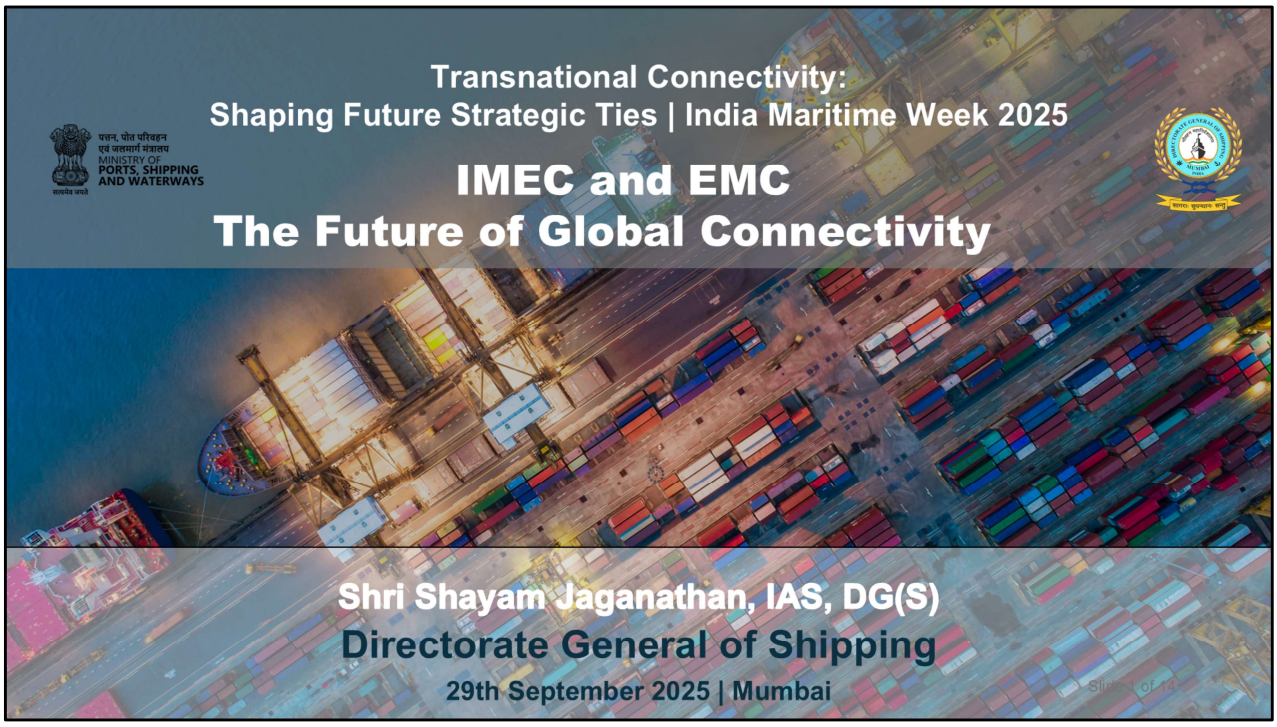


Speaking Points:
“Good afternoon everyone.

I am Shri Shyam Jagannathan, Director General of Maritime Administration.

It is my privilege to address the TRANSNATIONAL Connectivity: Shaping Future Strategic Ties here in Mumbai.

The Imperative of Transnational Connectivity

In an era marked by geopolitical realignments and the quest for sustainable development, connectivity has emerged as a critical component of global economic strategy as well as global supply chains.

The India-Middle East-Europe Economic Corridor (IMEC), launched at the 2023 G20 Summit, is a transformative multimodal initiative connecting Asia, the Arabian Gulf, and Europe.

EU's Global Gateway aims to put in place resilient infrastructure partnerships around the world, with an emphasis on equitable prosperity, digital transformation, and sustainability.

IMEC and EMC The Future of Global Connectivity

2

In a world characterized by geopolitical shifts and sustainability imperatives, connectivity is crucial for economic security and development. The India-Middle East-Europe Economic Corridor (IMEC), launched at the 2023 G20 Summit, exemplifies a transformative approach to infrastructure integration across continents. It offers a multimodal, multimarket approach connecting rail, road, maritime, and digital networks. This initiative, complemented by global efforts like the EU's Global Gateway, underscores the need for resilient, sustainable infrastructure partnerships in advancing equitable prosperity and digital transformation.

Geo Political Uncertainty

1. Impact of Blockage of Suez Canal

Fig: Red Sea Shipping Crisis

2. Impact of Russia-Ukraine War on Maritime Trade & Shipbuilding

Disrupted Black Sea Routes
- Grain, metals, and bulk cargo shipments rerouted or delayed
- Longer transit times, higher freight costs

Sanctions & Export Controls
- Restrictions on Russian oil, metals, and technology
- Compliance risk for shippers & buyers
- Need to diversify sourcing and trading partners

Fuel & Insurance Instability
- Volatile bunker fuel prices increase operating costs
- Higher war-risk premiums and shipping insurance rates
- Some routes avoided, leading to global supply chain stress

3. Impact of US Tariff War on Maritime Trade & Shipbuilding

Strategic & Financial Implications
- Risk of retaliatory tariffs disrupting global supply chains
- Shipping companies may face overcapacity or rerouting challenges
- Financing for newbuilds and fleet expansion becomes riskier

The Impact due to Geo Political scenario is tremendous.

Impact of Blockage of Suez Canal

1. The blockage of the Suez Canal forces shipping routes to divert via the Cape of Good Hope, increasing transit distance from 10,000 to 13,500 nautical miles and journey duration from 25.5 days to 34 days, based on ultra-large container vessel speed.
2. Longer routes raise transportation costs, delay deliveries, and disrupt schedules for global maritime trade, affecting imports and exports for countries like India and the Netherlands.
3. These delays can escalate supply chain uncertainty, impacting pricing and inventory management throughout shipping-dependent industries.

Impact of Russia-Ukraine War on Maritime Trade & Shipbuilding

1. Grain, metals, and bulk cargo shipments are either rerouted or delayed due to disrupted Black Sea routes, causing longer transit times and higher freight costs.
2. Extensive sanctions and export controls on Russian oil, metals, and technology create compliance risk for shippers and buyers, compelling companies to diversify sourcing and trading partners.
3. Volatile fuel prices and higher insurance premiums add to operating costs,

while certain routes are avoided altogether, increasing global supply chain stress.

Impact of US Tariff War on Maritime Trade & Shipbuilding

1. Retaliatory tariffs disrupt global supply chains and create uncertainties for shipping companies, potentially leading to overcapacity or the need to reroute shipments.
2. Financial risks intensify for new ship builds and fleet expansions as companies face increased costs and uncertain returns, making investment decisions more complex.
3. The overall strategic implications pose challenges for fleet expansion, supply chain reliability, and global maritime competitiveness.

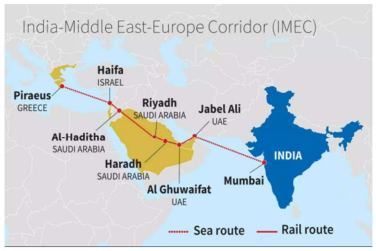
Geo Political Uncertainty

Geopolitical Importance of Chabahar

Chabahar Port is located on Iran's southern coast by the **Gulf of Oman**. It serves as India's access point to Afghanistan and Central Asia, bypassing Pakistan. The port counters **China's Gwadar Port in Pakistan**, part of the **China-Pakistan Economic Corridor (CPEC)**. Chabahar is also a key node in the **International North-South Transport Corridor (INSTC),** linking Mumbai to Moscow through Iran and Azerbaijan.

India's Investment

- India Ports Global Limited (IPGL) operates the Shahid Beheshti Terminal at Chabahar.
- The $120 million investment focuses on modernising port infrastructure and enhancing cargo handling.



Challenges

- Concern of US with Iran: Potential risk of sanctions
- Houthi-Red Sea Crisis

Economic Benefits

- Connect with the resource-rich Central Asian markets
- Diverse Trading Routes
- INSTC to save 30% in cost and 40% in transit time

IMEC and EMC The Future of Global Connectivity

Slide 4 of 27

Importance of Chabahar:

1. Chabahar Port, situated on Iran's southern coast by the Gulf of Oman, provides India direct sea access to Afghanistan and Central Asia, bypassing Pakistan.
2. The port acts as a strategic counter to China's Gwadar Port in Pakistan, which is part of the China-Pakistan Economic Corridor (CPEC).
3. Chabahar is a key segment in the International North-South Transport Corridor (INSTC), offering a direct trade route from Mumbai to Moscow via Iran and Azerbaijan.

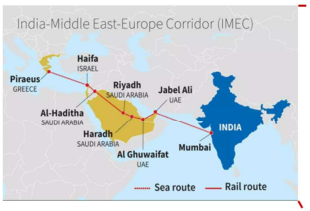
Economic Benefits

1. Chabahar connects India to resource-rich Central Asian markets, enabling access to diverse trading routes.
2. Use of the INSTC can lead to 30% savings in cost and 40% reduction in transit time for shipments between India and Europe

India-Middle East-Europe Economic Corridor (IMEC) Project

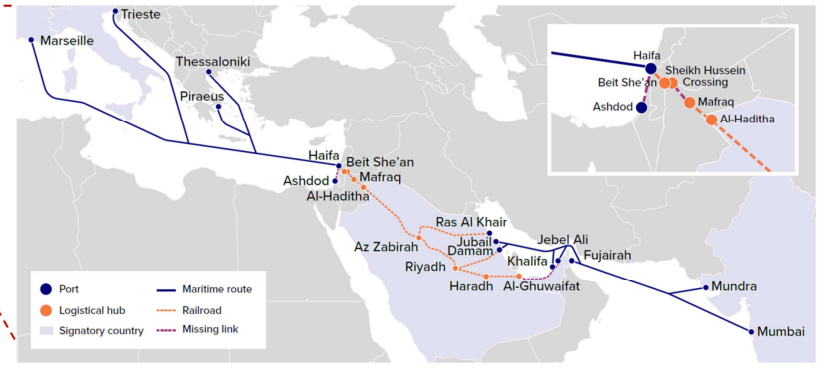
- Positioned as a major regional integration and connectivity initiative promoting rules-based, market-driven infrastructure across Eurasia.
- Provides a credible alternative to **China's Belt & Road Initiative (BRI)**.

India-Middle East-Europe Economic Corridor (IMEC) Project



The IMEC Project was announced at the G20 Summit (2023), the IMEC aims to connect India, the Middle East, and Europe through a network of railways, roads, and ship-to-rail links.

It includes two corridors: **the East Corridor linking India to the Arabian Gulf,** and **the Northern Corridor connecting the Gulf to Europe.**



The project will also feature an electricity cable, a hydrogen pipeline, and a high-speed data cable, fostering regional integration across Asia, Europe, and the Middle East.

