

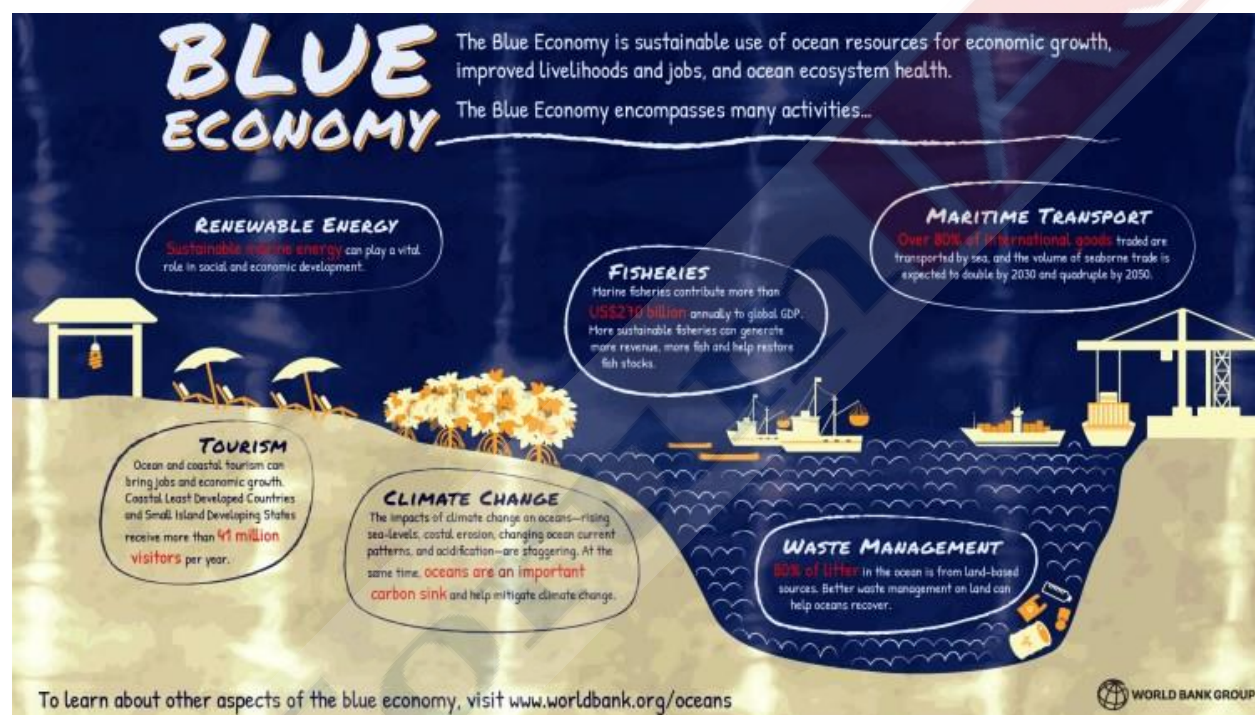
Blue Economy- Significance and Challenges- Explained Pointwise

'Blue Economy' has been identified as one of the **major pillars of economic growth** for making a Viksit Bharat by 2047. Despite its significant potential for the growth of the nation, it also faces **several constraints and challenges**. Overcoming these challenges will be crucial for the realization of true potential of this sector.

What is 'Blue Economy'? What is the extent of 'Blue economy' in India?

Blue Economy: World Bank defines blue economy as the **sustainable development of ocean resources** for **economic growth, improved livelihoods, and jobs while preserving the health of the ocean ecosystem**. The concept was first given by **Gunter Pauli** in **2010** in his book '*The blue economy, 10 years, 100 innovations, 100 million jobs*'.

Components of Blue Economy:



Source: World Bank

The blue economy encompasses a diverse range of activities that are critical for sustainable development, such as:

Renewable Energy	Renewable and Sustainable marine energy resources like offshore wind and tidal energy constitutes an important component of Blue Economy.
Fisheries	Sustainable management of fisheries ensures a continuous supply of fish for greater revenue while simultaneously contributing to the restoration of fish stocks . This supports both economic and environmental goals.

Maritime Transport	Sustainable, safe and secured maritime transport is an important component of the global economy , as it connects nations and facilitates trade.
Tourism	Ocean and coastal tourism offer recreational opportunities, contribute to job creation and economic growth, making it a key component of the blue economy.
Climate Change	Oceans act as crucial carbon sinks for the absorption and storage of carbon dioxide.

Potential for the World Economy: Oceans contribute to around **3-5% of Global GDP** and over **80% of international goods transportation**. The UN has declared the period 2021-2030 as the '**UN Decade of Ocean Science for Sustainable Development**'.

Extent of Blue Economy in India: India has a coastline of more than ~11,000 km spread across 9 states. India also has an Exclusive Economic Zone (EEZ) of more than 2.2 million sq km. India's blue economy accounts for ~4% of the GDP and is estimated to increase over the period of time.

What is the significance of Blue Economy for India?

Blue economy can contribute to India's economic growth in the following ways:

1. Oceanic Resources:

- Fisheries:** Indian marine fisheries constitute a major portion of India's agri-allied exports. India produced **~3.7 MMT of marine fisheries** in 2019-20.
- Rare Earth Minerals:** The continental margins of India have an extensive variety of heavy and rare earth minerals like **ilmenite, magnetite, monazite, zircon, and rutile**.
- Hydrocarbons:** The oceanic sea beds are a major source of hydrocarbons. India has 26 sedimentary basins, spread across a total area of 3.4 million square km.
- Renewable Energy:** Renewable energy in offshore regions has tremendous potential in the form of offshore wind, waves, ocean currents, tidal currents, and thermal energy.

