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CURRENT AFFAIRS

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DEEP SEA MINING

This article covers "Daily Current Affairs" and the topic details "Deep Sea Mining". The topic "Deep Sea Mining" has relevance in the Environment section of the UPSC CSE exam.

For Prelims:

What is Deep Sea Mining?

For Mains:

GS 3: Environment

Concerns regarding Deep Sea Mining?

Regulation of Deep Sea Mining?

Way forward?

Why in the news?

The International Seabed Authority — the United Nations body that regulates the world's ocean floor — is preparing to resume negotiations that could open the international seabed for mining, including for materials critical for the green energy transition.

What is Deep Sea Mining?

Deep Sea Mining is a type of mining activity that involves extracting mineral deposits and metals from the seabed at great depths in the ocean. The process of deep sea mining targets specific areas of the ocean floor that contain valuable mineral resources, such as polymetallic nodules, seafloor sulfide deposits, and cobalt crusts. These resources are rich in materials like nickel, rare earth elements, cobalt, and other metals that are essential for various industries, including the production of batteries, renewable energy technologies, smartphones, and computers.

The three main types of deep sea mining are as follows:

- **Mining Deposit-Rich Polymetallic Nodules:**
- Polymetallic nodules are small, rounded accretions found on the seabed in certain regions. They contain a variety of valuable metals like manganese, nickel, copper, and cobalt.
- To mine these nodules, specialized equipment is used to collect and lift them from the ocean floor.

Mining Massive Seafloor Sulfide Deposits:

- Seafloor sulfide deposits are formed through hydrothermal vents and are rich in valuable metals such as copper, gold, zinc, and silver.

- The mining process involves cutting and lifting the seafloor to extract the mineral-rich materials.

Stripping Cobalt Crusts from Rock:

- Cobalt crusts are mineral formations that accumulate on top of volcanic rock and contain valuable minerals like cobalt, nickel, and platinum.
- Mining cobalt crusts involves scraping and removing the crusts from the rocky substrate.

Concerns regarding Deep Sea Mining:

- **Marine Ecosystem Damage:**
- Mining operations can cause noise, vibration, and light pollution, disrupting marine habitats and species.
- Possible leaks and spills of fuels and chemicals used in the mining process can harm marine life.
- **Sediment Plumes:**
- Mining processes may generate sediment plumes that are pumped back into the sea, harming filter-feeding species like corals and sponges.
- The sediment can smother or interfere with other marine creatures.
- **Impact on Deep-Sea Ecosystems:**
- Deep-sea mining can have a wider impact on fish populations, marine mammals, and the essential function of deep-sea ecosystems in regulating the climate.

Regulation of Deep Sea Mining:

- **United Nations Convention on the Law of the Seas (UNCLOS):**
- UNCLOS governs the high seas and international ocean floor, designating the seabed and its mineral resources as the “common heritage of mankind.”
- It aims to manage these resources to protect humanity’s interests, promote economic benefits sharing, support marine scientific research, and protect marine environments.
- **International Seabed Authority (ISA):**
- ISA is an autonomous organization within the United Nations common system, headquartered in Kingston, Jamaica.
- Its primary function is to regulate exploration and exploitation of deep seabed minerals in the “Area,” beyond national jurisdiction.
- The Area covers over 50% of the entire Earth’s seabed.

Source:

<https://indianexpress.com/article/explained/explained-sci-tech/what-deep-sea-mining-permits-implications-8698411/>

Q.1 Consider the following statements: (2021)

1. The Global Ocean Commission grants licences for seabed exploration and mining in international waters.
2. India has received licences for seabed mineral exploration in international waters
3. ‘Rare earth minerals’ are present on the seafloor in international waters.

Which of the statements given above are correct?

- (a) 1 and 2 only

- (b) 2 and 3 only
- (c) 1 and 3 only
- (d) 1, 2 and 3

Answer: (b)

Q.2 Which of the following statements about the International Seabed Authority (ISA) is correct?

1. ISA is an autonomous organization under the United Nations, responsible for regulating mining activities in international waters.
2. ISA is a global non-governmental organization working towards marine conservation and protecting endangered species.
3. ISA is an intergovernmental body that facilitates maritime border negotiations between coastal countries.

Please select the correct option from the choices given.

- (a) 1
- (b) 2 only
- (c) 1 and 3 only
- (d) 3 only

Answer: (a)

Q.3 Critically evaluate the various resources of the oceans which can be harnessed to meet the resource crisis in the world.



Rishabh