IMEC and EMC The Future of Global Connectivity

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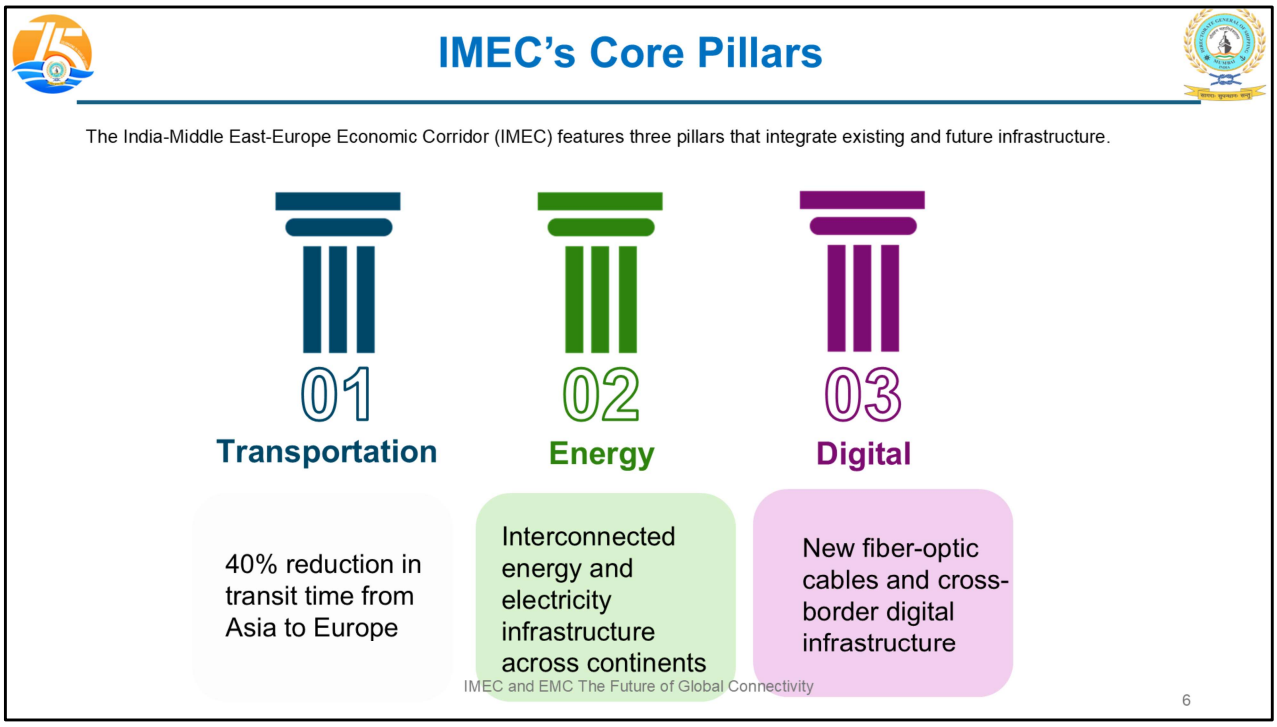
The India-Middle East-Europe Economic Corridor represents an ambitious regional integration project that blends multiple infrastructure modes. It comprises two primary corridors: the Eastern Corridor linking India to the Arabian Gulf and the Northern Corridor running from the Gulf to Europe. These corridors combine railways, roadways, maritime shipping, and advanced digital connectivity, such as fiber-optic cables and hydrogen pipelines, fostering seamless trade and energy exchanges. IMEC aims to rival existing routes, offering 30% cost savings and reducing transit times by 40%, thereby reshaping the commercial landscape between Asia and Europe

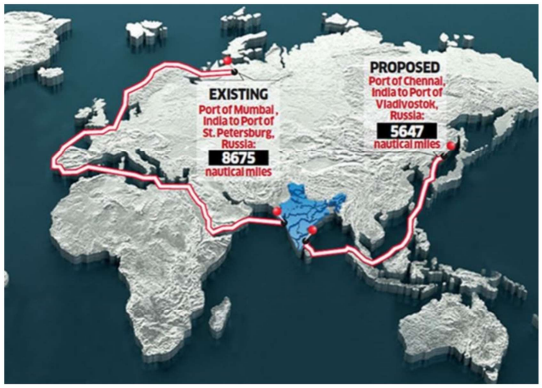


IMEC subscribes to three core pillars: interconnected energy infrastructure enabling clean energy flows (including electricity grids and hydrogen pipelines), cutting-edge fiber-optic and cross-border digital networks supporting smart logistics and real-time trade data, and an integrated multimodal transport system that dramatically reduces transit times. Together, these pillars form the backbone of a resilient corridor that can foster sustainable growth and enhance India's maritime and digital connectivity footprint.

Chennai-Vladivostok Eastern Maritime Corridor (EMC)

The **Chennai-Vladivostok Eastern Maritime Corridor (EMC)** is a sea link connecting the **east coast of India (Chennai Port)** with **ports in the far-east region of Russia** (**Vladivostok Port).**

The Chennai-Vladivostok corridor is aligned with other initiatives, such as the **Northern Sea Route** and the **International North-South Transport Corridor (INSTC).**



Advancing India's Act Far East Policy

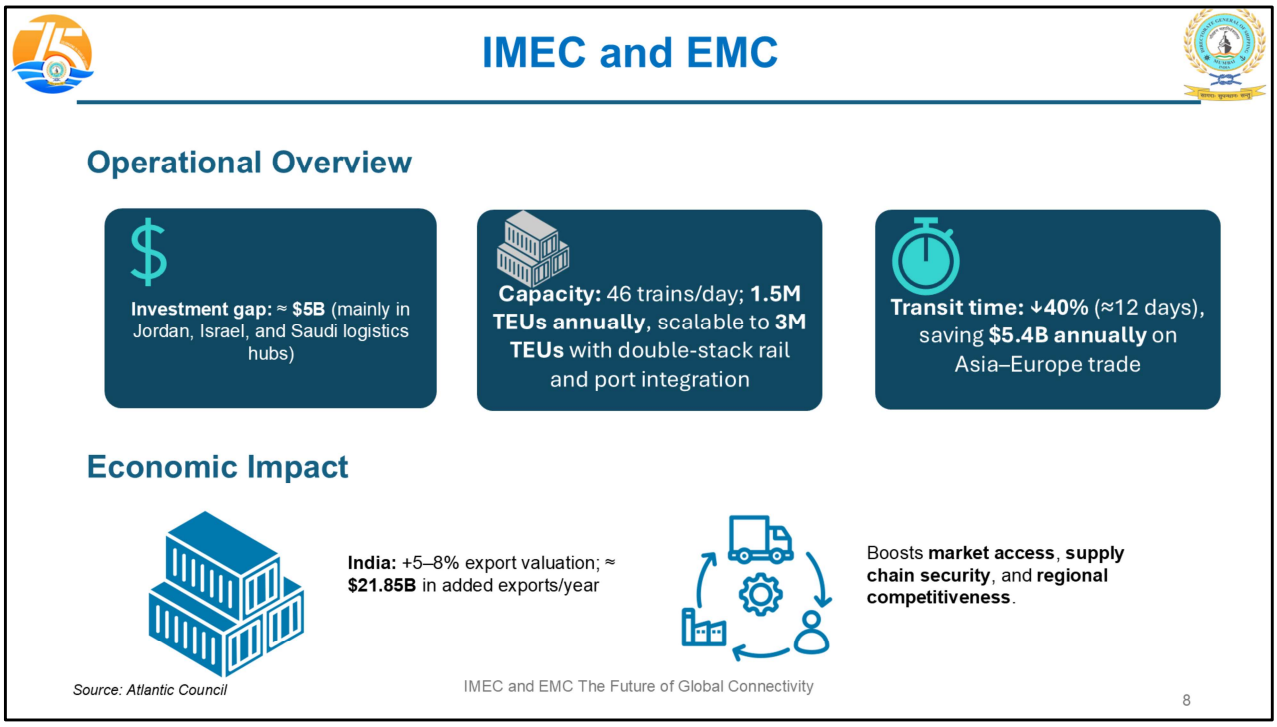
- The EMC **boosts India's access to Russian resources** and strengthens its position in the Pacific trade network
- It promotes trade with **East Asia, ASEAN, and Russia**, facilitates multimodal transport, and supports infrastructure development.

EMC has reduced the shipping distance from 8,675 nautical miles (via the traditional **St Petersburg-Mumbai route** through Europe) to **5,600 nautical miles**, cutting transit time from over 40 days to just **24 days.**

Diversification of Trade

Strategic Importance: Vladivostok is the **largest Russian port on the Pacific Ocean**, and the corridor passes through the **South China Sea** and strengthens India's strategic presence **addressing China's dominance** in the region.

The Chennai-Vladivostok Eastern Maritime Corridor complements IMEC by connecting India's east coast with Russia's far east port of Vladivostok. This corridor significantly shortens shipping distances and transit times, aligning with strategic interests to enhance India's maritime presence in the Indo-Pacific. Serving as a linchpin for India's Act Far East Policy, the EMC strengthens trade ties with East Asia, ASEAN countries, and Russia, facilitating multimodal transport and infrastructure development to enhance India's geopolitical and economic outreach.



Operationalizing EMC addresses critical investment gaps, particularly in logistics hubs in Jordan, Israel, and Saudi Arabia, boosting capacity up to 3 million TEUs annually. The corridor's transit time reduction from 40 to 12 days translates to substantial cost savings and economic gains, supporting India's export growth and regional competitiveness. It enhances supply chain security, diversifies trade routes, and fosters cooperation across multiple geographies, strengthening India's role as a regional maritime hub.

Synergies Between IMEC and the Global Gateway

Both initiatives advance sustainable, secure, and efficient connectivity linking Asia, the Middle East & Europe.

Theme	IMEC Focus	Global Gateway Focus	Synergy Outcome
Sustainable Infrastructure	Rail, port & trade corridors reducing emissions	€300B fund for green & quality infrastructure	Joint green corridors, hydrogen & power grids
Digital Connectivity	High-speed data links India–Gulf–EU	Secure global digital networks	Enhanced data flow, AI & blockchain collaboration
Trade Route Optimization	New rail-sea route bypassing Suez	Resilient global supply chains	Seamless Asia–Europe trade via Gulf hubs
Energy Transition	Renewable power & hydrogen pipeline vision	Financing clean energy in Africa & beyond	Integrated green energy markets
Geopolitical Alignment	Strengthening India–Gulf–EU ties	Supports EU Indo-Pacific & BRI alternative	Stronger trilateral cooperation framework
Multilateral Cooperation	8 signatories incl. Gulf states	"Team Europe" PPP approach	Shared financing & sustainability standards

IMEC and EMC The Future of Global Connectivity

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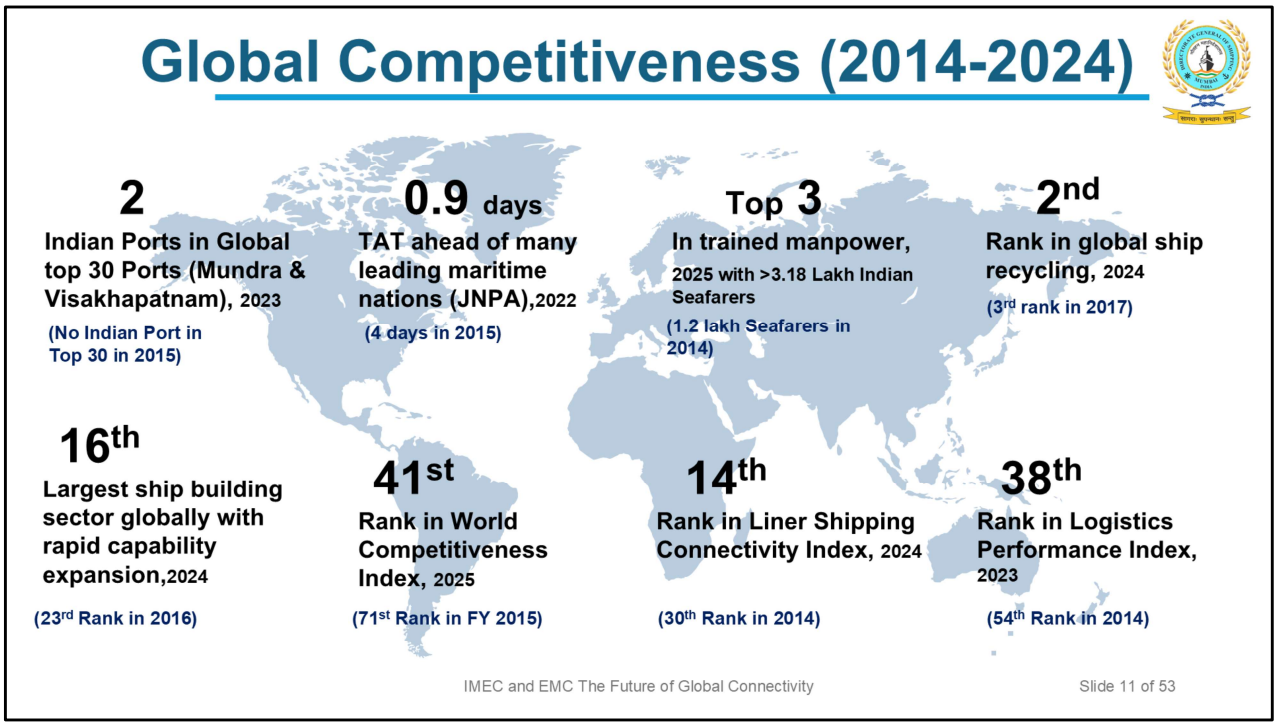
Transnational maritime corridors like IMEC and EMC symbolize the future of India's strategic maritime vision. They are not mere infrastructure projects but key enablers of sustainable growth, geopolitical partnerships, and resilient supply chains that will define the 21st century.

“India as the natural connector between Asia, West Asia, Africa, and Europe.”

