



## Charting India's Maritime Future

*This editorial is based on "[India needs to build ships](#)" which was published in Financial Express on 12/11/2024. India's heavy reliance on foreign vessels for trade, coupled with limited financing options in shipbuilding, poses economic and strategic risks. With major shipbuilding nations controlling the market, India urgently needs policy reforms to strengthen its maritime sector.*

**For Prelims:** [India's maritime sector](#), [Shipbuilding](#), [SARFAESI Act](#), [Maritime India Vision 2030](#), [Sagar Mala Program](#), [Red Sea crisis](#), [String of Pearls](#), [Security and Growth for All in the Region \(SAGAR\) vision](#), [India-Middle East-Europe Economic Corridor](#), [Harit Sagar Initiative](#), [INS Vikrant](#), [BIMSTEC](#), [IORA](#), [Coastal Regulation Zone](#).

**For Mains:** Current Status of India's Maritime Sector, Major Issues India Faces in Enhancing Maritime Infrastructure.

As India nears its role as the world's third-largest economy, its **minimal share in global shipbuilding (0.07%)** and **ship ownership (1.2%)** exposes strategic and economic risks. Relying on foreign vessels for **95% of trade has led to substantial forex outflows**. The exclusion of ships from the harmonised infrastructure list and the [SARFAESI Act](#) limits access to competitive financing, stalling growth. With **China, South Korea, and Japan** dominating 93% of global shipbuilding, urgent policy reforms are needed to **align India's maritime sector with its economic aspirations**.

### What is the Current Status of India's Maritime Sector?

- **Status:** India ranks as the **16th largest maritime country** globally.
  - The Indian maritime sector **handles 95% of India's trade by volume** and 70% by value.
  - India is the **world's 3rd largest ship recycler by tonnage**, holding a 30% global market share in ship-breaking with the world's largest ship-breaking facility located in Alang.
- **Government Initiatives for Maritime Growth**
  - **Maritime India Vision 2030:** Launched in **March 2021**, the vision includes over 150 initiatives for the comprehensive development of the Indian maritime sector.
    - Aims to serve as a blueprint for accelerated growth across various facets of India's maritime industry.
  - **Sagar Mala Program (2015):** Focuses on port-led development and logistics-driven industrial growth.
    - Encompasses 415 projects with an investment of \$123 billion across four key areas:
      - **Port Modernization and New Port Development**
      - **Port Connectivity Enhancement**
      - **Port-Linked Industrialization**

- **Coastal Community Development**

- Targets include generating **\$2.7 billion in annual revenue from existing assets** and **creating 2 million direct and indirect jobs by 2030**.

## Why is Investment in Maritime Infrastructure Crucial for India?

- **Economic Security & Trade Resilience:** The recent [Red Sea crisis](#), where [Houthi attacks disrupted global shipping routes](#), demonstrated India's maritime vulnerabilities, with **global shipping costs surged in the first half of 2024** and forcing vessels to take longer routes around Africa.
  - India's overwhelming dependence on foreign ships (**95% of international cargo**) resulted in freight costs surging to **\$75 billion in 2022-23**, with projections exceeding \$100 billion soon.
  - As global supply chains face increasing geopolitical pressures, from the [Ukraine war to Middle East tensions](#), India's lack of maritime self-reliance (**only 487 vessels for overseas trade**) poses a significant economic risk.
  - Building domestic maritime infrastructure **could save substantial forex outflow** and **provide better control over trade routes**.
- **Strategic Positioning in Indo-Pacific:** India's maritime infrastructure development aligns with its **expanding role in the Indo-Pacific region**, particularly as China increases its presence through initiatives like the "[String of Pearls](#)" and dominates global shipbuilding with **46.6% market share**.
  - Recent developments like the [India-Middle East-Europe Economic Corridor \(IMEC\) announcement in 2023](#), competing with [China's Maritime Silk Road](#), demonstrate the strategic importance of maritime capabilities.
  - Also, India's leadership in initiatives like the [Security and Growth for All in the Region \(SAGAR\) vision](#) requires robust maritime infrastructure to be credible.
- **Employment Generation & Skill Development:** India's demographic dividend presents a unique opportunity in maritime infrastructure, especially as **traditional shipbuilding nations face ageing populations**.
  - With India ranking third globally in seafarer supply (contributing **10% of global maritime workforce**), the sector has massive employment potential.
  - Recent initiatives like the [Sagarmala programme](#) **have already generated a significant number of jobs**, with projections for millions more through port-led development projects.
- **Environmental Sustainability & Energy Security:** Maritime infrastructure modernization aligns with [India's COP28 commitments](#) and **green shipping initiatives**.
  - The [International Maritime Organization's 2023 strategy](#) targeting net-zero emissions by **2050 makes investment in green shipping infrastructure crucial**.
  - India's recent [Harit Sagar Initiative](#) shows commitment to sustainable maritime infrastructure.
  - The success of projects like [Cochin Shipyard's zero-emission autonomous vessels](#) and [Mumbai's electric water taxi system](#) demonstrates the viability of sustainable maritime solutions.
- **Domestic Manufacturing & Self-Reliance:** Investment in maritime infrastructure supports [India's Atma Nirbhar Bharat initiative](#) and its goal to become a global manufacturing hub.
  - Recent successes like the **indigenous aircraft carrier [INS Vikrant](#)** demonstrate India's shipbuilding capabilities.
  - The **PLI scheme's expansion to include marine products** create a foundation for domestic manufacturing growth.
- **Regional Connectivity & Trade Integration:** Maritime infrastructure development enhances India's regional connectivity initiatives like [BIMSTEC](#) and [IORA](#).
  - The successful launch of the [Sittwe Port in Myanmar](#) and **development of Sabang Port in Indonesia** demonstrate India's growing maritime cooperation.
  - Recent agreements for **maritime connectivity with Maldives and Sri Lanka**, despite political tensions, highlight the importance of sustained maritime infrastructure development.

