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maritime gateway

SEPTEMBER 2025

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ARTICLE
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VOC Port: Gateway to Wind Mill
Plates Export

From **STORAGE** to **STRATEGY**



**HOW INDIA'S
WAREHOUSING
ECOSYSTEM IS EVOLVING**



Ai - Based Operations



e-Booking of Containers



**Mobile App for
First Mile Last Mile**

**Online Container
Tracking**

Online CPDA Services

e-forwarding note

IT INNOVATIONS

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LCL Hub : MMLP Dadri

Cold Chain Logistics: Ensuring Freshness

Power by Icebattery technology

Double stack reefer train on DFC

67 Terminals, 16 Multimodal Logistics Parks , 4 on DFC



Sanctions, supply chains, and a quarter marked by uneven stability

This quarter has been a reminder that global shipping remains deeply entangled with geopolitics. Trade sanctions—both newly announced and aggressively enforced—have continued to reshape cargo flows, vessel deployment strategies, and market sentiment across key corridors. What was once a steady recalibration around Russia-related restrictions has widened into a more complex sanctions landscape involving Iran, China-linked supply chains, and dual-use technology controls. The result is a quarter marked by selective disruptions, higher compliance costs, and shifting trade patterns that carriers and shippers are still learning to navigate. The Russia-Ukraine conflict continues to cast the longest shadow. Despite expectations of stabilisation, expanded EU and G7 restrictions on Russian-origin crude, LNG transshipment, and shadow fleet operations have tightened operational visibility. This has pushed more vessels into opaque ownership structures, rerouted tanker flows to Asia, and lengthened tonne-miles—supporting freight rates but adding volatility. Meanwhile, insurance and classification societies are under greater scrutiny, compelling legitimate operators to strengthen due diligence and AIS tracking across dark-fleet hotspots. In the Middle East, US sanctions on Iranian oil exports have been enforced more consistently this quarter, particularly in the Gulf of Oman. For container shipping, the most disruptive development has been the intensification of US controls on semiconductor-related equipment and advanced manufacturing inputs. These controls have indirectly slowed certain intra-Asia cargo segments, especially between China, Southeast Asia, and North Asia, as companies reassess compliance exposure. Simultaneously, sanctions discussions linked to Red Sea instability have spurred precautionary rerouting in some trades, though the impact has remained uneven. The broader consequence is a rising “compliance premium” in shipping. KYC checks, cargo provenance verification, and documentation audits are increasingly shaping commercial decisions. Even carriers not directly exposed to sanctions-linked cargoes are tightening internal protocols. As we head into the next quarter, the industry’s challenge will be to balance opportunity in rerouted trades with the discipline required to operate in an environment where geopolitics is not just a background factor but a defining commercial force.

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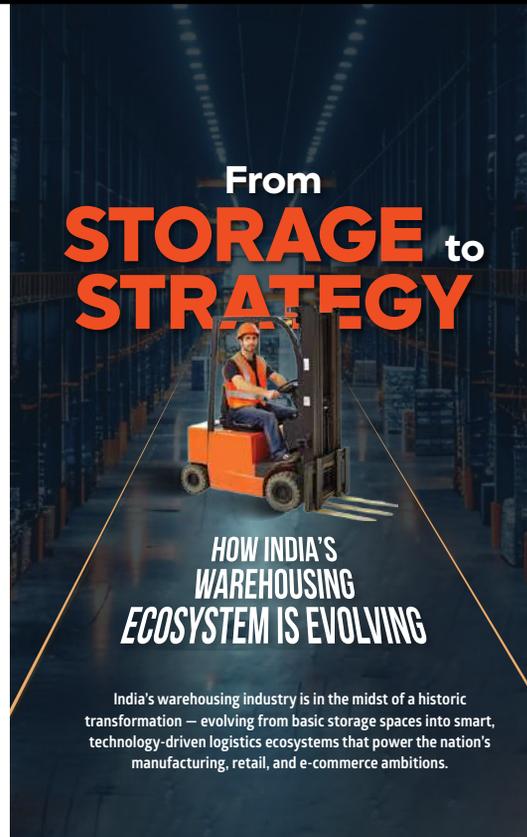
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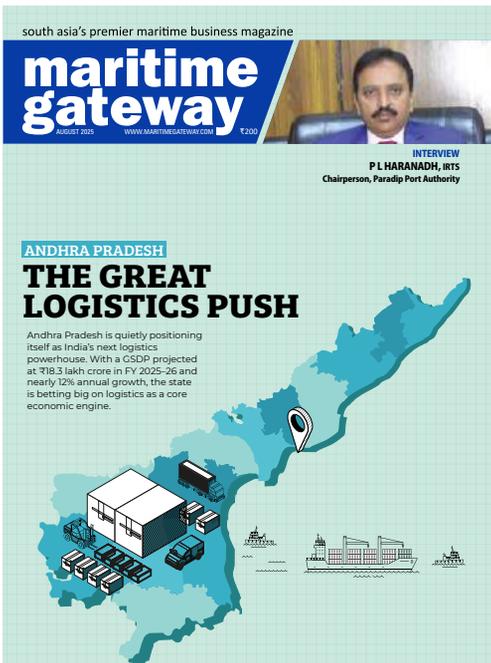
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CAG to table report on multi-modal transport and logistics in Parliament

