



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](#).

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DEEP OCEAN MISSION

➤ Deep Sea Mining through 'Underwater Vehicles' and 'Underwater Robotics'

➤ Asserting exclusive rights to explore polymetallic nodules from seabed **over 75,000 sq km of areas in international water**

➤ Estimated polymetallic nodules resource potential: **380 million tonnes (MT)**

➤ Development of ocean climate change advisory services

➤ Technology for sustainable utilisation of marine bio-resources

THESE POLYMETALLIC NODULES CONTAIN

Manganese | 92.6 MT

Nickel | 4.7

Copper | 4.3

Cobalt | 1

(*figures are rounded off)

➤ Deep ocean survey and exploration

➤ Energy from the ocean and offshore-based desalination

➤ Krill fishery from southern ocean

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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