CRITICAL MINERALS IN PACIFIC OCEAN – ECONOMY

News: *India will apply for licences to explore for deep-sea minerals in the Pacific Ocean.*

What's in the news?

- India will apply for licences to explore for deep-sea minerals in the Pacific Ocean as it competes to secure supplies of minerals critical for energy transition technologies.
- The **International Seabed Authority (ISA)** has issued **31 deep-sea exploration licences**, including two for **India in the Indian Ocean**, but is yet to allow mining because it **is still working on regulations**.
- **China, Russia, and some Pacific Island nations** have already secured exploration licences for the Pacific Ocean.
- India plans to focus on the **Clarion-Clipperton Zone**.
- India also expects to receive two more exploration permits from the ISA in 2024 for the Indian Ocean, focused on the **Carlsberg Ridge and Afanasy-Nikitin Seamount regions.**
- India, which relies on imports of raw materials such as copper and lithium, has listed 24 minerals as "critical" for energy transition. It is also scouting for overseas mineral assets to meet its rising green energy requirements.

International Seabed Authority (ISA)

Establishment

- The **International Seabed Authority (ISA)** is an autonomous international organization established under the 1982 United Nations Convention on the **Law of the Sea(UNCLOS)** and the 1994 Agreement relating to the Implementation of Part XI of the **United Nations Convention on the Law of the Sea (1994 Agreement).**
- Headquarters in **Kingston, Jamaica**.
- Came into existence on **16 November 1994**.
- Fully operational as an autonomous international organization in **June 1996.**

Control and Mandate

- It is the organization through which States Parties to UNCLOS organize and control all mineral-resources-related activities.
- Responsible for mining permitting and habitat protection in areas **beyond national jurisdiction**.
- The **permits last for 15 years.**
- It has the mandate to ensure the **effective protection of the marine environment** from harmful effects that may arise from deep-seabed-related activities.

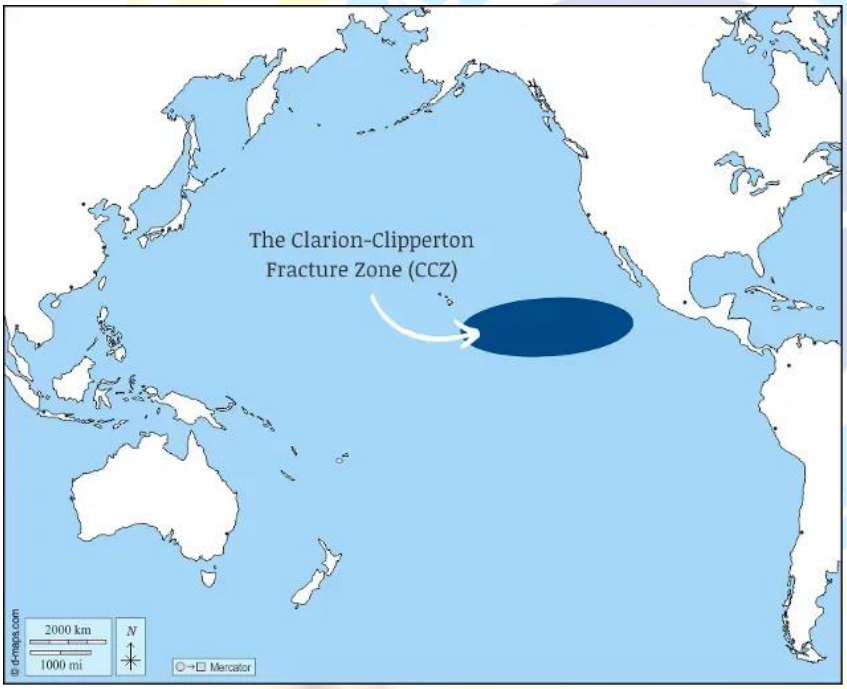
Membership

- In accordance with UNCLOS, Article 156(2), all States Parties to UNCLOS are ipso factomembers of ISA.

- It has 169 Members, including 168 Member States and the European Union.