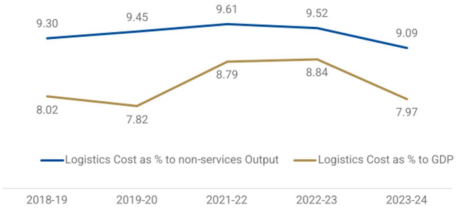
Now, lets have a look at how India will act as a natural connector between Asia, West Asia, Africa and Europe.



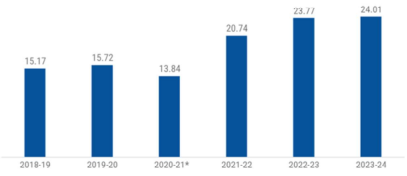
“In the last decade, India has climbed steadily in global competitiveness rankings. From a 54th position in 2014, we now stand much higher, with ports and logistics being central to this progress. The turnaround is remarkable — from no Indian port in the global top 30 a decade ago to now being recognized for efficiency. This progress also mirrors the growth of our seafarer base — from 1.2 lakh in 2014 to over 3 lakh today. It’s a story of resilience, reforms, and rising capabilities.”

India as the natural connector between Asia, West Asia, Africa, and Europe.

Time Series of Total Logistic Cost Metrics



Time Series of Total Logistic Cost as an Absolute Value in Lakh Crores



* COVID Year
- Logistics Cost Components: Transportation by all modes, Warehouse & Storage, Material Handling by all modes
- Data Source: Supply and Use Tables, National Accounts Statistics, MoSPI; NCAER Industry Survey

Agility Emerging Markets Logistics Index 2025 Rank 2: India

Ranking	Country	Domestic Logistics Opportunities	International Logistics Opportunities	Business Fundamentals	Digital Readiness	Overall	Change
1	China	8.58	9.65	6.37	8.47	8.58	0
2	India	7.59	7.49	6.03	5.76	6.94	0
3	UAE	5.53	5.90	8.53	6.55	6.31	0
4	Saudi Arabia	5.61	6.07	7.45	5.82	6.08	2
5	Malaysia	5.26	5.78	7.72	6.41	6.04	-1
6	Indonesia	6.16	6.12	6.86	5.41	6.04	-1
7	Mexico	5.49	6.45	5.61	5.25	5.77	+2
8	Qatar	5.36	4.92	6.97	6.25	5.64	-1
9	Thailand	5.05	5.86	5.94	5.82	5.61	+1
10	Vietnam	5.09	5.81	6.01	5.37	5.52	-2

Source: Rankings - Agility Emerging Markets Logistics Index 2024

This slide highlights India's improving global competitiveness in logistics. The time series data reveals a steady increase in overall costs, reaching ₹24 lakh crores in 2023-24. However, as a percentage of GDP, logistics costs have reduced to 7.97%, reflecting improved efficiency and policy impacts even though the absolute value continues to rise with economic growth.

This evolving landscape underscores both the achievements in infrastructure development and the ongoing need for multi-modal integration, digitization, and cost optimization to make Indian logistics globally competitive and future-ready.

On the right, India's remarkable performance in the Agility Emerging Markets Logistics Index 2025 is evident: India is ranked second globally, just behind China, for logistics opportunities, business fundamentals, and digital readiness.

This outstanding ranking demonstrates India's momentum as a preferred destination for logistics investment, driven by robust reforms and our commitment to modernise infrastructure and supply chains.

Together, these milestones establish India as a global logistics leader with

competitive costs and world-class market fundamentals.

India's preparedness for transnational connectivity

India's Vision for the Maritime Sector

Maritime India Vision (MIV) 2030

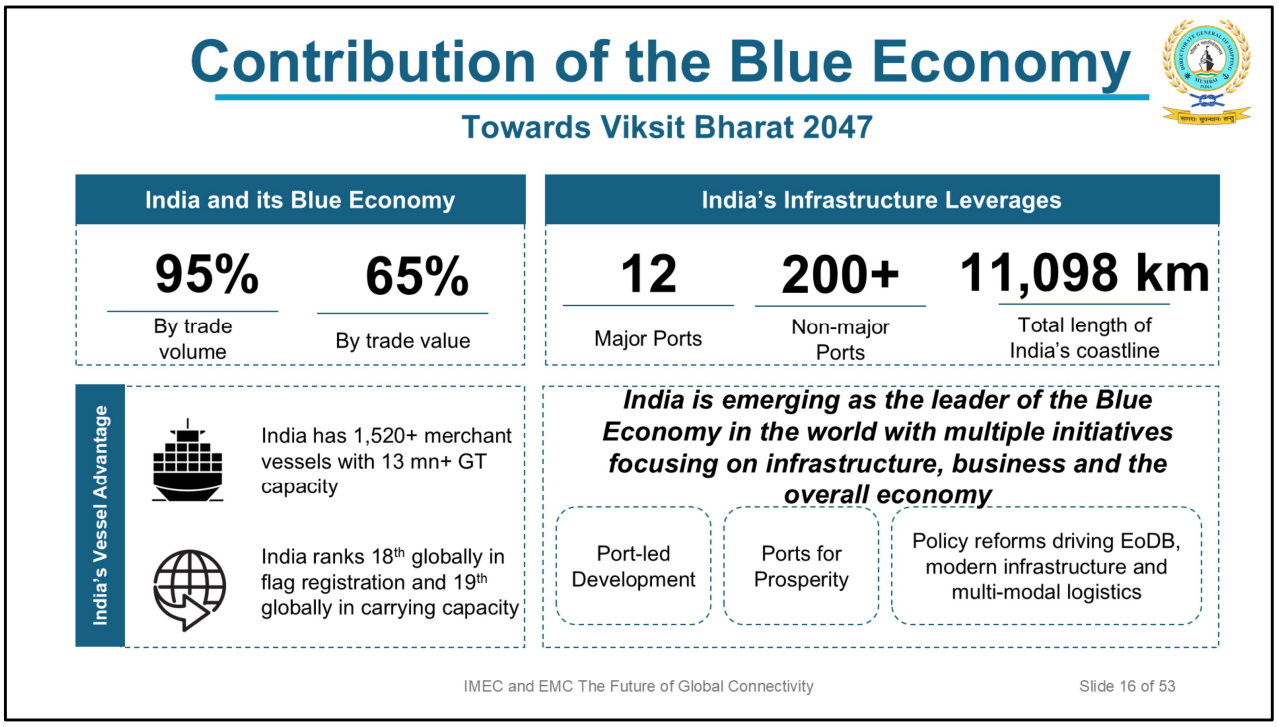
- Position India Globally in the Top 10 Shipbuilding, repair nations
- Production Targets: Increase from current 30k GT to 500k+ GT annually by 2030
- Investment: INR 20,000+ Crores
- Employment Generation: 1,00,000+ additional jobs (direct and indirect)

Maritime Amrit Kaal Vision 2047

- Advanced phase targeting Top 5 global position in shipbuilding and maintaining 1 position in ship recycling
- 69% Indian-Built Ships Share (up from current 5%)
- 300+ Strategic Initiatives across 11 key maritime areas
- Financial Assistance: 20-30% assistance for green vessels (including retrofitting)

"Our vision for the maritime sector is laid out in two phases—2030 and 2047.
By 2030, through the Maritime India Vision, we aim to place India among the world's top 10 shipbuilding and repair nations. Production will scale up from 30,000 GT today to over 500,000 GT annually. This will be supported by investments exceeding ₹20,000 crore and the creation of more than one lakh new jobs.
Looking further ahead, in the Maritime Amrit Kaal Vision 2047, the ambition is even higher. India will target a position in the global top 5 in shipbuilding while sustaining our leadership in ship recycling. The share of Indian-built ships is expected to rise dramatically—from 5% today to nearly 70%. Over 300 strategic initiatives are being rolled out across 11 key maritime areas.
And importantly, to ensure a green and sustainable future, we will provide 20–30% financial assistance for green vessels, including retrofitting. This vision secures India's maritime leadership for decades to come."

National Enablers of International Corridors – 1. Blue Economy



"95% of India's trade by volume and 65% by value passes through the sea. With 12 major ports, 200+ non-major ports, and over 11,000 km of coastline, India is uniquely positioned to lead the blue economy. Our vessel capacity and global rankings are improving, but the real opportunity is in aligning infrastructure with policy reforms to unlock prosperity.

Indian Maritime Sector Overview

Ports

- Total Ports In India
  i. Major Ports: **12**
  ii. Other than Major Ports: **200+**
- Total Cargo Handling Capacity: **2,762** MTPA
- Total Cargo Traffic Handled: **1,600** MTPA

Shipping

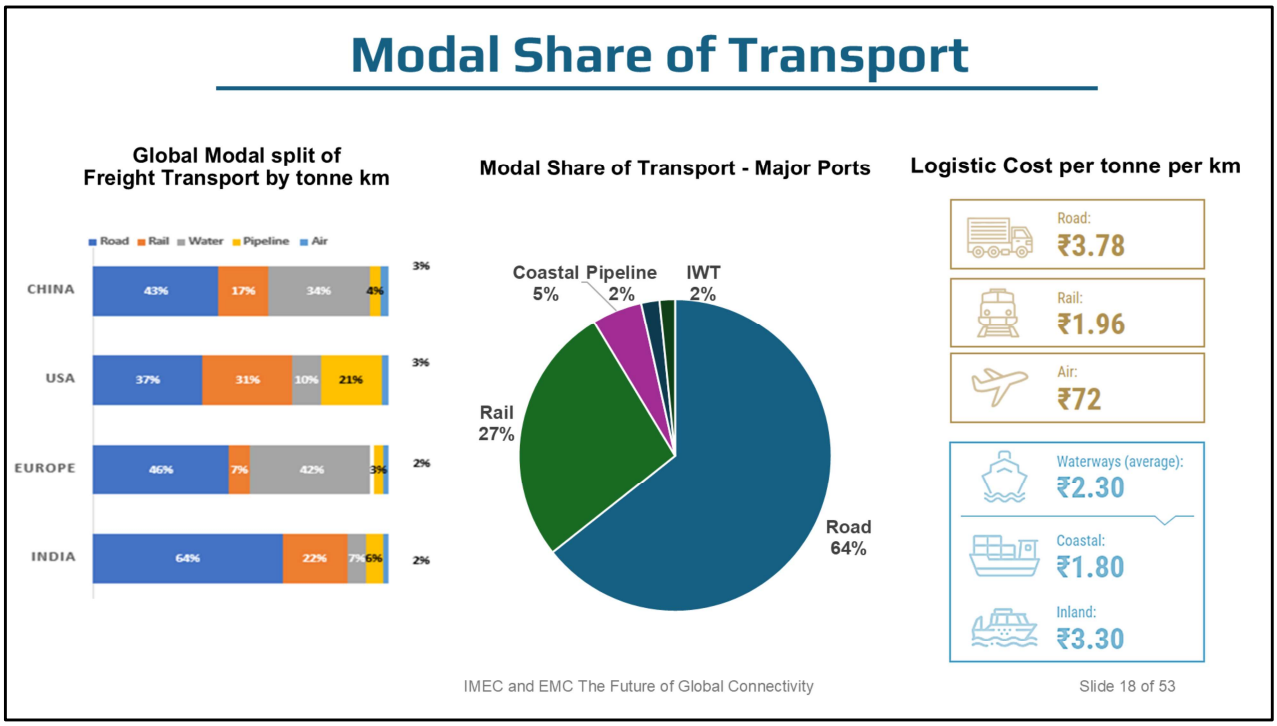
- Indian flagged vessels: **1,549**
- Seafarers: **3.18 lakh**
- Lighthouses: **200+**
- Over **18 lakh** tourist footfall in last year

Waterways

- No. of operational National Waterways (NWs): **29 (Length 4,862 km)**
- Cargo handled **146** MTPA
- Cargo growth in the past decade: **359%**

MMTPA: **Million Metric Tonnes per Annum** || DWT: **Dead Weight Tonnage** || GT: **Gross Tonnage**

"The sector is broad — ports, shipping, and waterways. India today has 29 operational National Waterways, 3.18 lakh seafarers, and a cargo growth of nearly 360% in a decade. The synergy between these pillars is what makes our maritime system dynamic and resilient. It's not just about moving goods; it's about creating jobs, enhancing tourism, and driving industrialization."



