



## Deep Ocean Mission

### Why in News

Recently, the [Cabinet Committee on Economic Affairs](#) has approved the proposal of the Ministry of Earth Sciences (MoES) on the **Deep Ocean Mission (DOM)**.

- The [blueprint of the DOM](#) to explore the deep recesses of the ocean was unveiled in 2018. Earlier, MoES had also rolled out the [draft Blue Economy Policy](#).

DEEP OCEAN MISSION	
<ul style="list-style-type: none"><li>➤ Deep Sea Mining through 'Underwater Vehicles' and 'Underwater Robotics'</li><li>➤ Asserting exclusive rights to explore polymetallic nodules from seabed <b>over 75,000 sq km of areas in international water</b></li><li>➤ Estimated polymetallic nodules resource potential: <b>380 million tonnes (MT)</b></li></ul>	<p><b>THESE POLYMETALLIC NODULES CONTAIN</b></p> <p>Manganese   <b>92.6 MT</b></p> <p>Nickel   4.7</p> <p>Copper   4.3</p> <p>Cobalt   1</p> <p>(*figures are rounded off)</p>
<ul style="list-style-type: none"><li>➤ Development of ocean climate change advisory services</li><li>➤ Technology for sustainable utilisation of marine bio-resources</li></ul>	<ul style="list-style-type: none"><li>➤ Deep ocean survey and exploration</li><li>➤ Energy from the ocean and offshore-based desalination</li><li>➤ Krill fishery from southern ocean</li></ul>

### Key Points

- **About:**
  - The cost of the Mission has been estimated at Rs. 4,077 crore **over a five-year period** and will be **implemented in phases**. **MoES** will be the **nodal ministry** implementing this multi-institutional ambitious mission.
  - It will be a **mission mode project to support the Blue Economy Initiatives** of the Government of India.

- **Blue Economy** is the **sustainable use of ocean resources** for economic growth, improved livelihoods and jobs, and ocean ecosystem health.
- The **technology and expertise** needed in such missions is now available with only five countries - US, Russia, France, Japan and China.

- **India will now be the sixth country to have it.**

#### ▪ **Major Components:**

##### ◦ **Development of Technologies for Deep Sea Mining, and Manned Submersible:**

- A **manned submersible will be developed to carry three people** to a depth of 6,000 metres in the ocean with a **suite of scientific sensors and tools**.
- An **Integrated Mining System** will be also developed for mining **polymetallic nodules** at those depths in the central Indian Ocean.

- **Polymetallic nodules** are rocks scattered on the seabed containing iron, manganese, nickel and cobalt.

- The exploration studies of minerals **will pave the way for commercial exploitation in the near future**, as and when commercial exploitation code is evolved by the [International Seabed Authority](#), an [United Nations \(UN\)](#) organisation.

##### ◦ **Development of Ocean Climate Change Advisory Services:**

- It entails developing a suite of observations and models **to understand and provide future projections of important climate variables** on seasonal to decadal time scales.

##### ◦ **Technological Innovations for Exploration and Conservation of Deep-sea Biodiversity:**

- **Bio-prospecting of deep sea flora and fauna** including microbes and studies on sustainable utilization of deep sea bio-resources will be the main focus.

##### ◦ **Deep Ocean Survey and Exploration:**

- It will explore and identify **potential sites of multi-metal Hydrothermal Sulphides mineralization** along the Indian Ocean mid-oceanic ridges.

##### ◦ **Energy and Freshwater from the Ocean:**

- Studies and detailed engineering design for offshore [Ocean Thermal Energy Conversion \(OTEC\)](#) powered [desalination plants](#) are envisaged in this proof of concept proposal.

- OTEC is a technology which **uses ocean temperature differences** from the surface to depths lower than 1,000 meters, **to extract energy**.

##### ◦ **Advanced Marine Station for Ocean Biology:**

- It is aimed at the development of human capacity and enterprise in ocean biology and engineering.
- It will translate research into **industrial application and product development** through on-site business incubator facilities.

#### ▪ **Significance:**

- **Oceans**, which cover **70% of the globe**, remain a key part of our life. About **95% of the Deep Ocean remains unexplored**.

- **Three sides of India are surrounded by the oceans** and around **30% of the country's population living in coastal areas**, the ocean is a major economic factor supporting fisheries and aquaculture, tourism, livelihoods and blue trade.

- India has a unique maritime position. Its **7517 km long coastline is home to**

**nine coastal states and 1382 islands.**

- The Government of India's **Vision of New India by 2030** announced in February 2019 highlighted the Blue Economy as one of the ten core dimensions of growth.
- Oceans are also a **storehouse of food, energy, minerals, medicines, modulator of weather and climate and underpin life on Earth.**
- Considering the importance of the oceans on sustainability, the UN has declared the decade, **2021-2030 as the [Decade of Ocean Science for Sustainable Development.](#)**

▪ **Other Blue Economy Initiatives:**

- [India-Norway Task Force on Blue Economy for Sustainable Development](#) :
  - It was inaugurated jointly by both the countries in 2020 to develop and follow up joint initiatives between the two countries.
- **Sagarmala Project:**
  - The [Sagarmala project](#) is the strategic initiative for port-led development through the extensive use of IT enabled services for modernization of ports.
- **O-SMART:**
  - India has an umbrella scheme by the name of [O-SMART](#) which aims at regulated use of oceans, marine resources for sustainable development.
- [Integrated Coastal Zone Management:](#)
  - It focuses on conservation of coastal and marine resources, and improving livelihood opportunities for coastal communities etc.
- **National Fisheries Policy :**
  - India has a National Fisheries policy for promoting 'Blue Growth Initiative' which focuses on sustainable utilization of fisheries wealth from marine and other aquatic resources.

[Source:PIB](#)

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