The Comptroller and Auditor General of India (CAG) is set to present a comprehensive report on 'Multi-Modal Transport and Logistics Initiatives' during the Monsoon Session of Parliament in 2026. The audit, being prepared in collaboration with IIM Mumbai as the knowledge partner, will provide a cross-sectoral assessment of India's efforts to modernise and integrate its transport and logistics ecosystem. An Integrated Audit Group (IAG) has been constituted by the CAG to carry out coordinated evaluation across key infrastructure sectors, including railways, ports, shipping, and inland Waterways, ensuring a unified approach to assessing the country's logistics landscape. The audit will examine the implementation and impact of the National Rail Plan (NRP) 2030, which envisions a future-ready railway network capable of meeting the country's freight and passenger demands through to 2050. The plan aims to increase the Railways' freight modal share to 45 per cent and raise the average freight train speed to 50 kmph, significantly reducing transit times and logistics costs.

India's first premium products vessel berths at Kandla port

In a landmark development for India's maritime and agricultural logistics, the Deendayal Port Authority (DPA), Kandla, has welcomed MV Capetan Vassilis II, the country's first Premium Products Vessel, which berthed at Cargo Jetty No. 2. This marks the first-ever shipment of premium crop nutrition products—traditionally transported in containers—now being handled through a bulk carrier, signalling a major advancement in supply chain efficiency and cost optimisation for India's agri-input industry. The vessel's arrival represents a significant stride in modernising bulk handling operations at Kandla and reinforces DPA's growing role in facilitating high-quality, farmer-focused agri supply chains. The operation was managed by Rishi Shipping as the stevedore, with YARA serving as the importer of the premium agricultural products. Officials said this innovative shift from containerised to bulk cargo handling will reduce turnaround time, lower logistics costs, and enhance product availability for farmers across the country—further cementing Kandla Port's position as a key hub for agricultural and industrial trade.

India expands digital cargo tracking system for Nepal-bound shipments

In a move aimed at streamlining cross-border logistics, the Indian government has expanded its Electronic Cargo Tracking System (ECTS) to cover more routes and ports for shipments destined for Nepal. The initiative allows transit cargo to move through additional Indian ports and new rail-road corridors, marking a major step toward digitalizing trade facilitation in the region. The GPS-enabled ECTS replaces the traditional manual sealing and paper-based documentation process, enabling real-time tracking of containers and ensuring greater transparency and security. The system, officials said, will cut down on transit time, reduce congestion at key ports, and enhance the predictability of cargo movement. The move aligns with India's commitments under the India-Nepal Transit Treaty, which guarantees Nepal access to multiple trade routes through Indian territory. It also supports India's obligations under the WTO Trade Facilitation Agreement, which emphasizes the use of technology to streamline customs procedures.

CONCOR launches first export shipment from Mysuru's MMLP to Maldives

Container Corporation of India Limited (CONCOR) has marked a major milestone in its journey toward sustainable and integrated logistics with the launch of the first export shipment from its Multimodal Logistics Park (MMLP) at Kadakola, Mysuru. The inaugural consignment, transported in a CONCOR-owned container, is being routed through the company's Inland Container Depot (ICD) at Tondiarpet (TNPM), Chennai, en route to the Maldives. The flag-off ceremony held was led by CONCOR's Chairman and Managing Director in the presence of Prabhas Dansana, Principal Executive Director (TT) of the Railway Board, and senior members of CONCOR's leadership team. This development represents a significant boost to CONCOR's international logistics network, strengthening trade linkages between southern India and global markets.

DPA signs MoU for next-generation cargo evacuation system

Deendayal Port Authority, Kandla Authority (DPA) has signed a Memorandum of Understanding (MoU) with Delhi Metro Rail Corporation Ltd. (DMRC), BEML LTD., and Umeandus Technologies India Private Limited for developing a next-generation cargo evacuation system at the port. Under the MoU, DMRC and BEML will bring their proven expertise in large-scale infrastructure and equipment manufacturing, while Umeandus Technologies India Private Limited — a technology innovator — will provide an automated cargo evacuation solution designed for both bulk and containerised cargo. This pioneering system is set to transform port logistics by eliminating the traditional dependence on berth-based operations and enabling seamless, automatic cargo exchange between sea and shore.