This slide on modal share of transport gives us a clear comparative picture of freight movement patterns worldwide and in India—and underscores the opportunities for efficiency gains in our logistics sector.

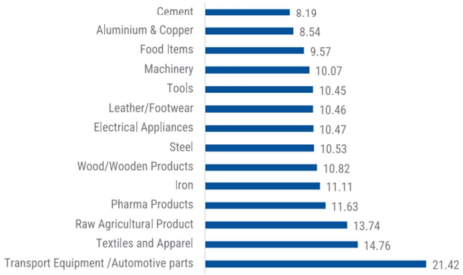
As seen in the global modal split, India relies more heavily on roads, with 64% of our freight moving by road, compared to 43% in China, 37% in the USA, and 46% in Europe. In contrast, many leading economies use a much higher share of rail, water, and pipelines for freight, reflecting a more balanced and cost-efficient modal mix.

When focusing on cargo movements at major ports, road transport again dominates at 64%, followed by rail at 27%, with coastal, pipeline, and inland waterways making up just a small fraction. This heavy road reliance contributes to higher logistics costs, with road transport costing ₹3.78 per tonne-kilometre, while rail is nearly half at ₹1.96, and coastal shipping even lower at ₹1.80.

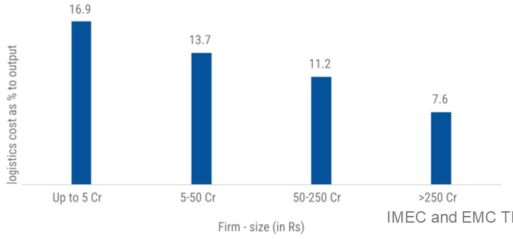
The message is clear: to optimize costs and sustainability, India must accelerate the shift towards rail and water-based modes, which offer proven economic and environmental gains. Strategic investments in multimodal infrastructure can help rebalance this modal share—making logistics more competitive and propelling India's trade and economic growth.

India's Logistic Landscape – Logistic Cost

Logistics Cost (as per cent of output) by Product Type



Logistics Cost (as per cent of output) by Firm-size



Factors Impacting Logistics Costs in India

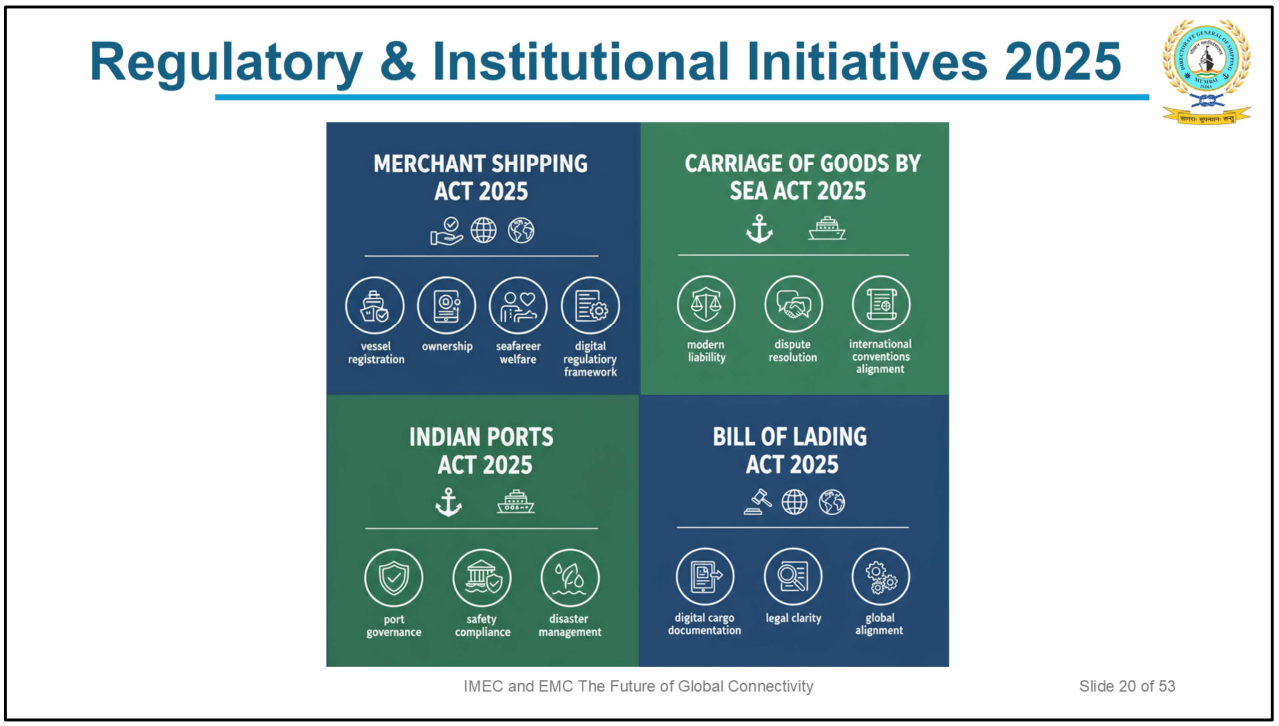
1. Operational factors: shipment type (FTL vs LTL), backhaul availability, negotiation power.
2. Market dynamics: multiple freight rates for same route due to fragmentation.
3. Intermediary layers: brokers, consolidators increase end-user costs beyond base tariffs.
4. Hidden costs: port congestion, delays at ICDs, CFSs, borders cause inefficiencies.
5. Cargo handling variations: factory vs warehouse stuffing affects documentation and costs.
6. Informal transporters outside GST network complicate pricing transparency.
7. Diverse accounting practices among shippers, 3PLs, transporters hinder cost comparison.
8. Fragmented landscape: national averages mask true cost variability in the supply chain.

India's logistics cost landscape is characterized by considerable variation across both product types and firm sizes. As seen on the left, logistics costs as a share of output are lowest for products like cement and aluminum, but rise dramatically for automotive parts and textiles, reaching over 21%. Similarly, smaller firms incur logistics costs of nearly 17% of output, much higher than large enterprises.

There are several factors driving these differences:

Operational aspects like shipment sizes, backhaul opportunities, and negotiation strength directly impact costs. Market fragmentation means there are often multiple rates for the same route, with many brokers and intermediaries adding extra layers of expense. Hidden costs from delays at ports, ICDs, and state borders further erode efficiency. Differences in how cargo is handled, as well as the role of informal transporters outside the GST network, make pricing less transparent. Additionally, diverse accounting practices and fragmented reporting mean national averages rarely reflect actual operating costs on the ground.

To enhance competitiveness, it is critical to address these structural and operational inefficiencies, making Indian logistics more cost-effective and equitable for all stakeholders.



“2025 has been a landmark year for regulatory reforms in India’s maritime sector. The new Merchant Shipping Bill aligns us fully with global IMO standards, modernising safety and governance. The Indian Ports Act strengthens port governance and compliance.

The new maritime legislative framework of 2025, enacted by Parliament in the recent Monsoon Session and accorded the assent of the President, marks a transformative milestone by replacing colonial statutes with a modern, future-ready regime

(i) The Merchant Shipping Act 2025 expands compulsory registration to all vessels, liberalizes ownership to NRIs, OCIs, and foreign participation, and allows bareboat-chartered foreign ships to be registered in India rapidly increasing national tonnage.

The MS Act 2025 expands and redefines the role of the existing Director General of Shipping to Director-General of Marine Administration with expanded powers across safety, security, training, and environment. Seafarer welfare is strengthened with modernized contracts and social security, while minor offences are decriminalized and compliance fully digitized.

(ii) The Indian Ports Act, 2025 accelerates non-major port development through evidence-based planning, mandates disaster management aligned with global standards, and gives statutory recognition to State Maritime Boards with dedicated Dispute Resolution Committees. It requires full electronic integration with the Port Community System for real-time clearances, and makes world-class pollution control and reception facilities mandatory. Together, these reforms streamline governance, reduce regulatory hurdles, and align India’s ports with international best

practices, driving the nation towards becoming a self-reliant global maritime hub
(iii) Alongside, the Bill of Lading Act 2025 and Carriage of Goods by Sea Act 2025 simplify language, embrace e-Bills of Lading and digital cargo documentation, clarify liabilities, and align Indian law with international conventions.
Collectively, these Acts create a future-ready maritime legal framework that unlocks investment, strengthens sustainability, and positions India to lead as a global maritime hub.

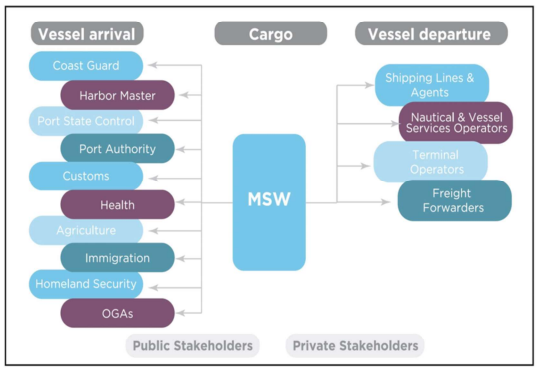
Maritime Single Window

The Maritime Single Window (MSW) is a digital platform designed to streamline and simplify the submission of maritime-related documentation for ships arriving at or departing from ports, as per IMO's mandate.

It serves as a single-entry point where ship-owners, operators, and agents can electronically submit all the required information (FAL forms) to various authorities involved in maritime operations.

Maritime single window came into force from 01.01.2024. The implementation of the MSW aligns with the international maritime organization (IMO) and its facilitation (FAL) convention, which mandates the electronic exchange of information related to ship arrivals, departures, and cargo movements.

By digitalizing the submission and processing of regulatory documents, MSW significantly reduces manual intervention, thereby increasing the speed and accuracy of port clearances and promotes ease of doing business.
Upgradation is being pursued and has been mentioned in the upcoming slides.



The Maritime Single Window, or MSW, is a transformative digital initiative aligned with the IMO's facilitation convention, aimed at streamlining maritime documentation. This platform, operational since 1 January 2024, acts as a single electronic entry point for ship owners, operators, and agents to submit all required information to the various authorities involved in port operations.

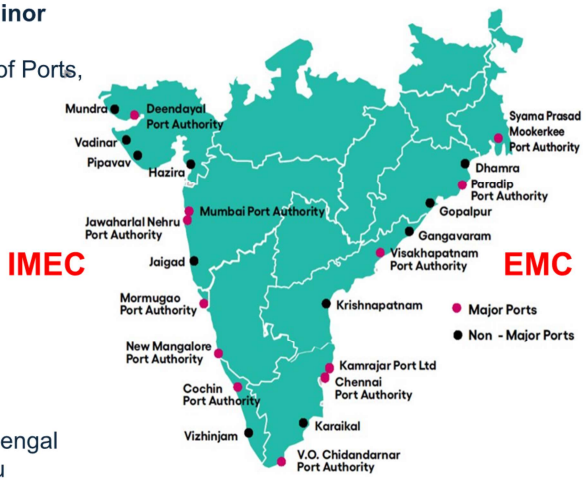
The MSW covers every aspect of a vessel's journey—arrival, cargo operations, and departure—integrating inputs from stakeholders such as the Coast Guard, customs, immigration, and port authorities, as well as shipping lines and terminal operators. By digitizing the submission and processing of regulatory documents, it significantly reduces manual intervention, accelerates port clearances, and promotes ease of doing business.

Most importantly, MSW marks a major leap forward for Indian maritime administration, enabling more accurate, efficient, and transparent port operations. Continuous upgradation is underway, reinforcing India's aspirations to meet international best practices and facilitate seamless global maritime trade.

