

# Geography of Indian Ocean – I

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**Source:** *The Hindu*

**Manifest pedagogy:** Many of the geopolitical issues of world as part of world geography at the mains. Indian ocean is emerging as the hub of geopolitical events. The overall profile, resources and issues related to geopolitics will help in answering mains and prelims orientated questions.

**Placing it in syllabus:** World's physical geography

**Static dimensions:**

- Locational aspect of Indian Ocean
- Resources of Indian Ocean
- Ecological threats

**Current dimensions:** India-China and Indian ocean

**Content:**

**Locational aspect of Indian Ocean:**

- The Indian Ocean is the **third largest body of water in the world**, covering about 20% of the Earth's water surface.
- It is **bounded on the north by Southern Asia (including the Indian subcontinent), on the west by the Arabian Peninsula and Africa, on the east by the Malay Peninsula, the Sunda Islands, and Australia and on the south by the Southern Ocean.**
- It is separated from the Atlantic Ocean by the **20° east meridian** and from the Pacific by the **147° east meridian.**
- The **northernmost extent of the Indian Ocean is approximately 30° north latitude in the Persian Gulf.**
- Major **choke points** include Bab el Mandeb, Strait of Hormuz, Strait of Malacca, southern access to the Suez

Canal, and the Lombok Strait.

- **South of the equator, the Indian Ocean circulates in a counter clockwise direction.**
- In the **northern portion of the Indian Ocean, the monsoon**, a seasonal wind reversal found in tropical areas, dominates the circulation patterns.
- It provides **major sea routes** connecting the Middle East, Africa, and East Asia with Europe and the Americas.

### **Resources of Indian Ocean:**

- The **biogenic deposits** in the Indian Ocean comprise the **corals** on shallow banks and on the continental shelves and the **oozes** in the deep sea.
- The **authigenic deposits** in the Indian Ocean comprise the **phosphorites and the polymetallic nodules.**
- **Large reserves of hydrocarbons** are being tapped in the offshore areas of Saudi Arabia, Iran, India, and Western Australia.
- An estimated **40% of the world's offshore oil production** comes from the Indian Ocean.
- **Fishing** in the Indian Ocean now accounts for almost **15 percent of the world's total** fish production.
- **Beach sands rich in heavy minerals and offshore placer deposits** are actively exploited by bordering countries, particularly India, South Africa, Indonesia, Sri Lanka, and Thailand.
- Mineral resources are widely distributed with **nodules containing nickel, cobalt, and iron and massive sulphide deposits of manganese, copper, iron, zinc, silver, and gold** present in sizeable quantities on the sea bed.
- Additionally, various **rare earth elements** are present, even though their commercial extraction is not yet feasible.

### **Ecological threats:**

- **Ocean Dumping:** Oceans have been targeted as a dumping

site of sewage, chemicals, industrial waste, garbage, hazardous waste and other debris from the land.

- **Land Runoff:** Surface runoff from both agricultural land and areas that carry soil and particles mixed with carbon, phosphorus, nitrogen and minerals, pose a threat to the marine life and result in harmful algal blooms.
- **Dredging:** As dredging removes the deposits submerged underwater, the activity alters the pre-disposed composition of soil, leading to the destruction of habitat of creatures and organisms.
- **NO<sub>x</sub> and SO<sub>x</sub>:** Nitrogen oxides (NO<sub>x</sub>) and Sulfur oxides (SO<sub>x</sub>) are the two main pollutants found in shipping emissions that has badly affected both marine environment and the ozone layer.
- **Ocean Acidification:** It is the continuing decrease of seawater pH caused by the absorption of carbon dioxide (CO<sub>2</sub>) from the atmosphere which affects the behaviour of several marine species, putting them at life-threatening risks.
- **Sea Water Level Rising:** Global warming is alarmingly increasing seawater levels, which means more wetland flooding, destructive erosion and agricultural land contamination.
- **Ozone Depleting Substances:** These substances omitted by ships across the world include Methyl CFCs, Halon, Chloroform, Methyl Bromide, Bromo- chloro di-fluoro methane and Bromo trifluoro methane etc.
- **Waste Pollution from Ships:** Both solid and liquid waste in the form of ballast water, grey water, food waste, dunnage and packing material, paper products and cleaning material and rags etc... pollutes the seawater and badly affects marine lives.
- **Oil Spills:** Oil spills have resulted in the extreme pollution of the marine ecosystem, which destroys the insulating ability of several marine species and also the water repellency of bird's feathers, exposing these creatures to life-threatening risks.

- **Plastic Pollution:** The plastic bags, fishing nets and other debris-chokes tens and thousands of seabirds and sea turtles every year. The ingestion of micro plastics by fish and other species also pose a risk to their life as well as humans.

### **India-China and Indian ocean:**

- China and India are dependent on **energy resources transported via the secure sealanes in the Indian Ocean** to fuel their economies.
- Along with this, **China's growing global influence and India's rapid economic rise** have heightened the ocean's strategic value.
- **China's ties with regional states** have deepened, including the influx of Chinese **capital into construction projects** in Bangladesh, Myanmar, Pakistan, and Sri Lanka.
- China has also undertaken efforts to **modernize its military**, particularly its naval deployment capabilities and has outlined **Belt and Road Initiative(BRI)**.
- Chinese navy has already acquired a **logistic base at Djibouti** besides acquisition of the **Hambantota port in Sri Lanka on a 99-year lease**.
- The presence of an estimated **six to eight Chinese naval ships in the northern part of the Indian Ocean at any given time** as well as submarines is a cause of concern for India.



- The **construction of military bases, modernized equipment and fleets, new maritime assets, and the expansion of security ties** are all **part of New Delhi's push** to assert itself as the region's leader.
- **India and France in 2018 signed a strategic pact opening up their naval bases** to each other's warships across the Indian Ocean.

- It **grants the Indian navy access** to strategically **important French ports** – including one in Djibouti, home to China's single overseas military base.
- A **similar deal was made with the United States** before which signifies a web of strategic trust to thwart Beijing's expansion into India's traditional area of influence.
- An **agreement for a new base in the Seychelles** has been finalised and **military access to naval facilities at Oman's port** and airfields has been negotiated.
- A **pact** allowing deployments from each other's naval facilities was signed **with Singapore in 2017**.
- With **expanded bases on the Andaman and Nicobar Islands at the end of the Malacca Strait**, India is raising the stakes in the fight over the waters of Southeast Asia.
- **India's "Act East" policy and Washington's "Free and Open Indo-Pacific" concept** are starting points for pushing into China's traditional waters in return.

China and India have expressed eagerness to assume greater responsibility in policing maritime global commons and to be recognized as major powers. Broader initiatives like the BRICS Development Bank and the Asian Infrastructure Investment Bank (AIIB) are also pulling India into to a larger leadership role alongside China.