MSC to launch new North India–Middle East shipping service in September

Mediterranean Shipping Company (MSC) is set to launch a new weekly shipping service connecting North India with key ports in the Middle East, starting in late September 2025. This initiative aims to enhance trade connectivity and offer exporters and importers more direct, dependable transportation options across the region. The service will operate with three vessels, each capable of carrying approximately 2,500 TEUs (Twenty-foot Equivalent Units). The planned port rotation includes Hazira, Mundra, and Nhava Sheva in India, followed by Sohar in Oman, Abu Dhabi in the United Arab Emirates, and Dammam in Saudi Arabia, before returning to Hazira. A notable feature of this route is the inclusion of King Abdulaziz Port in Dammam.

Shipping Ministry to explore dedicated satellite technology for the Indian maritime

The Union Minister of Ports, Shipping and Waterways (MoPSW), Sarbananda Sonowal said the Ministry will explore the possibility of launching a dedicated satellite or acquiring a transponder to strengthen India's maritime governance and port management infrastructure. According to the Union Minister, the proposed system would provide exclusive coverage for Indian coastal waters, inland waterways and port regions, integrating with national maritime databases to offer real-time monitoring of vessel traffic, navigational safety and port operations. Highlighting India's recent achievements in the space sector, the Minister said the country has emerged as a global leader in science and technology.

VOC port achieves first-ever export of 101 windmill blades in ship

VOC Port has created a new milestone with the successful export of 101 windmill blades on a ship on 21 August 2025, marking the first time such a large number of blades being shipped from the Port. This achievement surpasses the earlier record of 75 blades exported in March 2025, setting a new benchmark in renewable energy cargo handling. Through this significant export, the Port has achieved a total handling of 1,158 windmill blades up to August 21, 2025, in the current financial year 2025-26, registering a 5 per cent increase over the 1,099 blades handled up to the month of August in the previous financial year 2024-25.

The blades, manufactured by Vestas, are being shipped to the United States through the vessel MV BBC Santiago. The shipment was handled at Additional Berth-I, where two harbour mobile cranes operated by Imcola along with vessel cranes ensured safe and efficient loading. Logistics support was provided by Maersk and Shore handling services by NTC Logistics, with Marcons Ship Management Pvt. Ltd. serving as the Vessel Agent and Pearl Shipping & Chartering as the Stevedore. Each blade measures approximately 59.18 metres in length, requiring specialised handling and dedicated storage arrangements. The Port has specialised infrastructure including dedicated storage area of 1,00,000 square metres within the customs-notified area, for accommodating such over dimensional cargo. Congestion-free Road connectivity and the availability of a skilled workforce were also key enablers for this historic achievement.

With a ₹3,500 crore e-methanol project, Kandla port is set to become a bunkering hub



The Deendayal Port Authority (DPA) in Kandla, Gujarat, has given the green signal to a ₹3,500 crore project to create e-methanol, a synthetic fuel. This step is taken to make Kandla a key bunkering hub for ships traveling between the Port of Rotterdam and Singapore in mind. According to DPA Chairman Sushil Kumar Singh, the port intends to supply e-methanol as bunker fuel for ships on this important international route. The reports predict that roughly 200 ships are expected to operate on that route by 2030, and they will need e-methanol as bunker fuel. Singapore and Rotterdam remain the major sources however Kandla aims to be a crucial supply point. Kandla's calculated action is in line with international initiatives to decarbonise the shipping sector. The Rotterdam-Singapore Green and Digital Shipping Corridor was established in 2022 through a memorandum of understanding between the Port of Rotterdam and the Maritime and Port Authority of Singapore (MPA).

India's express logistics industry to double to \$22 bn by FY30

India's express logistics sector, currently valued at nearly \$9 billion in FY25, is on track to double in size and reach \$18–22 billion by FY30, according to industry estimates. The sector has grown at a CAGR of 12–15 per cent since FY17, driven by the rapid expansion of e-commerce, MSME exports, and digital transformation. In FY24 alone, the industry contributed \$1–1.5 billion in GST collections and \$650 million in customs duties, while generating employment for 2.8–3 million people across urban and rural India. The domestic segment, which accounts for 70 per cent of the market and is valued at \$6.3–6.5 billion, is led by surface express services. Policy measures such as Bharatmala Pariyojna, GST, the E-way Bill, and FASTag have boosted efficiency in road logistics.



Global trade realigns amid US tariffs

New routes, new hubs, heightened volatility

In an era of intensifying trade frictions, global cargo map is being dramatically redrawn. The US' sweeping tariff agenda—broad in scope and unilateral in execution—has set off a wave of disruptions reshaping trade volumes, shipping routes.

For maritime, intermodal, and air-cargo stakeholders, the consequences are far-reaching and structural.

Decline in direct trade with tariff-targeted countries

The US's intensified tariff regime has upended long-established trade flows, forcing exporters and importers to

reconfigure their networks. Recent data show that US containerised imports fell by 8.4 per cent year-on-year in September 2025, with shipments from China plunging by nearly 23 per cent. According to the Peterson Institute for International Economics, US imports from China were down 16.9 per cent during January–July 2025 compared with the same period a year earlier.