12 Major Indian Ports

India currently has **12 major ports** and around **200+ minor (non-major) ports Major Ports of India (12)**
Here are the **12 major ports** overseen by the Ministry of Ports, Shipping & Waterways:

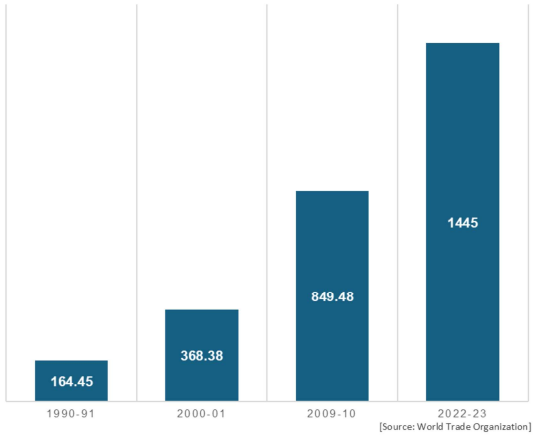
1. **Chennai Port** – Tamil Nadu
2. **Cochin Port** (Kochi) – Kerala
3. **Deendayal Port** (Kandla) – Gujarat
4. **Jawaharlal Nehru Port** (JNPT, Nhava Sheva) – Maharashtra
5. **Kamarajar Port** (Ennore) – Tamil Nadu
6. **Mormugao Port** – Goa
7. **Mumbai Port** – Maharashtra
8. **New Mangalore Port** – Karnataka
9. **Paradip Port** – Odisha
10. **Haldia Dock Complex** – West Bengal
11. **Syama Prasad Mookerjee Port** (Kolkata) – West Bengal
12. **V. O. Chidambaranar Port** (Tuticorin) – Tamil Nadu



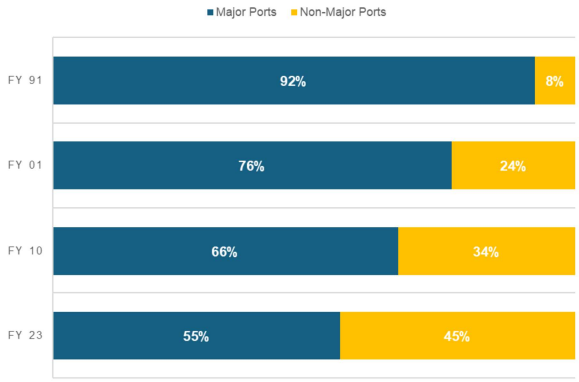
"Our 12 major ports — from JNPT to Chennai, Paradip to Cochin — remain critical gateways for trade. However, the trend is shifting: non-major ports are handling an increasing share of cargo. This indicates private participation and regional development are expanding maritime capacity beyond traditional hubs."

Cargo through Indian Ports

Decreasing share of Major Ports as compared to Non-Major Ports over the years



Cargo Handled in MMT



IMEC and EMC The Future of Global Connectivity

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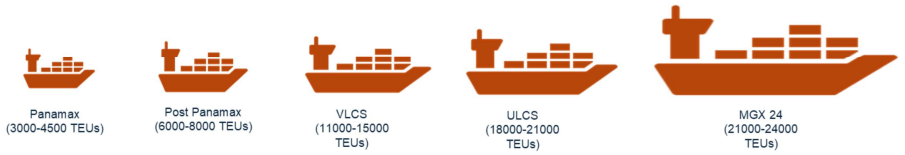
""Cargo volumes have grown massively—from 164 million tonnes in 1990–91 to over 1,445 million tonnes in 2022–23. But just as significant is the changing balance between major and non-major ports. In 1991, major ports carried over 90% of the load. Today, non-major ports handle nearly half of India's cargo. This diversification strengthens resilience and expands our capacity."

The Mega Future



The 'Mega' Future – Era of Mega Ports & Mega Ships

Global Shipping Shift
- Rise of **Ultra Large Container Vessels (ULCVs)** – >20,000 TEU capacity
- Increasing reliance on **fewer but larger ports** for global trade

⚓ **Mega Ports**
- Equipped with **deep draft berths** (>18m) & **automated terminals**
- Strategic hubs handling **trans-shipment & global supply chains**
- Examples: **Shanghai, Singapore, Rotterdam, JNPT (India)**

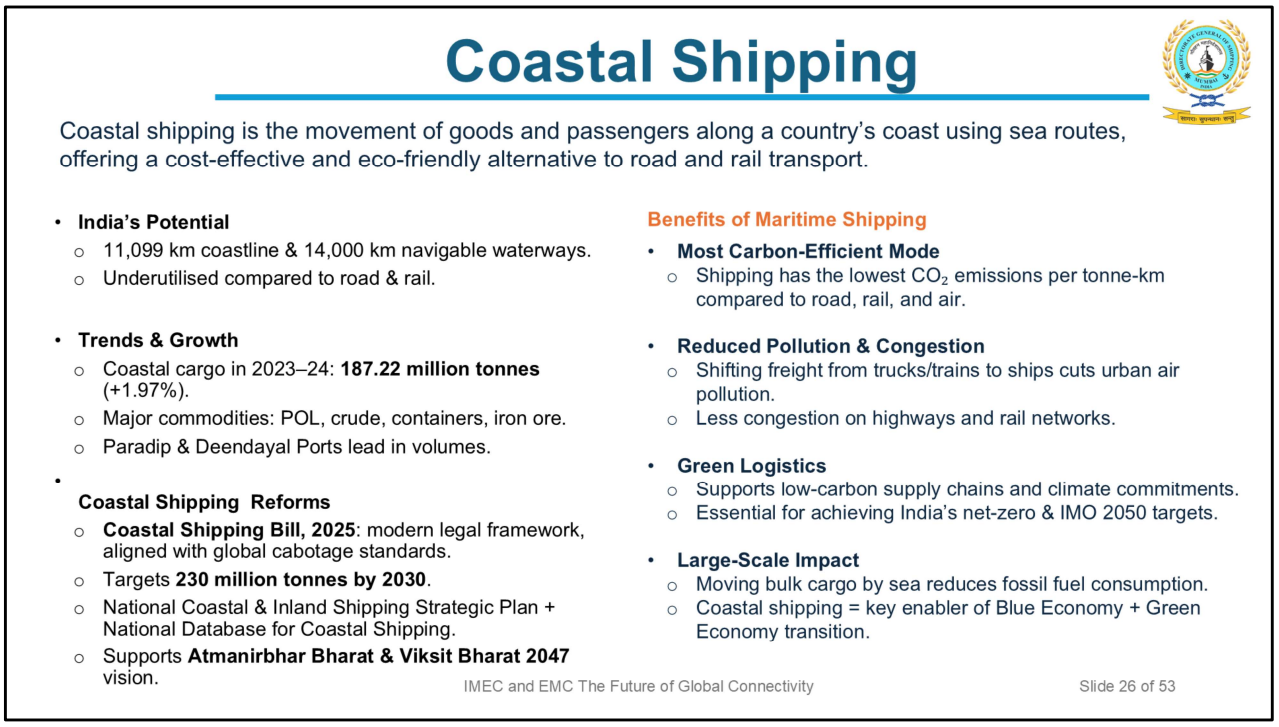
🚢 **Mega Ships**
- Reduce cost per container, improve fuel efficiency
- Require **advanced port infrastructure** & **digital logistics systems**
- Drive competition for **bigger cranes, deeper channels, and hinterland connectivity**

📈 **Implications**
- **Consolidation** of trade routes around fewer mega hubs
- Push for **smart, green, and resilient port infrastructure**
- Reshaping of **global maritime security & geopolitics**

Source: UNCTAD Review of Maritime Transport 2023, Drewry Shipping Consultants 2024, MIV 2030 (Maritime India Vision 2030, Ministry of Ports, Shipping & Waterways), World Shipping Council

"Global shipping is moving towards mega ships and mega ports. With container vessels now exceeding 20,000 TEU capacity, only deep-draft, automated ports can handle them. India, through JNPT and other planned mega hubs, is preparing to compete with Shanghai, Singapore, and Rotterdam. This is about scale, but also about smarter, greener technology."


India’s Connectivity Readiness
IMEC and EMC The Future of Global Connectivity
25



“Despite having 7,500 km coastline and 14,000 km waterways, coastal shipping is underused. Yet it’s the cleanest, cheapest mode. The *Coastal Shipping Bill 2025* and reforms aim to change this. Moving more freight by sea reduces congestion, pollution, and helps meet our climate commitments.”

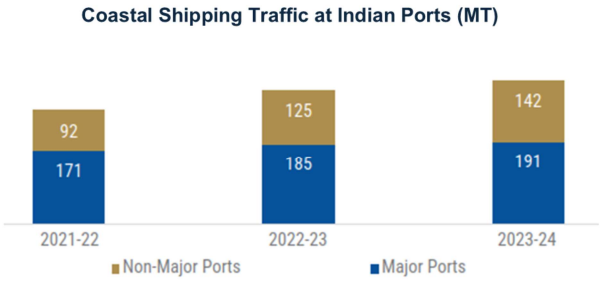
"Coastal shipping is the most carbon-efficient mode of transport — it reduces congestion, cuts emissions, and directly supports our Blue Economy and net-zero ambitions.“

The Coastal Shipping Act, 2025 is a landmark reform that modernizes India’s coastal trade regime. For the first time, Indian-flagged vessels can operate without licensing removing a major barrier while foreign vessels are licensed under statutory conditions that favor Indian crew, Indian-built ships, and domestic employment.
A dedicated chapter regulates chartered vessels, ensuring robust oversight. The Act mandates a National Coastal and Inland Shipping Strategic Plan and a real-time National Database, integrating coastal and inland waterways into one seamless regime.
The Director-General is vested with enhanced powers to enforce compliance, detain violators, and ensure transparent reporting. Strategically, the Act aims to raise coastal cargo to 230 million tonnes by 2030, conserve foreign exchange, generate

employment, and promote shipbuilding.
It repeals colonial provisions, aligns with global cabotage practices, and embraces digital licensing systems. By shifting freight from road to sea, it cuts carbon emissions, decongests land transport, and strengthens supply-chain resilience.
With a modern enforcement and penalty framework, this Act truly represents a future-ready maritime law, advancing the vision of Aatmanirbhar Bharat and Viksit Bharat.”

Coastal Shipping - Traffic

1. Coastal shipping is in its early stages but showing promising growth.
2. Traffic increased 26% from 264 million tonnes in 2021-22 to 333 million tonnes in 2023-24.
3. Non-major ports saw 54% growth; major ports grew by 11% during this period.
4. Government aims to scale coastal cargo to 1,300 million tonnes by 2047 under Maritime Amrit Kaal.
5. Recent policies and dedicated coastal berths promote sustainable and efficient domestic shipping.
6. Key commodities include petroleum, oil, lubricants, coal, cotton, tiles, soda, ash, wheat, and containerized cargo (especially on the west coast).
7. Challenges include limited handling capacity and vessel availability.
8. Greater push from government and private sectors can unlock huge sustainable and economic potential.



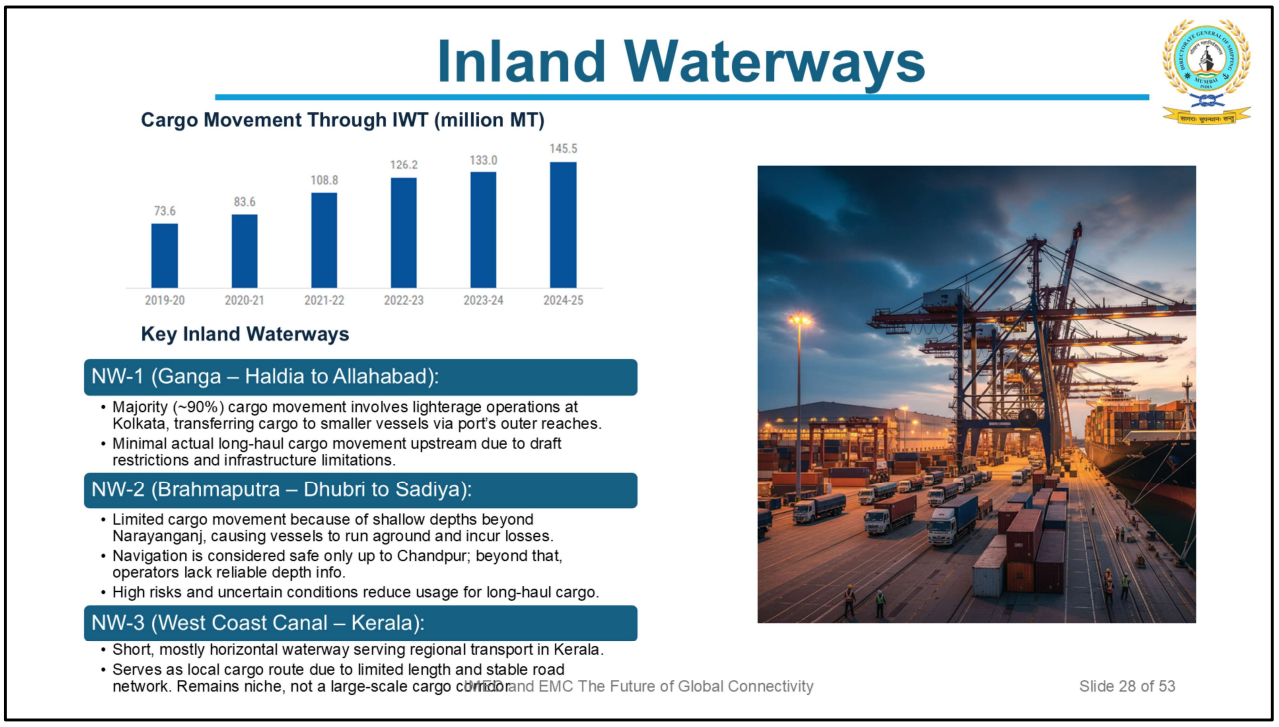
Coastal shipping in India, though still developing, is on a strong growth trajectory. Over the past three years, coastal cargo traffic has surged by 26%, jumping from 264 million tonnes in 2021-22 to 333 million tonnes in 2023-24. Notably, non-major ports have outpaced major ports, registering an impressive 54% growth compared to 11% at major ports.