## What are the Major Issues India Faces in Enhancing Maritime Infrastructure?

- **Financing & Infrastructure Status Barriers** The issue of ships not being included in the **harmonised list of infrastructure** (they are not classified as infrastructure) **severely limits financing options**, despite shipyards having infrastructure status since 2016.
  - The exclusion from **SARFAESI Act 2002** makes banks reluctant to provide long-term loans as **ships cannot be mortgaged as securable assets**.
  - Also, In India, financing costs are higher because the **shipbuilding relies heavily on imports of critical raw materials**
  - India currently holds a very small share of the global shipbuilding market at **just 0.06%**, significantly lagging behind the leading countries like **China, South Korea, and Japan**, largely due to these financing constraints.
- **Port Infrastructure & Efficiency Gaps:** Despite handling over **1.4 billion tonnes of cargo in 2022-23**, Indian ports struggle with efficiency metrics well below international standards.
  - The average turnaround time at Indian ports is 2.1 days compared to 0.6 days in Singapore.
  - India's existing major ports have **depth limitations that restrict the accommodation of ultra-large container vessels**, thereby increasing the reliance on transshipment hubs in nearby countries.
- **Skilled Workforce & Infrastructure Constraints:** While India provides 10-12% of global seafarers, there's a significant shortage in **specialized shipbuilding skills**.
  - Also, the Indian maritime sector **lags in adoption of smart port technologies and automation**.
  - The integration of **blockchain, IoT, and AI technologies** in port operations remains at nascent stages.
- **Regulatory & Policy Coordination:** Multiple regulatory bodies and overlapping jurisdictions create operational inefficiencies.
  - Port expansion and maritime infrastructure development face significant challenges in **land acquisition and Coastal Regulation Zone compliance**.
  - The coordination between government agencies involved in the maritime sector leads to delays in project approvals, averaging 2-3 years for major port projects.
  - The **absence of a single-window clearance system, despite announcements in Maritime India Vision 2030**, continues to hinder development.
- **Competition & Market Position:** India faces intense competition from established maritime nations and emerging players.
  - China's dominance in shipbuilding (46.6% global share) and container manufacturing creates significant entry barriers.
  - The **lack of economies of scale**, with Indian shipyards operating at **60-70% capacity utilisation**, further impacts competitiveness.
- **Coastal Shipping Development Lag:** Despite a 7,500 km coastline, coastal shipping accounts for **only 6% of India's domestic freight movement**.
  - Currently, around **30 million tonnes (MT)** of coal is moved on the coastal route from eastern India to south and western India; potential demand is nearly **100 MT by 2030**.
- **Hinterland Connectivity Gaps:** Last-mile connectivity remains a major challenge with **only 30% of major ports having direct rail evacuation systems**.
  - The **absence of dedicated freight corridors** connecting major ports to industrial clusters increases logistics costs by 15-20%.
  - Limited development of coastal shipping and **inland waterways infrastructure** restricts **multimodal transportation options**.

## What Measures can India Adopt to Accelerate the Development of Maritime Infrastructure?

- **Integrated Port Development Framework:** Establish a unified **National Port Grid Authority** to **coordinate development across major and minor ports**, eliminating inter-port competition and promoting specialisation.
  - Implement a hub-and-spoke model where 3-4 mega ports (like the **new Vadhavan Port**) act as **transshipment hubs while others serve as feeder ports**.
  - Develop **port-specific master plans aligned with regional cargo profiles** and hinterland industrial clusters.