Tariff escalation has extended beyond China. Indian exporters, too, are facing steep duties—up to 26 per cent on certain product categories—along with a baseline of 10 per cent, significantly eroding their competitiveness in the US market. As freight costs rise alongside these duties, margins have tightened sharply. Meanwhile, the average effective US tariff rate

has climbed from roughly 2.3 per cent at the start of 2025 to nearly 10 per cent by mid-year, entering double-digit territory by August.

For shipping lines and terminal operators, this has meant shrinking volumes on Asia–US corridors, particularly on the West Coast. Long-established trade lanes are under stress as logistics providers grapple with falling throughput, higher per-container costs, and increased dwell times amid shifting customer schedules.

Cargo finds new homes and alternate pathways

As traditional routes falter, global manufacturers are turning to alternative sourcing and export destinations. The decline in US imports from China has been partly offset by rising volumes from Southeast Asia—especially Indonesia, Thailand, Vietnam, and India—which all reported increased exports to the US in September 2025. Trade diversion is now a

Key Trade Metrics at a Glance



Source: Industry Reports, September 2025.

defining trend. Companies are redirecting production to lower-tariff locations such as Vietnam, Malaysia, and Mexico. Exports from Southeast Asia surged about 17 per cent in the same period that US–China trade fell by 16 per cent. Europe, too, has benefited from re-routed shipments, as firms seek tariff-neutral destinations for both

manufacturing inputs and finished goods. India occupies a unique dual position in this new landscape.

While its exports to the US are constrained by tariffs, the country's expanding infrastructure and manufacturing base are drawing global investors looking for alternatives to China. Ports like Mundra, Chennai, and Vizag are emerging as consolidation hubs for South-South and East-West trade, positioning India as both a sourcing and trans-shipment player in the evolving global order.

These shifts have major implications for logistics networks. Non-traditional hubs in Southeast Asia and the Middle East are seeing new container flows. The Asia Middle East US route, for instance, is gaining popularity as companies leverage trans-shipment hubs like Jebel Ali to re-classify cargo origins and minimise tariff exposure. The result is longer freight legs, new feeder loops, and increasingly complex coordination among shippers, carriers, and customs authorities.

Rise of regionalisation and consolidation hubs

The transformation of global trade is also accelerating a shift towards regionalisation and multi-sourcing. Instead of relying on far-flung global supply chains, many companies are now opting for proximate or “near-shore” production bases to mitigate tariff and logistics risk. For North American buyers, Mexico is becoming a preferred manufacturing location; for Asian and European firms, intra-ASEAN networks are deepening. Intermediate consolidation hubs are now critical links in the trade chain.

Ports such as Jebel Ali in the UAE, Port Klang in Malaysia, and Singapore have evolved beyond transit gateways to become value-added logistics centres where

goods from multiple origins are aggregated, re-packed, or re-routed to circumvent tariff complexities. According to a Yale-Budget Lab study, the increased use of such intermediate hubs has lengthened delivery times and pushed companies to raise their inventory-to-sales ratios, reflecting a broader move away from just-in-time supply models.

For logistics providers, this structural shift demands a re-examination of hub locations, transit-time trade-offs, and inventory strategies. Shipping lines are redesigning networks around hub-and-spoke redistribution models, while warehouse operators are adapting to greater dwell times and bidirectional trade flows—where goods arrive for consolidation and re-export rather than simple import.

Volatility, front-loading, and the new supply-chain reality

The unpredictability of tariff policies has become one of the biggest disruptors in global shipping. Early 2025 saw a surge in “front-loading” as US importers rushed to bring in goods before new tariff deadlines, pushing volumes 25 per cent above early-2024 levels. But this was followed by a sharp contraction: by September, containerised imports from China had dropped nearly 23 per cent.

The tariff wave has also fed inflationary pressures. Yale-Budget Lab data show that overall goods prices in the US were 1.9 per cent above pre-2025 trends, with imported core goods rising 1.2 per cent.

UNCTAD, meanwhile, has revised its forecast for global container-trade growth downward to just 1.4 per cent for 2025, citing longer average shipping distances and route disruptions as key factors. For logistics firms, volatility now defines the operating environment. 

From storage to strategy

How India's warehousing ecosystem is evolving

India's warehousing industry is in the midst of a historic transformation — evolving from basic storage spaces into smart, technology-driven logistics ecosystems that power the nation's manufacturing, retail, and e-commerce ambitions.





Supported by strong policy reforms, investor confidence, and digital innovation, the sector is emerging as the backbone of India's supply chain modernisation.

A record-breaking growth story

The warehousing and industrial market in India has recorded its strongest-ever half-yearly performance, with leasing volumes soaring 42 per cent year-on-year to 32.1 million sq. ft across the top eight cities, according to Knight Frank India's latest report. The manufacturing sector has been the primary growth driver, accounting for 45 per cent of all leasing activity and expanding by a remarkable 71 per cent to 14.6 million sq. ft in H1 2025. Mumbai and Pune together contributed 44 per cent of this space, led by key occupiers such as SKS Fasteners, RenewSys India, Godrej & Boyce, and Lupin.