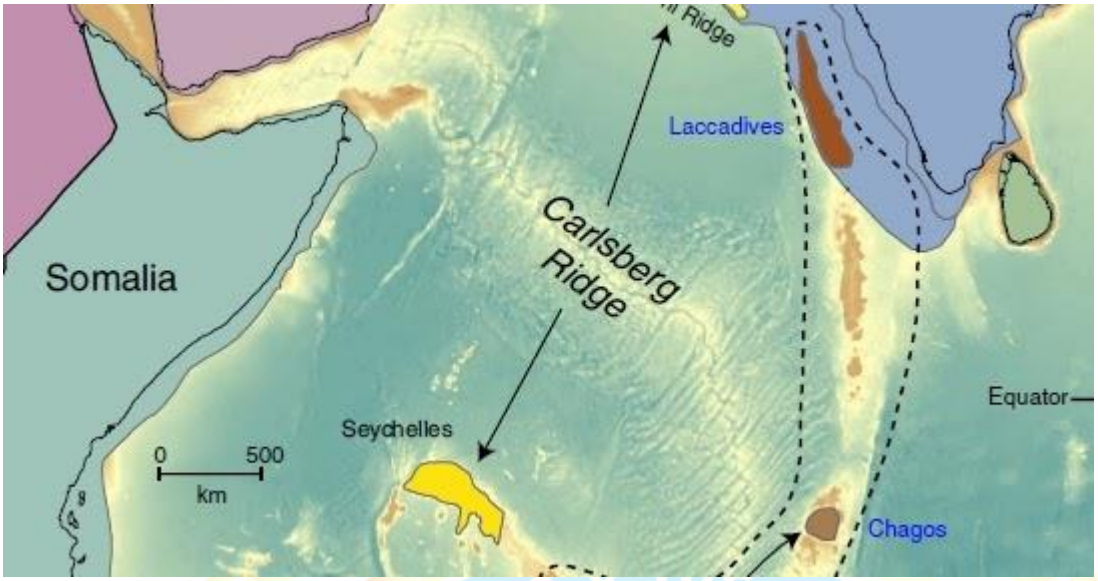
Clarion-Clipperton Zone (CCZ)

- The Clarion-Clipperton Zone (CCZ) is an abyssal plain that spans 4.5 million square kilometers across the central Pacific Ocean reaching depths of 4,000 – 5,500 meters (12,000 – 18,000 feet) between Hawaii and Mexico.
- First discovered by British sailors in
- It is punctuated by seamounts and small potato-sized **polymetallic nodes** that protrude from the muddy bottom.
- These **potato-sized polymetallic nodules contain nickel, manganese, copper, zinc, cobalt; metals that are becoming increasingly important for modern manufacturing and used for making electronics.**
- CCZ falls **outside national jurisdictions**, and hence is regulated **by the ISA**.
- Contracts for mining exploration in the CCZ have been granted to **16 deep-sea mining contractors**.



Carlsberg Ridge:

- It is the northern part of the **Central Indian Ridge**, a tectonic plateboundary between the African and Indian plates, running along the ocean between India and Africa.
- A **divergent tectonic** plate boundary **between the African Plate and the Indo-Australian Plate**.
- It was formed nearly **30 million years ago**, and has been **seismically activewith major earthquakes**.



Mineral Deposits

- The Carlsberg Ridge is rich in **polymetallic nodules which contains mineral deposits with commercially viable quantities of at least 3 metals.**
- The ridge is thought to contain trace elements of **copper, lead, and zinc**.

Cobalt is in high demand among other metals due to its ubiquitous use in electronics and batteries.
Nickel is used in electric vehicles as it is resistant to corrosion and oxidation.
Manganese is also used for lithium ion and alkaline batteries
Copper is one of the most commonly used metals in electricity

Afanasy-Nikitin Seamount (ANS)

- The ANS is a major structural feature in the Indian Ocean, **rising up above the sea bed** but below the surface, and forming a seamount.
- It is **400 km long and 150 km wide**, and is located in the **Central Indian**.
- The Seamount is named after **AfanasyNikitin**, a 15th century Russian merchant.
- The ANS seamount is about 3,000 km from India's coast, and is rich in cobalt, copper, manganese, and nickel.

Source: https://www.business-standard.com/industry/news/india-to-apply-for-licences-to-scout-pacific-ocean-for-critical-minerals-124072200622_1.html