The government's ambitious target is to scale coastal cargo to 1,300 million tonnes by 2047 as part of the Maritime Amrit Kaal Vision. India’s extensive coastline of 11,098 kilometers and the presence of over 200 ports present a unique opportunity to expand coastal trade.

Recent infrastructure upgrades—such as dedicated coastal berths—are making domestic logistics more sustainable and efficient. Key commodities moving through coastal routes include petroleum, oil, lubricants, coal, cotton, tiles, soda, ash, wheat, and containerized cargo, especially along the west coast.

However, challenges remain, predominantly in handling capacity and vessel availability. With continued support and investment from both government and private sectors, coastal shipping has the potential to become a highly sustainable and economical mode of transport, unlocking vast economic and

environmental benefits for the nation.



India's inland waterways have registered significant cargo movement growth, with volumes projected to reach 145.5 million tonnes in 2024-25. This marks a powerful testament to the potential of our riverine logistics.

Focusing on our key corridors:

NW-1, stretching from Haldia to Allahabad along the Ganga, remains the busiest. Here, almost 90% of cargo activity is centered on lighterage operations in Kolkata—transferring goods onto smaller vessels through the port's outer reaches. Yet, true long-haul movement upstream is still constrained by draft limits and infrastructure gaps.

NW-2, on the Brahmaputra from Dhubri to Sadiya, faces limited throughput beyond Narayanganj due to shallow depths causing groundings and losses. Navigation is generally safe only up to Chandpur, with unreliable depth information and high risks further restricting its use for long-haul logistics.

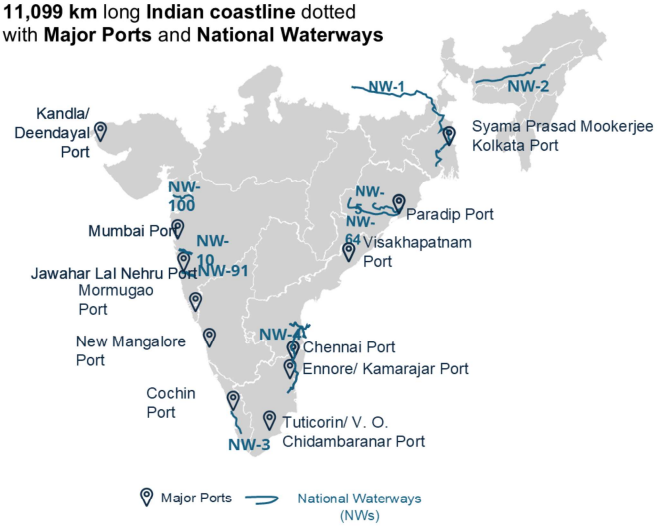
NW-3, the West Coast Canal in Kerala, is a shorter, more localized waterway serving regional connectivity. Its modest length and the effectiveness of Kerala's road network mean it remains a niche option, not a major cargo corridor.

In summary, while the operational environment for inland waterways is steadily

improving, further investment and navigational enhancements will be crucial to unlock their full potential for national logistics.

Multi Component Ecosystem for Indian Maritime Sector

11,099 km long **Indian coastline** dotted with **Major Ports** and **National Waterways**



Key components of the Indian Maritime Sector

EXIM Ports	55
Non- EXIM Ports	23
Total cargo handling ports	78

Cargo type	Cargo handled-Ports MMT (FY25)
Coastal	331
Overseas	1,262
Total	**1,593**

Ship type	No. of Ships (FY24)	Capacity Mn GT (FY24)
Coastal	1,056	1.6
Overseas	489	11.8
Total	**1,545**	**13.5**

Number of Waterways	Cargo handled MMT (FY25)
111 (29 operational)	**145**

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"India’s maritime sector is not just about major ports — it is a multi-component ecosystem combining EXIM ports, coastal hubs, and inland waterways."
"In FY25, India handled nearly 1.6 billion tonnes of cargo across 78 ports."
"Our coastal fleet is growing strongly, complemented by operational national waterways moving 145 MMT of cargo."
. This integrated approach ensures that policy reforms benefit not just one link, but the entire value chain.”

Water Transport - Challenges

Limited Network Coverage:

- Despite efforts under initiatives like the Jal Marg Vikas Project, only a few waterway routes are currently operational at scale. This severely restricts viable. OD pairs for cargo movement, limiting the commercial attractiveness of this mode.

Cargo Consolidation Requirements:

- For vessels to be economically viable, cargo loads typically need to be consolidated up to 300–400 tonnes or more. This requires extensive warehousing and holding infrastructure near terminals, which adds to costs and demands significant coordination among shippers and transporters.

First- and Last-Mile Dependencies:

- Waterways are not a door-to-door solution. Cargo must be trucked to the loading terminals and again from the unloading point to the final destination. This intermodal dependency dilutes cost advantages, especially where road infrastructure is weak or distances are long.

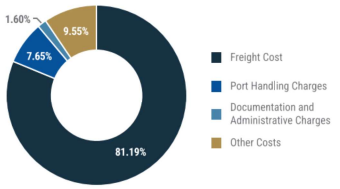
Limited Vessel Availability and Low Frequency:

- A shortage of suitable vessels on inland and coastal routes constrains service frequency and routing flexibility. As a result, scheduling becomes uncertain, and freight costs can increase due to the need for chartering or waiting for vessel availability.

Slower Transit Times:

- Compared to road or even rail, cargo movement via waterways tends to take longer, especially on routes with multiple locks, tidal dependencies, or seasonal water level variations. This higher transit time affects supply chain reliability, particularly for time-sensitive cargo.

Water Transport: Cost Break-up, per cent



Freight costs dominate inland waterway logistics at 81.19%, followed by port-handling (7.65%), documentation (1.6%), and other costs (9.55%) including insurance, vessel delays, and navigation charges.

Operational inefficiencies, **especially on cross-border and tidal routes, significantly inflate overall logistics expenses.**

Despite ambitious projects like Jal Marg Vikas, only a handful of waterway routes are commercially operational at scale, limiting practical connectivity.

Cargo ships must consolidate large loads—often over 300 tonnes—which demands complex warehousing and coordination. Waterways are not a door-to-door solution, so cargo must be trucked at both ends, diluting cost benefits, especially where road links are poor.

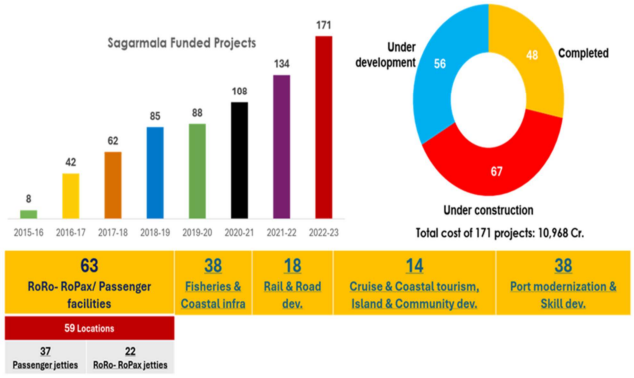
Service frequency is hampered by a shortage of suitable vessels, leading to unreliable scheduling and increased costs. Slow transit times—due to locks, tides, and seasonal variations—impact the reliability of supply chains, especially for time-sensitive cargo.

On the cost side, freight dominates, making up over 80% of total expenses, followed by port handling, documentation, and other charges. Operational inefficiencies, especially on cross-border and tidal routes, further inflate these costs.

To realize the full potential of water transport, these critical bottlenecks must be systematically addressed through targeted investments, improved vessel

supply, and stronger integration with other transport modes.

Sagarmala Program - Port Led Development

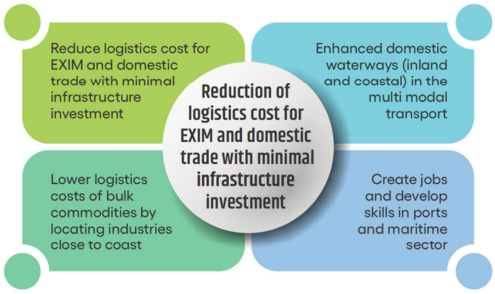


Total cost of 171 projects: 10,968 Cr.

63	38	18	14	38
RoRo- RoPax/ Passenger facilities	Fisheries & Coastal infra	Rail & Road dev.	Cruise & Coastal tourism, Island & Community dev.	Port modernization & Skill dev.

59 Locations

37	22
Passenger jetties	RoRo- RoPax jetties



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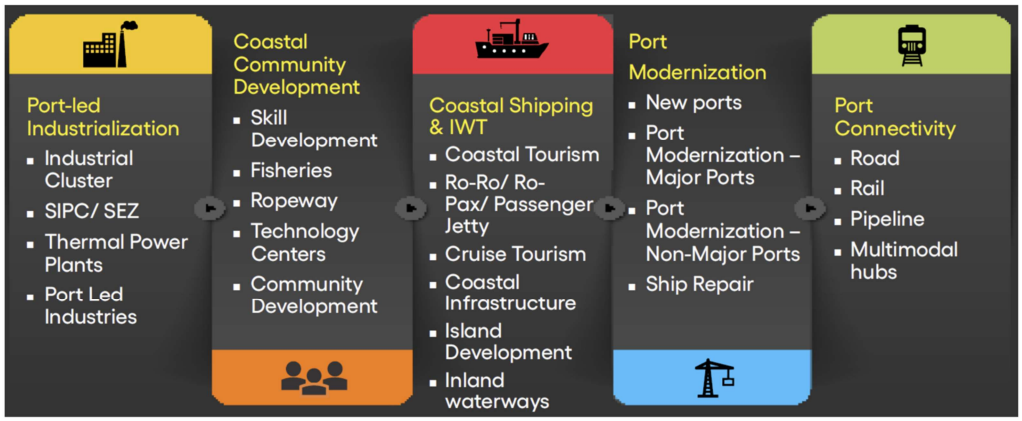
"The Sagarmala program is transforming port-led development. It integrates logistics, industry, and community development. By reducing logistics costs, creating jobs, and enabling coastal connectivity, Sagarmala ensures that the maritime economy benefits not just ports but also people along the coastline."

"The Sagarmala program has a simple but powerful aim—reduce logistics cost with smart, minimal infrastructure investment.
By placing industries close to the coast, promoting multimodal transport through inland and coastal waterways, and focusing on skilling, Sagarmala not only lowers costs but also creates jobs and new opportunities across India's coastline."

Sagarmala Program - Port Led Development



“Sagarmala works on five pillars.
First, **port-led industrialisation**—building clusters, SEZs, and industries around ports.
Second, **coastal community development**—from skilling and fisheries to technology centres.
Third, **coastal shipping and inland waterways**—expanding Ro-Ro and cruise services, and even island development.
Fourth, **port modernisation**—new ports, upgraded infrastructure, and ship repair.
And finally, **connectivity**—through road, rail, pipelines, and multimodal hubs.
Together, these components make Sagarmala one of India’s most ambitious port-led development initiatives.”

GatiShakti Portal Workflow - MoPSW

Layers and Data Base

Ports database

Port Performance Modules (13)

Major Ports (13) | Maritime Boards (11) | IWAI

At the centre is the MoPSW Portal—a digital gateway that seamlessly integrates various data layers and performance modules. This system brings together critical databases from 13 major ports, 11 maritime boards, and the Inland Waterways Authority of India (IWAI).