Pan-India warehouse stock reached 512.8 million sq. ft during the same period, with 26.9 million sq. ft of new supply becoming operational. However, this still trailed robust demand, bringing overall vacancy down to 12.1 per cent from 13.1 per cent a year ago — signalling sustained momentum.

The sector's long-term prospects remain strong. India's warehouse market is projected to reach \$35 billion (₹2.87 trillion) by 2027, expanding at a CAGR of 15–16 per cent. Growth is driven by the continued expansion of 3PL, e-commerce, retail, FMCG, and manufacturing sectors, bolstered by initiatives like Make in India and the Production Linked Incentive (PLI) schemes.

Manufacturing and e-commerce lead the charge

In the first quarter of 2025 alone, India's warehouse leasing volumes surged 50 per cent year-on-year to 16.7 million sq. ft, led by a resurgent

manufacturing base and the revival of e-commerce.

Manufacturers accounted for 48 per cent of total leases, nearly doubling from the previous year, reflecting the impact of global supply chain realignment and India's industrial strategies.

Meanwhile, e-commerce companies saw lease activity rise by a staggering 151 per cent, underscoring their renewed focus on distribution scale and speed.

Among Tier-I cities, Chennai, Pune, and Mumbai dominate in terms of Grade A developments, while Ahmedabad, Hyderabad, and Bengaluru are fast catching up. Grade A assets constituted 75 per cent of new supply and 63 per cent of total leasing, reflecting occupiers' growing preference for high-spec, sustainable, and digitally enabled facilities.

3PL operators also registered steady growth, up 12 per cent, although their overall share dipped to 23 per cent as more companies insourced logistics to optimise costs and delivery timelines.

Rising e-commerce adoption is playing a central role in driving warehousing demand across India. In H1 2025, industrial and logistics (I&L) leasing in the top eight cities surged 63 per cent YoY to 27.1 million sq ft, with e-commerce's share of that leasing more than doubling from 9 per cent in H1 2024 to 25 per cent. This reflects not just a spike in online sales, but an increasingly networked inventory model where fast-moving consumer demand necessitates

storage facilities closer to end customers. Further, companies are raising their preference for higher-spec (Grade A) facilities—63 per cent of leased space was Grade A in early 2025, up from 54 per cent a year earlier.

The consumption boom is also reshaping the warehousing geography. As of 2024, India's warehouse stock hit about 533 million sq ft, and Tier 2-3 cities now account for 100 million sq ft, nearly 18.7 per cent of the total, according to JLL. This shift signals a transition toward a hub-and-spoke logistics model, enabling faster last-mile delivery and lower costs in emerging demand centers.

Notably, warehousing leasing in 2024 across the top 8 markets reached 56.4 million sq ft, rising 12 per cent year-on-year, with 62 per cent of that demand concentrated in Grade A space—underscoring how consumer-driven e-commerce is transforming not only scale, but quality of warehousing infrastructure.

Regionally, Mumbai led with 27 per cent of total leasing, followed by NCR, Pune, and Chennai. Notably, Chennai and Hyderabad emerged as the fastest-growing hubs, with leasing volumes rising 154 per cent and 137 per cent, respectively. This decentralisation aligns with proactive state-level logistics policies and infrastructure development — signalling a shift towards multi-nodal, pan-India supply chains.

Growth in online retail and direct-to-consumer (D2C) brands in India is pushing demand for warehouses and fulfilment centres, particularly close to major consumption centres. With customers expecting faster delivery, warehouses are needed closer to urban hubs / Tier-2/3 cities to enable “next-day” / “same-day” fulfilment. The shift to omni-channel retail (physical + online) means companies need

more flexible storage/distribution capacity.

Rise of organised & Grade A warehousing + institutional investment

- There's a qualitative shift from fragmented, small storage units to large, modern, Grade A warehouses with higher clear-heights, automation, security, good infrastructure.
- Institutional investors (real-estate funds, global logistics investors) are increasingly entering the sector driven by predictable lease-income and growth potential.
- Use of technology (automation, IoT, robotics) is increasing, making modern warehouses more efficient and attractive.

Emerging warehousing hubs: Beyond the metros

India's warehousing map is expanding beyond traditional hotspots to Tier-2 and Tier-3 cities. According to CBRE South Asia, regions like Lucknow, Bhubaneswar-Cuttack, Jaipur, and Nagpur are witnessing rapid traction due to improved connectivity, industrial corridors, and cost advantages.

- **Lucknow-Kanpur corridor:** Total warehouse stock of 5.2 million sq. ft with 1.4 million sq. ft of Grade-A pipeline; strategic location linking East, West, and Central India.
- **Bhubaneswar-Cuttack (NH-16 corridor):** Emerging Eastern India hub, benefiting from improved infrastructure and multimodal access.
- **Jaipur:** Rapidly evolving into a North-Western logistics hotspot due to strong highway and industrial connectivity.
- **Nagpur:** Gaining prominence as India's "central distribution hub" due to its geographic advantage.

