OFFSHORE MINING: ENVIRONMENT

NEWS: Why Kerala is seeing protests over the Centre’s offshore mining plan

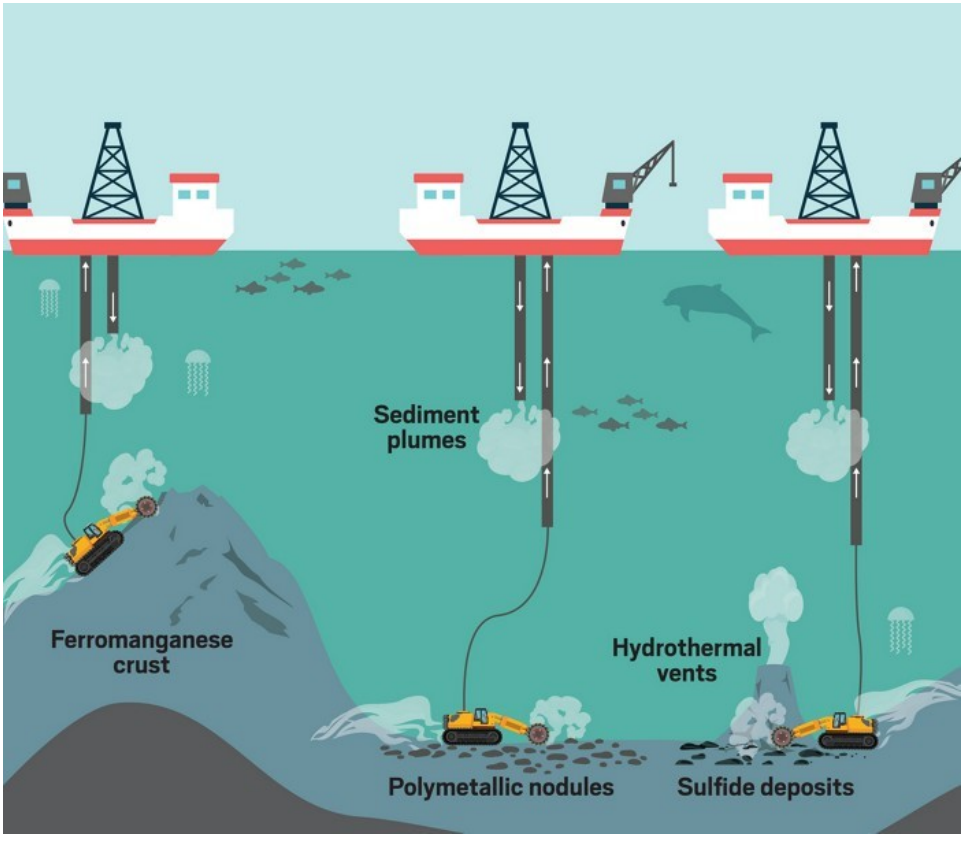
WHAT’S IN THE NEWS?

The Union Government's decision to auction offshore mining blocks off Kerala's coast has sparked protests from the state and fishing communities, citing environmental and livelihood concerns. The issue involves the potential ecological risks of mining and the rights of coastal states over offshore resources.

Offshore Mining:

- **Definition**: Offshore mining refers to the extraction of mineral resources from the seabed at depths typically beyond 200 meters. These minerals include poly-metallic nodules, which are rich in metals such as nickel, cobalt, copper, titanium, and rare earth elements. The process involves retrieving these valuable minerals while returning unwanted sediments back into the sea. This operation, while lucrative, can have significant environmental impacts, including disrupting marine ecosystems and biodiversity.

- **Process of Extraction**: The mining process generally involves the use of specialized equipment to collect mineral deposits from the ocean floor. Poly-metallic nodules, which form over thousands of years, contain valuable metals and are found scattered across the deep seabed. The process often includes dredging the seabed or using remotely operated vehicles (ROVs) to harvest these nodules. The sediment displaced by mining activities is then flushed back into the sea, which can disrupt the marine food chain, affect water quality, and harm aquatic life.



Offshore Areas Mineral (Development and Regulation) Act 2002:

- **Regulation of Offshore Mining**: The Offshore Areas Mineral (Development and Regulation) Act (OAMDR) was introduced to regulate the exploration and extraction of mineral resources from India's offshore zones, which include territorial waters, the continental shelf, the exclusive economic zone (EEZ), and other maritime zones. This Act provides the legal framework for offshore mining activities in India's maritime zones, ensuring that mineral extraction in these areas is done in an organized and controlled manner.

- **Amendment in 2023**:

    - **Private Sector Participation**: The 2023 amendment to the OAMDR Act introduced provisions allowing private companies to participate in deep-sea mineral exploration and mining. This was a significant shift from earlier policies that restricted such activities to the public sector.

    - **Competitive E-Auction Process**: A competitive e-auction process was introduced to award production leases for offshore minerals, ensuring that the allocation of mining rights is transparent, competitive, and based on merit.

    - **50-Year Lease Period**: The amendment also extended the lease period for mining blocks to 50 years, which provides long-term security for mining companies but also raises concerns about the long-term environmental consequences of such extended mining activities.

Implications of the Offshore Mining Act:

- **Encouragement of Private Investment**: The inclusion of the private sector is expected to bring in significant investment for the exploration and extraction of offshore minerals, leading to faster development of mineral resources. This would increase mineral availability, particularly for construction and industrial use, which could drive economic growth.

- **Environmental Concerns**: The increasing involvement of private companies in deep-sea mining activities raises concerns about the prioritization of profits over environmental sustainability. The scale and speed of such operations could result in environmental degradation, including the destruction of marine ecosystems, coastal erosion, and pollution of the oceans.