Behind the scenes, we have distinct ports databases and 13 port performance modules, each designed to measure, monitor, and optimize operational efficiency. Data flows dynamically between these modules, supporting real-time decision-making and unified reporting.

With this interconnected digital backbone, India's entire maritime ecosystem—from major ports to waterways—is now consolidated into a single, intelligent platform, driving accountability, transparency, and progress for 'Amrit Kaal'.

GatiShakti – Case Study 1

GatiShakti Edge and Approach: Tuna Tekra Container Terminal

Tuna Tekra's container terminal faced major reclamation challenges in the coastal area, which required careful evaluation of reclamation volumes and areas.

The PM GatiShakti National Master Plan (NMP) portal enabled integrated project planning, aligning road and rail connectivity with the regional network and facilitating critical coastal land assessments.

Strategic blueprint from NMP ensured precise waterfront alignment and optimal land reclamation, supporting effective infrastructure and connectivity.

Rail-road connectivity for freight was aligned with GatiShakti principles, in consultation with the Ministry of Railways and Ministry of Road Transport and Highways.

The Expected Impact

The terminal will accommodate larger vessels (up to 21,000 TEUs), boosting efficiency and reducing port congestion and cargo handling costs.

With capacity augmentation, DPA aims to handle over 200 million metric tons of cargo per year, positioning DPA as a leading major port in India, crucial for substantial growth and prominence.

Two Additional Terminals to be constructed at Gujarat's Kutch District by Deendayal Port Authority

1. **Terminal for Cargo Handling**
2. **Terminal for Multi Cargo Handling**

Source: PM GatiShakti -Compendium Vol-2_10x10

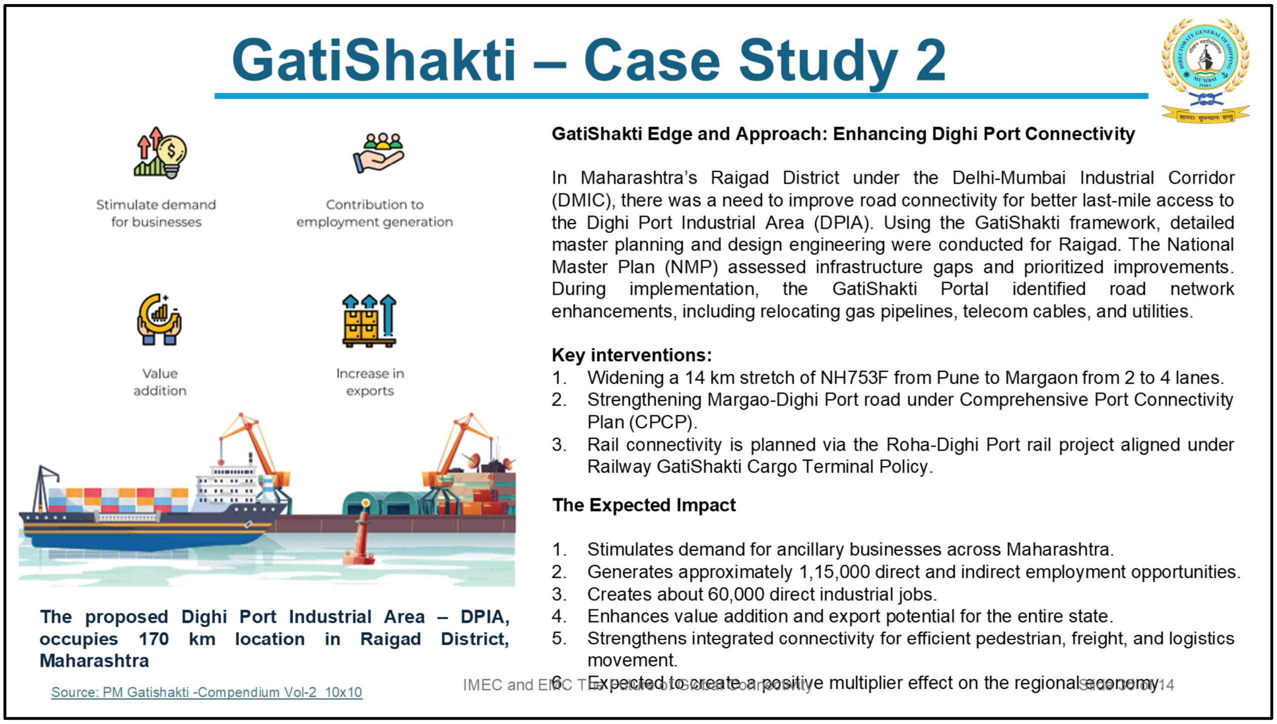
GatiShakti – Case Study 1, focusing on the Tuna Tekra Container Terminal. This project faced significant reclamation challenges in Gujarat's coastal region, requiring detailed evaluation of land and connectivity needs. Through the PM GatiShakti National Master Plan portal, we enabled integrated project planning, perfectly aligning road and rail infrastructure for the terminal with the regional network.

The NMP provided a strategic blueprint that ensured precise waterfront alignment and optimal land reclamation, supporting effective connectivity. Importantly, rail-road integration for freight was achieved after rigorous consultation with both the Ministry of Railways and the Ministry of Road Transport and Highways, showcasing seamless multi-modal planning.

The impact is clear: the new terminal will handle much larger vessels—up to 21,000 TEUs—improving port efficiency, reducing congestion, and cutting logistics costs. With these upgrades, Deendayal Port Authority is set to handle over 200 million metric tons of cargo annually, cementing its position as a major Indian port driving growth and prominence.

Additionally, two new terminals—one for general cargo and another for multi-

cargo—are set to be constructed in Gujarat's Kutch district by the Deendayal Port Authority, further boosting India's maritime capability and infrastructure for the future.



GatiShakti – Case Study 2, focusing on the enhancement of Dighi Port connectivity in Maharashtra's Raigad District under the Delhi-Mumbai Industrial Corridor. Using the advanced GatiShakti framework, we executed detailed master planning and engineering design to upgrade last-mile access and infrastructure for the Dighi Port Industrial Area. The National Master Plan identified key areas for improvement, including vital utility relocations and road network upgrades.

Major interventions included widening NH753F from Pune to Margaon, strengthening Margao-Dighi Port road under the Comprehensive Port Connectivity Plan, and planning a new rail link through the Roha-Dighi Port Cargo Terminal Policy.

The impact will be transformative. This initiative will stimulate demand for ancillary businesses, generate about 1,15,000 direct and indirect jobs—including 60,000 direct industrial positions—and greatly enhance value addition and export potential. With seamless integrated connectivity for pedestrian, freight, and logistics movement, Dighi Port's development is expected to deliver a positive multiplier effect for Maharashtra's entire regional economy.


National Enablers of International Corridors
3. Green Shipping
Sustainable Corridors & Green Trade
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Green Shipping – The Big Picture

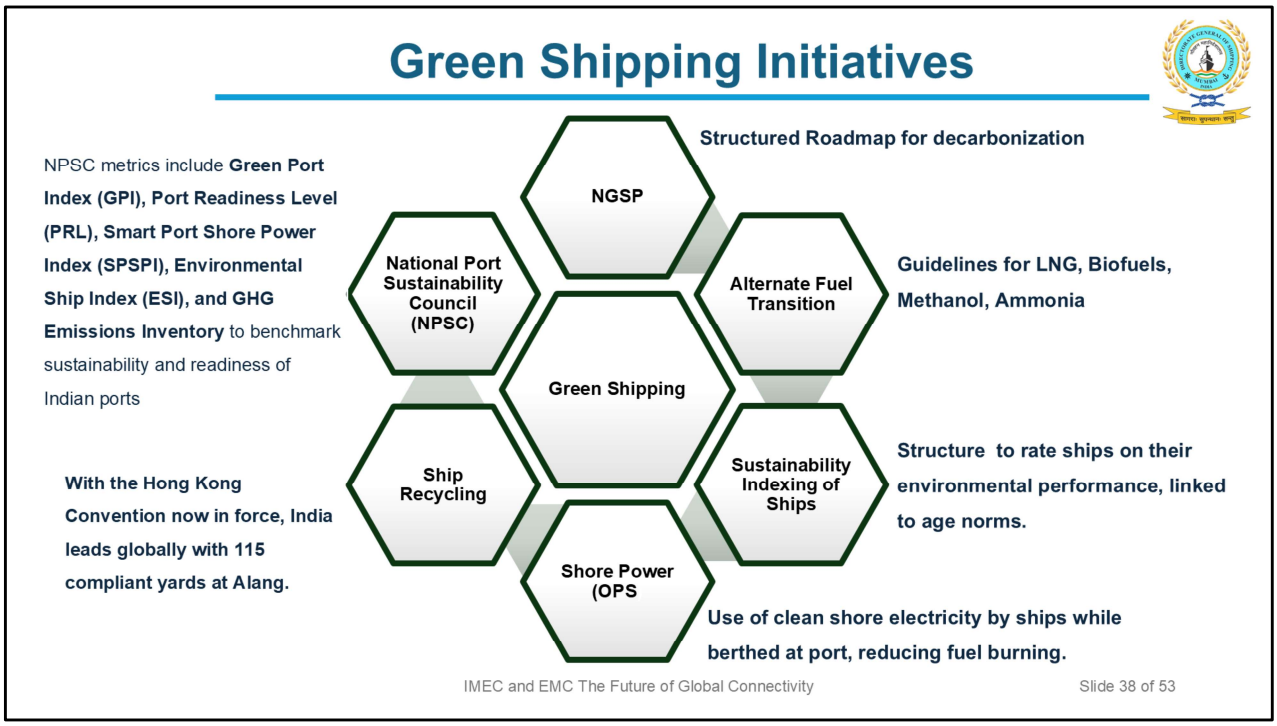
- Shipping is the **backbone of global trade** – carrying 80% of goods worldwide.
- But it's also a **major polluter**, contributing ~3% of global CO_2 emissions.
- Green Shipping = *making ships, ports, and supply chains cleaner, smarter, and future-ready.*
- It's not just about compliance — it's about **staying competitive in a low-carbon economy.**
- **Vision & Commitments:**
  - Aligned with *Maritime India Vision 2030 & Maritime Amrit Kal Vission 2047*.
  - Supports IMO's **Net Zero 2050** ambition.
  - Anchored in India's **Panchamrit Pledge** – 500 GW non-fossil capacity by 2030, Net Zero by 2070.

"The future of shipping is green — by necessity, not by choice."

Shipping drives 80% of global trade but also emits 3% of CO_2. India has launched a *National Green Shipping Policy*, *Harit Sagar Guidelines*, and is targeting carbon-neutral ports by 2047.

Transition to LNG, hydrogen, and ammonia fuels is underway.
Shore-to-ship power cuts emissions in cities.

Alang now has 115 compliant ship-recycling yards — the highest globally.
The future is green, and India aims to lead, not follow."



“We are implementing concrete measures: shore power for ships at berth, structured rating of ships by environmental performance, and adoption of clean fuels. With 115 compliant ship-recycling yards, India leads the world in safe recycling. Our new metrics like the Green Port Index and Environmental Ship Index set benchmarks for sustainability. These steps make Indian ports greener, cleaner, and more competitive.”

Green Shipping – Why the shift is urgent?

- **Rising Emissions:** Without action, shipping emissions could rise **90–130% by 2050**.
- **Regulatory Push:** IMO Revised Strategy → **Net Zero by 2050**; EU ETS & FuelEU already enforcing stricter rules.
- **Economic Push:** ESG financing & green supply chain demands.
- **Public Health:** Cleaner shipping reduces air pollution in port cities.

"If we do nothing, shipping emissions could rise by as much as 130% by 2050. Regulators are pushing harder — the IMO now targets net zero emissions by 2050, and the EU has already included shipping in its emissions trading system. There is also strong economic pressure — ESG financing, green supply chains, and customer demand for cleaner trade. And finally, it is about public health — port cities need cleaner air. This transition cannot wait."

Green Ports

Driving Sustainable Maritime Growth

- Concept of Green Ports
- Ports designed & operated with minimal environmental impact.
- Integration of clean energy, efficiency, and circular economy practices.

- Key Initiatives in India
- Harit Sagar Guidelines (2023): National framework for green port development.
- Proposed National Port Sustainability Code (NPSC): Metrics for emissions, energy, waste, and community impact.
- Onshore Power Supply (OPS): Cut ship emissions at berth by connecting to shore electricity.
- Waste & Plastics Management: Port reception facilities for MARPOL Annex V compliance.