Among Tier-I cities, Chennai, Pune,

and Mumbai dominate in terms of Grade A developments, while Ahmedabad, Hyderabad, and Bengaluru are fast catching up. Grade A assets constituted 75 per cent of new supply and 63 per cent of total leasing, reflecting occupiers' growing preference for high-spec, sustainable, and digitally enabled facilities.

Anoop Dharamveer Chauhan, Group CEO & Executive Director, CCI Group

said: "We are building a pan-India network of Grade-A industrial warehousing parks across Chennai, Kolkata, Mumbai, NCR, Andhra Pradesh, Gujarat, Bengaluru, Hyderabad and Guwahati. Our focus is on developing sector-specific solutions spanning pharma-GDP, automotive and EV components, e-commerce and fashion, FMCG and cold chain, as well as chemical logistics." He further said that, "We offer comprehensive Design-to-Operate programs that include network modelling, greenfield and built-to-suit design, implementation and steady-state operations under a single governance structure. We are also expanding our value-added services—postponement, kitting, light assembly, QC, re-bagging, returns refurbishment and bonded operations—while rolling out in-city micro-fulfilment capabilities for emerging D2C brands."

Technology transformation: From storage to smart warehouses

The digital wave is redefining the DNA of Indian warehousing. Smart warehouses are leveraging automation, IoT, AI, robotics, and cloud-based Warehouse Management Systems (WMS) to optimize every aspect of operations — from inventory control to last-mile dispatch.

- Automation & Robotics: Deployment of AGVs (Automated Guided Vehicles),

robotic arms, and conveyors reduces manual intervention while improving throughput and accuracy.

- Data-Driven Decisions: Integrated ERP and WMS platforms enable predictive analytics for demand forecasting and space utilization.



Users today are demanding GMP/GDP-ready, FM-approved, pharma- and food-compliant Grade-A facilities. We're seeing strong consolidation into larger multi-client parks located near major consumption hubs such as NCR, Mumbai, Bengaluru, Chennai, Kolkata and Hyderabad, along with fast-emerging Tier-2 and Tier-3 nodes including Lucknow, Coimbatore, Guwahati, Nagpur, Bhubaneswar and Patna.

ANOOP DHARAMVEER CHAUHAN
GROUP CEO & EXECUTIVE DIRECTOR, CCI GROUP

- IoT & AI Integration: Sensors monitor temperature, humidity, and asset health, while AI algorithms optimize workflows



- and minimize downtime.
- Sustainability Focus: Solar rooftops, energy-efficient lighting, and smart water systems align operations with global ESG standards.

Backed by National Logistics Policy (NLP) and Digital India, such technologies are accelerating India's transition to next-generation supply chains — where data, not just goods, move seamlessly.

Anoop Chauhan opines that, “Automation is becoming far more pragmatic, with AMRs, shuttle and mini-load AS/RS, put-to-light systems and smart conveyors being adopted in modular, Opex-friendly waves rather than through large, upfront CAPEX deployments. These solutions are increasingly focused on enhancing picking, sortation and returns management. At the same time, operations are becoming truly digital-native. Cloud WMS platforms with rich APIs, integrated YMS and dock scheduling, digital twins, and IoT-based inventory and condition monitoring are becoming standard. Vision analytics is improving safety and count accuracy, while control-tower visibility and SKU-level traceability are rapidly emerging as non-negotiable expectations from customers”.

Green warehousing: Sustainability at scale

Sustainability is fast becoming a defining pillar of India's warehousing future. According to JLL India, certified green warehouse space is set to quadruple from 65 million sq. ft in 2024 to 270 million sq. ft by 2030. Institutional investors are driving this shift, with over 45 per cent of current Grade A stock already certified under LEED, IGBC, or GRIHA standards. By 2030, nearly 80 per cent of institutional Grade A supply is expected to be green-compliant. Projects like

Mahindra Logistics' Cummins India warehouse in Phaltan, Maharashtra, embody this evolution — integrating renewable energy, solar panels, and water recycling systems into 3 lakh sq. ft of smart, sustainable logistics space.

Policy and regulatory push

India's logistics and warehousing growth is strongly anchored in policy support:

- **National Logistics Policy (NLP):** Targets reducing logistics costs from 14 per cent to below 8 per cent of GDP, promoting standardization, multimodal integration, and digital platforms like ULIP.
- **PM Gati Shakti:** Integrates 16 ministries for coordinated infrastructure development, helping identify optimal sites for logistics parks and multimodal terminals.
- **Multi-Modal Logistics Parks (MMLPs):** Under Bharatmala Pariyojana, these large hubs combine warehousing, cold chain, and transport connectivity.
- **100 per cent FDI & GST Reforms:** Simplified taxation and liberal investment policies have fueled institutional participation and large-scale project financing.
- **State Warehousing Policies:** States like Uttar Pradesh, Goa, Tamil Nadu, and Kerala are offering fiscal incentives, fast-track clearances, and capital subsidies to attract private investments.

