



Deep Ocean Mission

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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

- ▶ 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