- Benefits
- Reduces GHG emissions & pollution.
- Improves air quality in port cities.
- Promotes India's Blue Economy & Green Economy transition.
- Aligns with IMO decarbonisation goals & India's Viksit Bharat 2047 vision.

"Green ports are designed with minimal environmental impact. India's Harit Sagar Guidelines and the proposed National Port Sustainability Code set standards for waste, emissions, and energy. Onshore power supply reduces ship emissions in cities. These steps align India's ports with global decarbonisation and our own Viksit Bharat 2047 vision. Green ports are not just about compliance — they are about future-proofing."

Sustainability in Shipping

Green Shipping Roadmap :

- *National Green Shipping Policy (NGSP):* India's decarbonization roadmap..
- *Planned IOCE-SMarT:* Indian Ocean Centre of Excellence for Sustainable Maritime Transport.
- *Harit Sagar Guidelines 2023:* Sustainable Port development and carbon emission reduction.

Fuel Transition: Phased adoption of LNG, biofuels, methanol, ammonia, hydrogen.

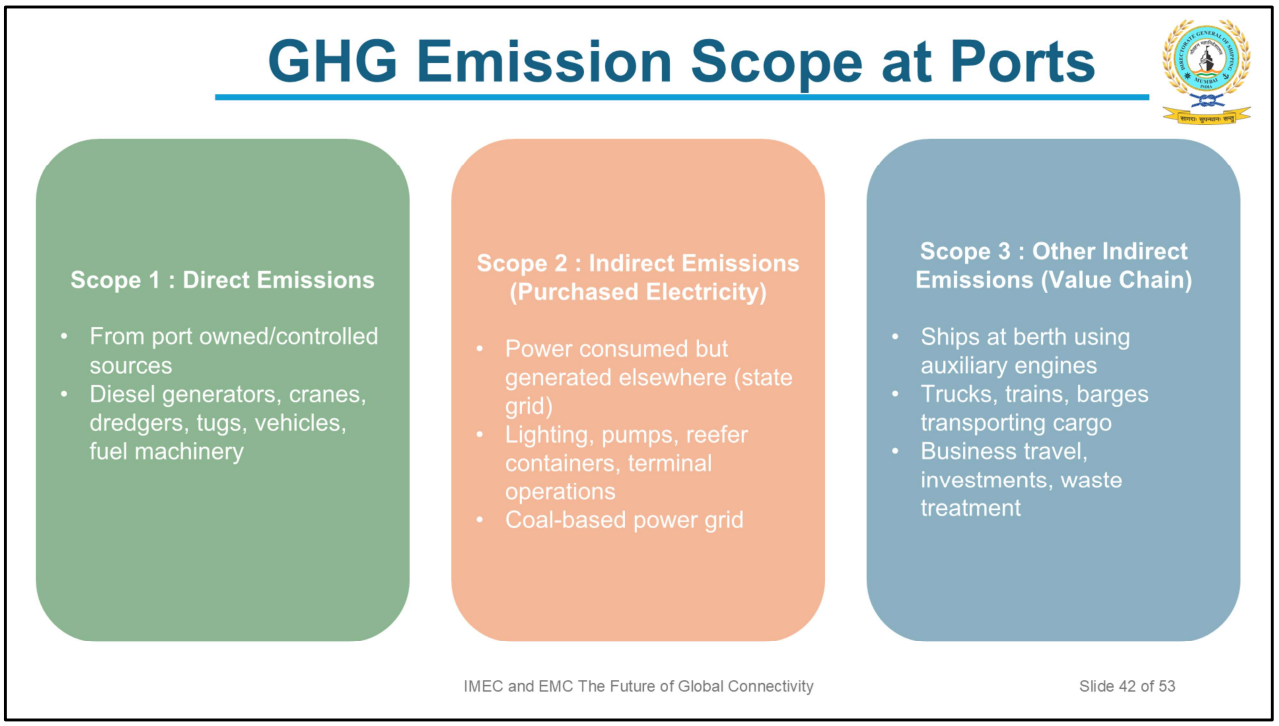
- Carbon Neutral Ports: All Major Ports targeted carbon neutral by 2047.
- Carbon Intensity Reduction: ~ 30% per ton cargo by 2030; ~ 70% by 2047
- Renewable Energy Push: >60% share at ports by 2030; >90% by 2047.

Circular Economy: 5R principles (Refuse, Reduce, Reuse, Repurpose, Recycle), Green Reporting Initiative, Ship Recycling Act (2019), HKC entry into force (2025), Green Steel Recovery

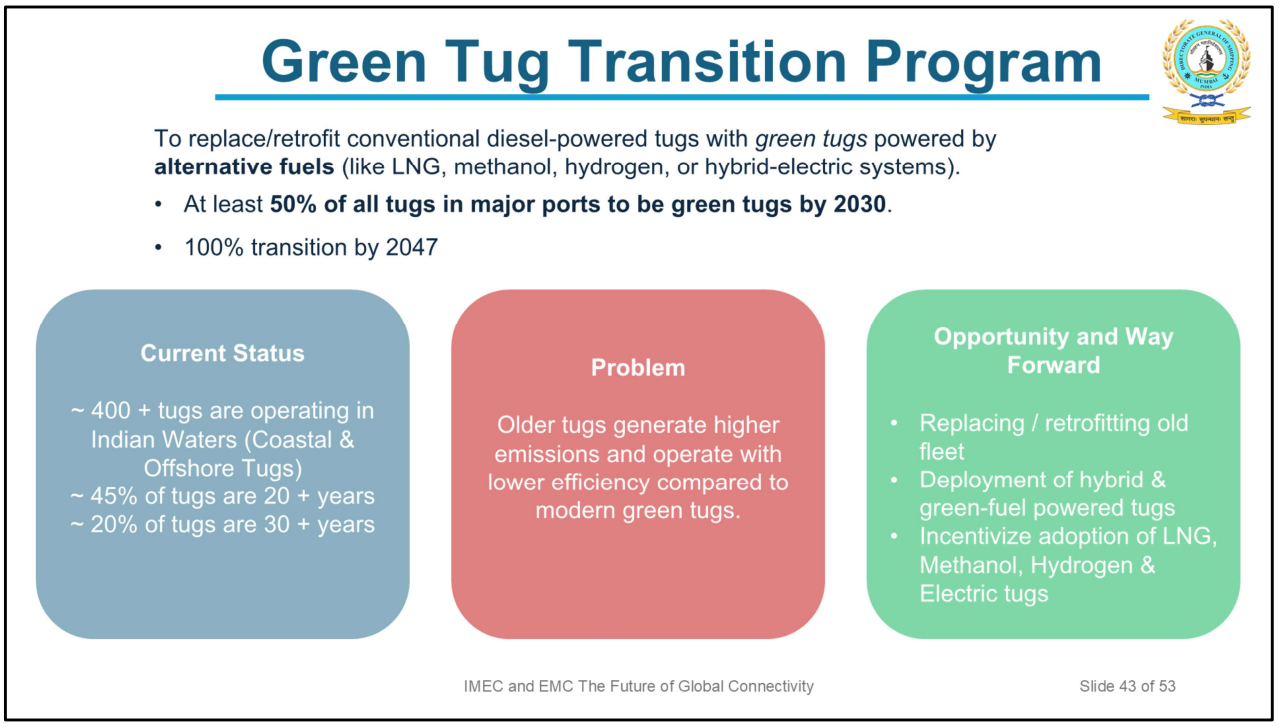
- Sustainability Index of Ships (SIS) links **age norms to actual performance.**

"The future of shipping is green — by necessity, not by choice."

India's shipping decarbonisation isn't just aspirational—it's structured through NGSP, Harit Sagar, and IOCE-SMarT."
"We're moving to clean fuels like LNG, biofuels, methanol, and hydrogen, backed by targets for carbon neutrality at ports by 2047."
"The shift isn't only fuel-based—it's about **circular economy practices**, HKC-driven ship recycling, and the **Sustainability Index of Ships** linking age norms to actual performance."
"This positions India as a frontrunner in sustainable maritime practices globally."



“Ports contribute emissions at multiple levels—direct, indirect, and value-chain linked.”
“Scope 1 includes equipment like cranes and dredgers, Scope 2 is linked to our coal-based electricity grid, and Scope 3 involves wider value chain activities such as ships at berth and hinterland logistics.”
“Addressing all three scopes is critical for India’s ports to move towards genuine carbon neutrality.”



“India has over 400 tugs, but nearly half are more than 20 years old. They are inefficient and polluting. Our goal is to replace or retrofit them with LNG, methanol, hydrogen, or electric tugs.

By 2030, at least 50% of tugs in major ports will be green. By 2047, the transition will be complete. This is a quiet revolution, but an important one.”

Green Shipping – The Road Ahead

- **Build green fuel bunkering hubs** (LNG, Biofuels, Methanol, Ammonia, Hydrogen).
- **Green Port Initiatives:**
  - Renewable energy adoption & shore-to-ship power.
  - Waste & effluent management systems.
  - *Green Port Index* → benchmarking environmental performance.
  - Incentives: **priority berthing & green channel clearance** for eco-ships.
- **Mobilize green finance** → ESG bonds, carbon credits, global climate funds.
- **Invest in technology** → R&D on Hydrogen, Ammonia, Digital twins.
- **Set benchmarks** → Green Port Index & NPSC to track and encourage eco - performance.

"India has the chance to steer global shipping towards a greener horizon."

"Our roadmap is ambitious. Green fuel bunkering hubs across Indian ports. Renewable energy powering operations.

Waste management and effluent treatment systems in place. Green financing through ESG bonds and carbon credits. Incentives like priority berthing for eco-ships. And investments in technology like hydrogen R&D and digital twins. India has a chance not just to adapt, but to lead global shipping towards a greener horizon."

“Safety culture doesn’t start in boardrooms — it begins at the grassroots level. That’s why coastal state workshops are so important.
These workshops provide a platform to train, sensitize, and engage local authorities, seafarers, fishermen, and industry stakeholders. They build awareness on safety standards, compliance, emergency preparedness, and occupational health and welfare.

Equally important, they allow for two-way communication. Coastal workers can share their challenges, while authorities can align support.
In short, these workshops are the bridge between policy and practice. By promoting awareness, inclusivity, and ownership at the local level, we can strengthen compliance and ultimately reduce accidents across our coasts.”

Coastal State Workshops

Coastal state workshops are proposed to be organized to advance welfare, ship recycling, shipbuilding, and repair initiatives in collaboration with State Maritime Boards.

The Coastal State Workshops will be structured around five key pillars-

i. **Pillar 1** – Coastal Maritime Casualty Response and Disaster preparedness

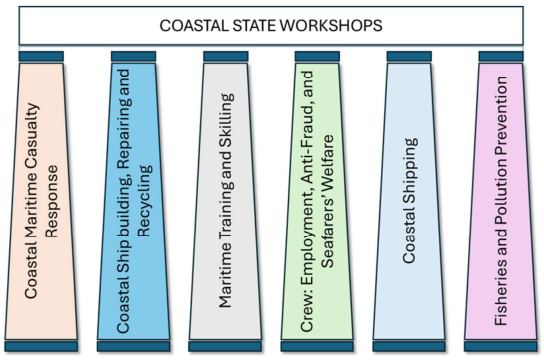
ii. **Pillar 2** – Coastal States- Opportunities in Ship building and Ship Repairing and Ship Recycling

iii. **Pillar 3** – Coastal States – Maritime Training and Skilling and prevention of fraud and cheating in Maritime Training admissions

iv. **Pillar 4** – Employment opportunities in Maritime Domain for Coastal States- Prevention of cheating and fraud in Crewing and Dissemination of seafarer's rights and duties and model code of conduct for seafarer and arrangements for 24 X 7 Grievance Redressal

v. **Pillar 5** – Coastal Shipping and Opportunities

vi. **Pillar 6** – Fisheries and Pollution Prevention



"To take reforms closer to the ground, coastal state workshops are being rolled out, covering shipbuilding, training, employment, fisheries, and pollution control, these create a collaborative model. States will not just implement policy but co-create India's maritime future."

संगच्छध्वं
संवदध्वं
सं वो मनांसि
जानताम्।

*"Move together,
speak together,
may your minds
be in harmony."
(Rigveda 10.191.2)*