



Daily Mains Answer Writing (Day - 71)

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Q.) Critically examine the Impact of Commercialization of Sea Floor Mining on marine life and other dimensions of everyday life.

Answer

- **Deep Seabed Mining (DSM)** is the term applied to processes and technologies designed to collect metal-rich resources from the deep seafloor.
- **Significance of Sea Floor Mining**
 - Seabed mining is concerned with the recovery of the potentially large minerals on the ocean floor in order to ensure supply security and fill a market vacuum where recycling is either not practicable or adequate, or the burden on terrestrial mines is too severe. This is significant as there are studies that have shown that retrieving even 10% of the oceanic reserves can allay India's energy crisis for up to 100 years.
 - There is no need to build long-term mine and transportation infrastructure.
 - Surface vessels and platforms, for example, are reusable assets.
 - Fresh water sources are not being polluted.
 - Local communities are having little or no impact (depending on the distance from shore).
 - Metal grades and amounts are frequently superior to those found in terrestrial ores.
- **Impact of Commercialization of Sea Floor Mining**
 - The deep seabed is arguably the least resilient ecosystem on the planet. In 1989, researchers dragged a plough that mimicked a mining operation across the deep Pacific; some three decades later, many of the life-forms affected by the experiment have yet to recover.
 - Plumes of sediment kicked up by mining operations could persist for months, with dire effects on sea life accustomed to clear water. The plumes might also reduce the ocean's ability to sequester carbon or even release stored carbon into the atmosphere thereby worsening climate change.
 - Mining hydrothermal vents would result in the extinction of a large area of productive vent habitat. Mining is also likely to change the frequency and nature of venting on the seafloor around the mined area, influencing ecological groups far beyond the mined area.

- Cutting 5-8cm of the crust on the tops of seamounts for cobalt-rich crust mining would have a substantial impact on corals, sponges, and other benthic creatures connected with seamounts. These and other suspension feeders 'downstream' from the mining operations could be impacted by the sediment plumes formed.
- Mining of polymetallic nodules will also have devastating effect on the marine biodiversity associated with oceanic ridges.
- Underwater ambient noise will be increased by submerged remotely operated vehicles. Anthropogenic noise has been shown to have an impact on a variety of fish species and marine mammals by altering behaviour, disguising communication, and inflicting temporary or permanent hearing loss.
- Increased light may attract or deter some fish or benthic species and alter their feeding and reproductive behaviours.
- The International seabed authority should consider benefits of seabed mining in a broad sense to include "total economic value", which encompasses both the direct and indirect values of natural resources and reinterpret benefits in the lines of Sustainable Development Goals. A long-term research programme similar to an effort at the United Nations intended to promote sustainable ocean use should be carried out. The ISA should finalize the code for exploitation of resources as early as possible.