Investment momentum pushing warehousing growth

The sector's stability and resilience are attracting REITs, institutional investors, and private equity funds. Joint ventures between developers and logistics operators are driving large-scale, Grade A projects across key corridors.

At the same time, the demand for skilled manpower in automation, data analytics, and digital logistics is rising sharply. Upskilling initiatives — both by private firms and state agencies — will be critical to sustain growth.

Recently, Kerala strengthens logistics infrastructure with ₹250-crore NDR Space project Kerala took another major step toward enhancing its logistics infrastructure as NDR Space Pvt. Ltd launched a ₹250-crore Grade-A warehousing and logistics facility at Chununganveli near Aluva.

The foundation stone for the project was laid by State Industries Minister P Rajeeve, marking a key milestone in Kerala's industrial growth agenda. Spread across 16 acres, the advanced logistics park will create around 300 jobs, both directly and indirectly, and significantly improve supply chain efficiency in the region.

Allcargo Logistics, through its real-estate arm Allcargo Gati Logistics Parks and earlier JV IndoSpace/Allcargo Parks, has been expanding Grade A warehousing across major logistics hubs. Over the last few years, it has developed large parks in NCR, Bengaluru, Hyderabad, Chennai, Mumbai, Pune and Ahmedabad, adding over 6–8 million sq ft of cumulative space. The company continues to focus on automated, compliant Grade A/A+ assets, driven by demand from e-commerce, 3PL, FMCG, and retail. Allcargo has been selectively expanding into emerging warehousing markets such as Coimbatore, Lucknow, Guwahati, Nagpur, Jaipur and Surat, aligned with increasing consumption and new supply chain corridors (Bharatmala, freight corridors).

Demand from e-commerce and omni-channel retail is pulling them into these growth markets. On their warehouse expansion plans in India,

Sushil Rathi,
Director at Allcargo
Supply Chain, stated:

"Our expansion plan is not just about increasing square footage; it's about strengthening our capabilities to better serve our clients. With modern infrastructure and advanced Warehouse Management Systems (WMS), our warehouses will optimize the process of moving and storing goods while adhering to all required compliances."

Mahindra Logistics launched over 4 lakh sq. ft. of Grade A, multi-client warehousing space in Guwahati (3 lakh sq. ft.) and Agartala (1.3 lakh sq. ft.). This is part of its "Go-East" strategy to build a pan-India logistics & warehousing network. Mahindra has also commissioned a 3-lakh sq. ft. warehousing facility in Phaltan dedicated to Cummins India.

This warehouse will serve as a central hub to consolidate Cummins' products, improving both inbound and outbound logistics.

Hemant Sikka, MD
& CEO of Mahindra
Logistics, said:

"Our 'Go-East' strategy ... redefines the logistics landscape across the country and solidifies the distribution network within Eastern India. ... It expands our nationwide warehousing and distribution network to Tier-2 and Tier-3 cities."

The facility spans 24 acres of land, housing two large warehouses totalling 5 lakh square feet, catering sectors like FMCG, FMCD, 3PL, and e-commerce. With its presence at a strategic location at the confluence of the Mumbai and Chennai-Kolkata highways (off NH 55), it enjoys excellent connectivity to the Paradip port and the major parts of the country.

TVS ILP (a part of TVS Mobility



Group), a leader in the warehousing industry, broke ground for a new state-of-art warehouse in Cuttack, Odisha, expanding further in to Eastern Markets. Commenting on the development,

Manikandan
Ramachandran, CEO,
TVS ILP, said,

"The Choudwar Industrial Estate has immense growth potential, and our new facility aims to enable businesses to efficiently cater to the rapidly growing demand from the eastern part of the country. We look forward to contributing to the region's prosperity by creating meaningful employment opportunities for the local community while building seamless connectivity across various trade points. This facility is a step further in our commitment to build industrial parks every 400 km in India. As the first player to explore the market, we desire to remain steadfast in our aggressive expansion plans into the Eastern markets."

Baweja Automotives Pvt. Ltd. (BAPL), a group company of Ahmedabad Roadlines Pvt. Ltd, announced continued expansion across India through state-of-the-art facilities and advanced service capabilities.

The group, with expertise spanning warehousing, full truckload (FTL) logistics, and automotive distribution, has rapidly built a reputation as a trusted partner for leading brands in white goods and automotive sectors.

