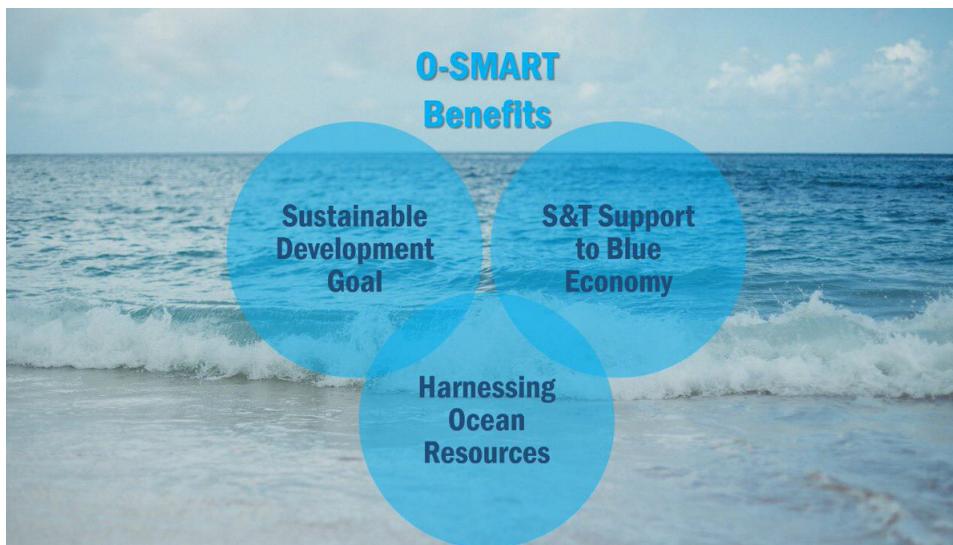




## O-SMART Scheme

### Why in News

The Cabinet Committee on Economic Affairs approved the continuation of the [‘Ocean Services, Modelling, Application, Resources and Technology \(O-SMART\)’ Scheme](#) for the period of 2021-26.



### Key Points

#### ▪ About:

- It is a government scheme that aims at **promoting ocean research and setting up early warning weather systems.**
  - It was **launched in August 2018.**
- It also aims at **addressing ocean development activities** such as technology, services, resources, science, and observations as well as offering required **technological assistance for implementing aspects of the [Blue Economy](#).**
- It comprises seven **sub-schemes** which are being implemented by autonomous institutes of the Ministry of Earth Sciences (MoES).
  - **Sub-Schemes are:** Ocean Technology, Ocean Modelling and Advisory Services (OSMAS), Ocean Observation Network (OON), Ocean Non-Living Resources, Marine Living Resources and Ecology (MLRE), Coastal Research and Operation, Maintenance of Research Vessels

#### ▪ Objectives:

- To **generate and regularly update information on Marine Living Resources** and their relationship with the physical environment in the Indian [Exclusive Economic Zone \(EEZ\)](#).

- To **periodically monitor levels of seawater pollutants** for health assessment of coastal waters of India, to develop shoreline change maps for assessment of **coastal erosion** due to natural and anthropogenic activities.
- To **develop a wide range of state-of-the-art ocean observation systems** for the acquisition of real-time data from the seas around India and to cater to the testing and sea trial activities of ocean technology.
- To **generate and disseminate a suite of user-oriented ocean information, advisories, warnings, data and data products** for the benefit of society.
- To **develop high-resolution models for ocean forecast** and reanalysis systems.
- To **develop algorithms** for validation of **satellite data for coastal research** and to monitor changes in the coastal research.
- Acquisition of **Coastal Research Vessels (CRVs) for coastal pollution monitoring, testing of various underwater components and technology demonstration** and to support their operation and maintenance.
- To **develop technologies to tap the marine bioresources, generate freshwater and ocean energy** and develop **underwater vehicles** and technologies.
- Establishment of **Ballast water** treatment facility.

- Ballast Water Discharge by ships is **responsible for the introduction of invasive species** in the oceans by taking water from one port and discharging it during the next port call.

- To carry out exploration of **Polymetallic Nodules (MPN)** from water depth of 5500 m in a site of 75000 sq. km allotted to India by the **United Nations** in the Central Indian Ocean Basin, and to carry out investigations of **gas hydrates**.

- **MPN, also called manganese nodules, are rock concretions formed of concentric layers of iron and manganese hydroxides** around a core.
- **MPN contain multiple metals like copper, nickel, cobalt, manganese, iron, lead, zinc, aluminium, silver, gold and platinum etc.** in variable constitutions and are precipitate of hot fluids from upwelling hot magma from the deep interior of the oceanic crust.
- Mining for Polymetallic nodules **is of strategic importance for India** as there are no terrestrial sources of these metals in India.

- **Exploration of polymetallic sulphides near Rodrigues Triple junction** (convergence of Central Indian Ridge, the Southeast Indian Ridge, and the Southwest Indian Ridge) in 10000 sq. km of area allotted to India in International waters by **International Seabed Authority**.
- Submission of **India's claim over continental shelf extending beyond the EEZ** supported by scientific data, and the Topographic survey of EEZ of India.

#### ▪ **Significance:**

- It will **augment the capacity building of India in the oceanographic field at the international level** with the ongoing extensive research and technology development activities.
- It will **aid in strengthening India's contribution towards a national policy on Blue Economy** for efficient and effective use of the ocean resources in a sustainable way.
- It will offer further comprehensive coverage while strengthening ongoing activities to deliver cutting-edge technology for the marine sector, **forecast and warning services, understanding marine biodiversity, coastal processes, and conservation strategies for marine living organisms**.
- **It will help in achieving United Nations' Sustainable Development Goal (SDG) 14** to conserve and sustainably use the oceans, seas, and marine resources.

#### ▪ **Major Milestones:**

- It has **helped India get recognized as Pioneer Investor with International Seabed Authority (ISA)** for conducting extensive research on **deep-sea mining** of MPN and hydrothermal sulfides in the allotted area of the **Indian Ocean**.
- The scheme has **enabled India to take a leadership role in implementing the Indian Ocean component of the Global Ocean Observing System in UNESCO's**

[Intergovernmental Oceanographic Commission \(IOC\).](#)

- A state-of-the-art Early Warning System for oceanic disasters such as **storms, tsunamis**, has also been set up at **Indian National Centre for Ocean Information Service** (INCOIS), Hyderabad.

**Source: PIB**

PDF Refernece URL: <https://www.drishtias.com/printpdf/o-smart-scheme-2>