- Link port development with industrial corridors and [Special Economic Zones](#) to ensure cargo sustainability.
- **Technology-Driven Port Modernization:** Deploy **Smart Port Infrastructure Management Systems (SPIMS)** across all major ports, **starting with JNPT and Mundra as pilot projects.**
  - Introduce **blockchain-based Port Community Systems** for paperless trade facilitation, building on the success of [JNPT's recent digitalization](#).
  - Establish **IoT-enabled cargo tracking** and port equipment monitoring systems.
  - Accelerate the development of **National Maritime Single Window like the United Kingdom** integrating **customs, immigration, and port operations.**
- **Multimodal Connectivity Enhancement:** Fast-track the completion of pending Dedicated Freight Corridor sections connecting major ports to industrial hubs.
  - Develop **coastal economic zones** with integrated logistics parks. Implement a standardised **Port-Rail-Road connectivity** model at all ports, similar to **Gujarat's successful GIFT City model.**
  - Create a dedicated port connectivity fund under the **National Infrastructure Pipeline for last-mile projects.**
- **Green Port Initiative:** Mandate **solar and wind power integration for all ports**, targeting a fixed percentage of renewable energy usage.
  - Implement **shore-to-ship power supply systems** to reduce vessel emissions while berthed.
  - Develop **green channel clearances for environmental-friendly port projects.** Install automated environmental monitoring systems at all ports.
  - Create dedicated green corridors for cargo movement with **electric vehicle infrastructure.**
- **Skill Development and Capacity Building:** Establish Maritime Skill Development Centers at all major ports in partnership with the private sector.
  - Create **specialised courses for port automation and smart port operations.** Implement mandatory certification programs for port workers aligned with global standards. D
  - Develop **exchange programs with leading international ports for knowledge transfer.** Set up maritime innovation labs at IITs and maritime universities focusing on port technology.
- **Private Sector Participation Model:** Redesign **PPP frameworks** with more balanced risk-sharing mechanisms and clear exit options.
  - Introduce **hybrid annuity model for port projects** similar to successful highway projects.
  - Create **special purpose vehicles for port-led development** with equity participation from states and private sector.
  - Establish **port infrastructure investment trusts (InvITs)** to attract long-term capital.
- **Coastal Community Integration:** Develop **fishing harbours and coastal tourism** infrastructure alongside commercial port development.
  - Create **skill development programs** specifically for coastal communities in port-related activities.
  - Implement **comprehensive rehabilitation packages for project-affected persons** with long-term livelihood support.
  - Establish **community-managed minor ports for local trade and fishing activities.**
- **Port Efficiency Enhancement Program:** Implement port performance benchmarking system with real-time monitoring and rewards.
  - Develop **specialised cargo handling facilities based on port-specific cargo profile.**
  - Create dedicated coastal berths at all major ports to promote coastal shipping. Establish **port-based free trade warehousing zones** to reduce logistics costs.

## Conclusion:

Strengthening India's maritime infrastructure is **pivotal for enhancing trade resilience, fostering economic growth**, and bolstering strategic security in alignment with its economic aspirations. Through targeted policy reforms and investment, India can reduce its reliance on foreign vessels, promote sustainable practices (**SDG 9: Industry, Innovation, and Infrastructure**). Also, developing a robust maritime sector will not only support domestic manufacturing but also enhance **environmental**



sustainability (SDG 13: Climate Action) for future generations.

**Drishti Mains Question:**

Assess the strategic, economic, and environmental significance of developing India's maritime infrastructure. How can strengthening this sector contribute to India's self-reliance, trade resilience, and regional security in the Indo-Pacific?

**UPSC Civil Services Examination, Previous Year Question (PYQ)**

**Q. With reference to 'Indian Ocean Rim Association for Regional Cooperation (IOR-ARC)', consider the following statements: (2015)**

1. It was established very recently in response to incidents of piracy and accidents of oil spills.
2. It is an alliance meant for maritime security only.

**Which of the statements given above is/are correct?**

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

**Ans: (d)**

**Q. What is blue carbon?**

- (a) Carbon captured by oceans and coastal ecosystems
- (b) Carbon sequestered in forest biomass and agricultural soils
- (c) Carbon contained in petroleum and natural gas
- (d) Carbon present in atmosphere

**Ans: (a)**

**Mains:**

Q. Defining blue revolution, explain the problems and strategies for pisciculture development in India. (2018)