O-SMART Scheme

drishtiias.com/printpdf/o-smart-scheme-1

Why in News

The **Ocean Services, Modelling, Applications, Resources and Technology (O-SMART) Scheme** was <u>**approved by the Union Cabinet in August 2018**</u> and is implemented by the **Ministry of Earth Sciences.**

Key Points

- It aims at **stepping up ocean research** and **setting up early warning weather systems.**
- It addresses ocean development activities such as services, technology, resources, observations and science and provides necessary scientific and technological background required for implementation of various aspects of **<u>Blue Economy</u>**.

- **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 site of 75000 sq. km allotted to India by **United Nations** in 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.

Source: PIB