2. Ports, Shipping, and Marine Tourism:

- Port-led Development:** India is focusing on port-led development with the vast network of port connectivity. India comprises 200 ports, of which 12 are major ports that handled 541.76 million tonnes in FY21.
- Shipping and Maritime Transport:** India has the largest merchant shipping fleets among the developing countries. Around **95% of the country's trade by volume and 68% by value is moved through maritime transport**. Hence, shipping sector has the potential to provide sustainable livelihood opportunities.
- Coastal tourism:** Coastal Tourism has contributed largely to the development of India's tourism sector and livelihood creation.

3. Ocean Science and Services:

- Observations, data, and information services:** The data set and information services help in providing information regarding **Marine Fishery Advisories, Ocean State Forecasts, Tsunami and Storm Surge Early**

Warnings, Sea Level Rise, Oil Spill Trajectories. These are key to enhancing the safety of lives and livelihoods of coastal communities.

- b. **Conservation of Marine Biodiversity:** Sustainable use of ocean helps in the conservation of marine and coastal biodiversity.
4. **Employment Opportunities:** Blue economy provides an avenue for employment generation to the burgeoning youth population. For ex- Enhanced employment opportunities in **Fishing and Aquaculture, Marine Tourism, Shipbuilding** etc.

What are the challenges associated with Blue Economy in India?

1. **Overfishing:** Overfishing has **emerged as a major challenge in India's coastal waters.** It has led to the **depletion of fish stocks** and **harming of the marine ecosystem.** For ex- **Depletion of fishery resources in the Palk Bay Area** due to bottom trawling.
2. **Marine Pollution:** Pollution from sources such as oil spills, plastic waste, and industrial effluent harm the marine ecosystems and have negative impacts on the blue economy. For ex- **Oil spill in Chennai** originating from the **Chennai Petroleum Corporation Ltd (CPCL's) refinery.**
3. **Lack of Infrastructure:** The lack of ports, airports, and road connectivity has hampered the development and expansion of economic activities in these regions.
4. **Piracy and International Conflicts:** The piracy in the Indian Ocean region near the Red Sea and **unsecured sea lanes of transport** are a major threat to the development of Indian Shipping Industry. Further, the strings of pearls of China and conflicts over maritime boundaries are also a major challenge. For ex- **India-Sri Lanka Fishing Conflict.**
5. **Climate Change:** Rising sea levels, negative Indian Ocean dipole and amplification of cyclones also **pose risks to coastal communities** and also have negative impacts on the blue economy.

What are the Government initiatives for the Development of Blue Economy?

Sagarmala Project	It aims for holistic port infrastructure development along the 7,516-km long coastline through modernisation, mechanisation and computerisation. The projects under this project aim for Coastal Infrastructure Development, Coastal Industrial Development, Coastal Community Development and Development of Coastal Tourism.
Integrated Coastal Zone Management Plan	ICZM is a process for the management of the coast using an integrated approach , to achieve the goal of sustainable management of coastal regions.
Deep Ocean Mission	It is India's ambitious program to explore and harness the depths of the ocean. The mission aims to address scientific and economic challenges associated with ocean exploration and resource utilization.
O-SMART	The scheme encompasses a total of 16 sub-projects addressing ocean development activities such as Services, Technology, Resources, Observations and Science.

What Should be the Way Forward?

1. **Blue Ocean Strategy:** India's Blue Ocean Strategy should rest on 3 pillars – Stewardship of the commons, Resilience, and Inclusive growth:
 - a. **Stewardship:** India must continue to assert that the Indian Ocean is a shared space, not a contested one. By prioritizing ecosystem restoration, biodiversity protection, and sustainable fisheries, India can set the tone for cooperative management, rather than competitive exploitation.
 - b. **Resilience:** As the climate crisis intensifies, ocean nations must focus on adaptation & preparedness. India can lead by establishing a Regional Resilience & Ocean Innovation Hub – one that strengthens ocean observation networks, improves early warning systems, and transfer technology to Small Island Developing States and African coastline nations.
 - c. **Inclusive Growth:** The Indian Ocean must become a driver of prosperity for all littoral states. Green shipping, offshore renewable energy, sustainable aquaculture, and marine biotechnology offer pathways to development that are compatible with climate goals.
2. **Skill Development Initiatives:** Skill development initiatives along with **preservation of traditional knowledge** are integral to harnessing the full potential of the blue economy and ensuring prosperity for all.
3. **Blue Diplomacy Cadre:** We must aim to develop a 'blue diplomacy cadre' through the use of policies and platforms such as **SAGAR, IORA, BIMSTEC, SAARC** in the Indo-Pacific region. This will be helpful in peaceful resolution of all international disputes and securing global maritime transport routes.
4. **Coastal and Marine Spatial Planning:** This scientific approach should be used to **analyse and allocate coastal and marine resources** over space and time. It will help in sustainable fisheries development and optimum use of oceanic mineral resources.
5. **Proper Waste Disposal Policies:** Proper waste disposal policies like **robust Plastic Elimination** and **National Marine Litter policy**, that prevent pollution, accumulation of marine debris, must be enacted and implemented.
6. **Research and Funding:** Funds must be provided for R&D in the emerging fields of blue economy such as marine biology, marine technology, marine chemistry, geology, shipping, oceanography.

Conclusion: As the climate change is rapidly heating & acidifying the oceans, the sea levels are rising, and the illegal & unregulated fishing is stripping marine life from the water column, India now has both the opportunity & the responsibility to play a historical leadership role – ensuring that the Indian ocean becomes not a theatre of rivalry, but a laboratory of sustainability, innovation, and resilience.

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UPSC Syllabus- GS 3- Indian Economy