- **Impact on Coastal Communities**: Offshore mining raises concerns about the rights and livelihoods of coastal communities, particularly those that depend on fishing for their sustenance. Many fishing communities fear that the mining operations will disturb marine life, destroy habitats, and reduce fish stocks, thereby jeopardizing their livelihoods.

Offshore Mining in Kerala:

- **Geological Survey Findings**: According to a study conducted by the Geological Survey of India (GSI), Kerala's coastal areas have vast mineral deposits, particularly construction sand. The study indicates that there are approximately 745 million tonnes

of construction sand off Kerala's coast, with three specific offshore mining blocks in Kollam containing about 300 million tonnes of sand at depths ranging between 48 to 62 meters. These mineral deposits have high commercial value, especially for the construction industry.

- **Kerala's Opposition to Offshore Mining**:
    - **Legislative Stand**: The Kerala Legislative Assembly passed a unanimous resolution against offshore mining, citing the environmental and socio-economic risks posed by such activities.
    - **Environmental Concerns**: The Kerala government asserts that offshore mining could irreversibly damage marine biodiversity, particularly in regions rich in marine life like the Kollam parappu (Quilon Bank), which is one of India's richest fishing zones.
    - **Loss of Control and Royalties**: Kerala's opposition also stems from the fact that the state has no direct control over offshore mineral resources, as the Central government has the constitutional right to regulate these resources. This lack of state involvement means Kerala would not receive royalties from the mining activities, despite bearing the brunt of the environmental impacts.

Environmental and Ecological Risks:

- **Fisheries and Livelihoods**: Kerala's fishing industry supports over 1.1 million fishermen across 222 coastal villages. Kollam parappu (Quilon Bank), an ecologically sensitive area, is one of India's most productive fishing zones. The potential risks from offshore mining include:
    - **Toxic Substance Release**: Offshore mining processes may release toxic substances such as heavy metals into the sea, which can harm marine life and disrupt the delicate balance of the aquatic ecosystem.
    - **Habitat Destruction**: The destruction of marine habitats due to dredging, seabed excavation, and sediment displacement could lead to a significant reduction in fish populations, negatively affecting the livelihoods of the fishing communities.
    - **Disruption of Marine Food Chains**: The sediment plumes from mining can block sunlight, which is essential for photosynthesis in marine plants and plankton. This disruption can affect the entire food chain, leading to reduced fish stocks and further impacting coastal communities dependent on fishing.
- **Ecological Damage**:
    - **Water Clouding**: The disturbance of sediments on the ocean floor results in the clouding of water, which affects the euphotic zone — the upper layer of the ocean where sunlight penetrates and where photosynthesis occurs. This could severely disrupt the growth of plankton, which forms the foundation of the marine food web.

- **Spread of Sediment Plumes**: Sediment plumes created during mining activities can travel far beyond the immediate mining zone, causing widespread ecological damage. This can affect marine habitats, disrupt migration patterns of marine species, and have a cascading effect on marine biodiversity.

- **Impact on Biodiversity**: Disturbances in marine ecosystems, such as habitat destruction and pollution, can have far-reaching effects on marine biodiversity. Species that rely on the affected ecosystems could be driven to extinction, leading to a loss of biodiversity in the region.

Union Government's Stand and Response:

- **Exclusion of Marine Protected Areas**: In response to environmental concerns, the government has excluded 130 marine protected sites from the offshore mining zones. These protected areas are considered ecologically sensitive, and the government aims to preserve them from the potential threats posed by mining activities.

- **Identification of Biodiversity Hotspots**: The government has identified 106 Important Coastal and Marine Biodiversity Areas (ICMBAs) to safeguard the most ecologically sensitive regions. This effort is part of a broader strategy to protect critical marine ecosystems from mining-related destruction.

- **Formation of Offshore Areas Mineral Trust**: The government has formed the Offshore Areas Mineral Trust, which involves coastal states as stakeholders. This trust will manage funds to mitigate environmental damage caused by mining activities and will support affected communities by providing compensation or assistance for alternative livelihoods.

- **Commitment to Sustainable Mining**: The Centre has committed to conducting mining activities in a sustainable manner, ensuring that appropriate safeguards are put in place to minimize ecological harm. This includes setting up strict monitoring systems, limiting mining activities to non-sensitive areas, and ensuring that mining operations are conducted responsibly.

Way Forward:

- **Comprehensive Environmental Impact Assessment (EIA)**: Before granting approval for offshore mining projects, a thorough EIA should be conducted to assess potential risks to the environment, marine life, and coastal communities. The EIA should be an essential part of the decision-making process to ensure that any adverse effects are mitigated.

- **Stakeholder Consultations**: The government should engage in wide consultations with coastal communities, state governments, environmental groups, and experts to understand the concerns of all stakeholders. These consultations can provide valuable input into how offshore mining projects should be managed and regulated to balance economic development with environmental protection.

- **Revenue-Sharing Mechanism**: To address concerns about the distribution of benefits, a revenue-sharing mechanism should be introduced. This would ensure that

coastal states, which are directly affected by offshore mining, receive a fair share of the revenues generated from these activities. This could help mitigate the socio-economic impacts of mining on local communities.

- **Stricter Environmental Regulations**: The government should enforce strict environmental regulations and monitor compliance to prevent environmental damage from offshore mining. These regulations should include requirements for rehabilitation of mined areas, pollution control, and measures to protect marine biodiversity.

- **Exploring Sustainable Alternatives**: The government should invest in research and development of sustainable offshore mining technologies. This could include the use of deep-sea mining technologies that minimize disruption to the seabed and reduce the environmental impact of mining activities. Sustainable mining practices could allow for mineral extraction while preserving the health of marine ecosystems for future generations.

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