini**

**1 June 2021**

international relations & cooperation  
 Department: International Relations and Cooperation  
 REPUBLIC OF SOUTH AFRICA

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**Role and Responsibilities of Sponsoring States**

Private entities can engage in mining activities in the Area provided *inter alia* that they are sponsored by a State Party to the United Nations Convention on the Law of the Sea (UNCLOS). Sponsorship is the medium through which the sponsoring State exercises control over the contractor, by requiring it to comply with the provisions of UNCLOS. In light of the particular requirement for sponsorship, the following questions arose during discussions at the International Seabed Authority (ISA or the Authority): What are a state's responsibilities regarding the sponsored activity; what is the extent of a state's liability; and what measures must a state take to fulfil its obligations?

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## Role and Responsibilities of Sponsoring States

These questions were put to the Seabed Disputes Chamber of the International Tribunal for the Law of the Sea by the Council of the Authority in the form of a Request for an advisory opinion. This case, which was prompted by the applications submitted to the Authority by two companies sponsored by two Small Island Developing States (Nauru and Tonga), also triggered a debate concerning the participation of developing States in activities in the Area and whether preferential treatment should be accorded to sponsoring States that are developing States.

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## Role and Responsibilities of Sponsoring States

On 1 February 2011, the chamber of the International Tribunal for the Law of the Sea (ITLOS) unanimously adopted an advisory opinion on state responsibility in respect of private entities undertaking seabed mining activities in international waters. This was a historic international law ruling of the Seabed Disputes Chamber. This advisory opinion made a number of important statements, including that the precautionary principle, as formulated in the Rio Declaration, forms part of the corpus of customary international environmental law. The chamber's findings on state responsibility and the precautionary principle are significant additions to the *opinio juris* of international environmental law following on from the Pulp Mills decision of the ICJ.

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## Role and Responsibilities of Sponsoring States

The chamber found that sponsoring states owe a high level of due diligence to other states with regard to the activities of sponsored entities in international waters. The chamber reiterated the due diligence requirements set out in the decision of the International Court of Justice in Pulp Mills on the River of Uruguay [(Argentina v Uruguay) Merits, Judgment, ICJ Reports 2010]. It went further, finding that the precautionary principle, as expressed in principle 15 of the Rio Declaration, forms part of customary international law and as such forms part of a state's due diligence obligations. "This is a significant finding in that it's the first express statement by an international court that the precautionary principle forms part of customary international law.

## Role and Responsibilities of Sponsoring States

Another important statement within the advisory opinion is that responsibilities of sponsoring states are owed equally by all states. Nauru questioned whether a lesser standard should apply to it because it is a developing state. However, the chamber accepted the argument that there was no difference in the level of due diligence owed by a developing state as compared to developed states. As well as being owed equally by all states, the responsibility of due diligence is owed to all states. All states have an interest in international waters. In Pulp Mills, the ICJ found that a responsibility of due diligence exists between bordering states.

## Role and Responsibilities of Sponsoring States

The chamber extended the responsibility in respect of international waters to one that is owed to states per se. It took due diligence out of the trans-boundary context and applied it to the high seas, which are there for the benefit of all states. I think this influenced the chamber in its consideration of liability – the second question – where it found the principle of *erga omnes* applies, which means that any state can potentially make a claim against another state that fails to comply with the convention's provisions and regulations relating to seabed mining in international waters.

## Role and Responsibilities of Sponsoring States

Considering the extent of liability a state owes for a sponsored entity, the chamber found there was no strict or residual liability. Damage caused by the sponsored contractor will not automatically result in the sponsoring state becoming liable. The liability of the sponsoring state for failure to comply with its due diligence obligations requires that a causal link be established between such failure and damage.



## Role and Responsibilities of Sponsoring States

Furthermore, states that sponsor mining operations do not bear any residual liability for damages not compensated by a mining company responsible for any damage. If you have a Deepwater Horizon situation and the sponsored contractor doesn't have sufficient financial reserves to address the damage, there is no residual liability for the state to meet the gap. There is a liability gap. The chamber held that measures taken by a state to fulfil its responsibilities must include having laws in place to ensure environmental due diligence.

## Role and Responsibilities of Sponsoring States

Contractual arrangements with the sponsored entity are not sufficient. Rather, states must ensure that there are appropriate laws for monitoring and enforcement to ensure that a sufficient level of due diligence is achieved. I am very happy with this opinion. I consider that this advisory opinion has a strong environmental flavour and sets a solid framework for the future management of mineral exploration and exploitation in the Area.

