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Deep Sea Mining

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Why is in news? ISA member nations aim to ink deep-sea mining rules by 2025

The International Seabed Authority's member nations agreed on a two-year **roadmap for the adoption of deep sea mining regulations**, despite conservationists' calls for a moratorium on mineral extraction they say would avert marine threats.

The ISA, an **intergovernmental body tasked with protecting the seabed**, and its member states have spent the last decade trying to hash out a mining code for the possible **exploitation of nickel, cobalt and copper in deep seabed** areas that fall outside of national jurisdictions.

But an agreement has so far been elusive.

The ISA Council, which had been **negotiating in Jamaica** for the past two weeks, said it "intends to continue the elaboration" of regulations "with a view to their adoption at the **30th session of the Authority" in 2025**.

NGOs and scientists say that **deep sea mining could destroy habitats and species** that may still be unknown but are potentially vital to ecosystems.

They also say it risks disrupting the ocean's capacity to absorb carbon dioxide emitted by human activities, and that its noise interferes with the communication of species such as whales.

Deep Sea Mining:

Deep-sea mining is the **process of retrieving mineral deposits from the deep seabed – the ocean below 200m**. The deep seabed covers about **two-thirds of the total seafloor**.

Seabed mining is done through a huge vacuum that simply travels over the ocean floor to suck up the nodules which are then brought to the surface with a hose.

The deep sea contains **three primary sources** for mining critical minerals:

Potato-size manganese nodules (rich in manganese, cobalt, copper, nickel, and rare earth elements);

Deposits of sulfur-containing minerals around underwater openings known as hydrothermal vents; and

Cobalt-rich crusts lining the sides of mid-ocean ridges and underwater mountains, also known as seamounts.

The majority of proposed deep sea mining sites are near of polymetallic nodules or active and extinct hydrothermal vents at 1,400 to 3,700 metres below the ocean's surface.

The vents create globular or massive sulfide deposits, which contain valuable metals such as silver, gold, copper, manganese, cobalt, and zinc.

The deposits are mined using either hydraulic pumps or bucket systems that take ore to the surface to be processed.

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Regulation for deep-sea mining:

The legal framework for deep sea mining is based on the **United Nations Convention on the Law of the Sea (UNCLOS)**, which was adopted in 1982 and entered into force in 1994.

UNCLOS establishes that the **Area and its resources are "the common heritage of mankind"** and should be **used for peaceful purposes**. The Area refers to the seabed and ocean floor beyond national jurisdiction, which covers about half of the world's oceans.

According to UNCLOS, the **International Seabed Authority (ISA)** is the intergovernmental organization responsible for **regulating deep-sea mining activities in the Area**.

The ISA issues exploration and exploitation contracts to states or entities sponsored by states and sets environmental standards, technical guidelines, and financial terms for deep-sea mining.

The ISA also has a mandate to **ensure that the benefits of deep-sea mining are shared equitably** among all countries, especially developing states.

However, **UNCLOS does not cover deep-sea mining activities within national jurisdiction**, which are governed by domestic laws and regulations of each coastal state.

This means that there is **no uniform or consistent approach to deep-sea mining regulation** in different regions of the world.

Key issues:

Commercial-scale deep-sea mining could come at the expense of cetaceans like whales, dolphins, and porpoises, many of which are already endangered.

The interest in the mineral deposits of the seabed has grown due to depleting terrestrial deposits of metals such as copper, nickel, aluminium, manganese, zinc, lithium and cobalt.

Demand for these metals is also increasing to produce smartphones, wind turbines, solar panels and batteries.

The International Seabed Authority (ISA) has in recent years issued 31 contracts to explore deep-sea mineral deposits.

Benefits:

Deep sea mining can **provide resources for renewable energy production**, such as cobalt and nickel for batteries, and tellurium for solar panels.

Deep sea mining can **provide resources for high-tech industries**, such as rare earth elements for electronics, and platinum for fuel cells.

Deep sea mining can **provide resources for medical applications**, such as gold and silver for nanotechnology, and manganese for MRI contrast agents.

Deep sea mining can **create new markets and opportunities for economic growth and development**, especially for small island developing states (SIDS) that have large exclusive economic zones (EEZs) in the ocean.

Deep sea mining can **enhance scientific knowledge and understanding of the deep ocean environment** and its biodiversity.