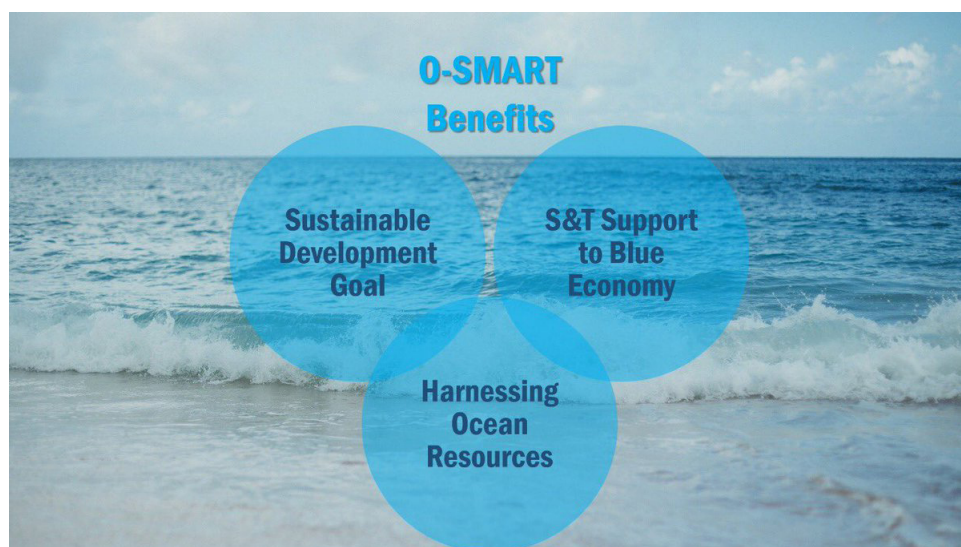




O-SMART Scheme

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

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