Over the past two years, BAPL has grown its warehousing footprint to over 4,50,000 sq. ft., covering key logistics hubs such as Palwal, Mumbai, and Kolkata. Its latest Palwal warehouse, launched in September 2024, offers end-to-end supply chain solutions — including primary transportation, hub handling, and last-mile delivery. Commenting on the company's growth,



Rohiet Baweja,
Director, Baweja
Automotives Pvt. Ltd.
(BAPL), who has over

24 years of experience in logistics, said: "Our focus has always been on efficiency, reliability, and customer delight. With each new facility, we have strengthened our ability to provide integrated solutions that meet the evolving needs of our clients in white goods, automotive, and beyond."

Logistics and supply chain company CCI Group has announced an investment of ₹227 crore to develop a 9.5 lakh sq. ft. Grade-A warehousing facility in Sohna-Silani, Gurugram. The project aims to meet the growing demand for high-quality industrial and warehousing spaces in the Delhi-NCR region. The total project cost includes land acquisition, construction, and infrastructure development. Designed with modularity and operational flexibility, the facility features 12-meter height, FM2-grade flooring, cross-dock multiple loading points, and wide RCC internal roads for smooth vehicle circulation.

Commenting on the warehousing development projects, Anoop Chauhan said: Users today are demanding GMP/GDP-ready, FM-approved, pharma- and food-compliant Grade-A facilities. We're seeing strong consolidation into larger multi-client parks located near major consumption hubs such as NCR, Mumbai, Bengaluru, Chennai, Kolkata and Hyderabad, along with fast-emerging Tier-2 and Tier-3 nodes including Lucknow, Coimbatore, Guwahati, Nagpur, Bhubaneswar and Patna"

He further said that, "Companies are moving from 20-30 scattered sites to a hub-and-spoke model with one or two national DCs supported by 6-10 regional or city hubs. The rapid rise of in-city dark





stores and cross-dock micro-hubs for same-day and next-day delivery is further shaping this shift. We also see a clear multimodal tilt—coastal short-sea, rail connectivity, and proximity to the DFC are becoming key location criteria as users look to reduce line-haul costs and cut carbon emissions.”

KSH Integrated Logistics has been expanding its warehousing footprint across India, including key locations such as Pune, Bengaluru, Jaipur, and Chennai.

The company now operates over 1 million sq. ft. of warehousing space nationwide and plans to scale its MCF Platform to more than 2 million sq. ft. by 2026. As part of this growth strategy, it has recently developed a new facility in Indore.

“Our expansion into Indore is a key step in building a future-ready, pan-India warehousing and distribution network that enables customers to scale with confidence,” said

Vinay Patil, CEO, KSH Integrated Logistics.

“As we continue to grow across the country, our focus is on creating smart, efficient supply chain ecosystems that address the evolving needs of OEMs and industrial clients.”



Growth of cold chain warehousing

Cold chain warehousing in India is expanding rapidly as rising consumption, growth in food processing, pharmaceuticals, and organised retail drive the need for temperature-controlled logistics.

India’s cold storage capacity is estimated at 40–45 million tonnes, but more than 65–70 per cent of it is still concentrated in a few states (Uttar Pradesh, West Bengal, Punjab), and largely focused on single commodities such as potatoes. Modern, multi-temperature, palletised cold warehouses—capable of handling dairy, meat, seafood, fresh produce,

QSR supplies and pharma—represent less than 20 per cent of the total stock, indicating significant room for upgradation and new investments. The demand shift is also accelerating due to 25–30 per cent annual growth in online grocery, the rise of cloud kitchens, vaccine and biopharma distribution, and compliance-driven operations in food and healthcare.

Developers are now investing in Grade-A compliant cold stores with automation, multi-chamber temperature zones (-20°C to +25°C), racking systems, and energy-efficient refrigeration to cut power costs—which typically account for 35–40 per cent of operating expenses.

Growth corridors are emerging around consumption hubs (Delhi–NCR, Mumbai, Bengaluru, Hyderabad, Chennai, Kolkata) and food-processing clusters (Gujarat, Maharashtra, Telangana, Odisha). Over the next 3–5 years, India’s modern cold chain warehousing market is projected to grow at 12–15 per cent CAGR, driven by demand for end-to-end, integrated cold logistics networks.

Challenges and the road ahead

Despite its growth trajectory, the warehousing sector faces several structural challenges — including land acquisition hurdles, zoning and taxation complexities, and labour shortages.

Fragmented regulatory frameworks and limited digital standardization continue to slow efficiency gains, especially among smaller operators. However, the outlook remains decisively positive. As India builds integrated logistics ecosystems — combining storage, value-added services, packaging, and last-mile delivery — the

TYPES OF WAREHOUSING

Warehousing, often categorized in A, B, and C lines (or classes) based on infrastructure, location, and services

GRADE A WAREHOUSES



- » Modern, high-spec facilities built to global standards.
- » Located near major highways, ports, or industrial corridors.
- » Large floor plates with higher ceiling heights (10–12+ meters).
- » Equipped with automation, fire safety, racking systems, and temperature control.
- » Ideal for e-commerce, FMCG, automotive, and 3PL companies.

According to a recent report, the share of “Grade A(A+)” warehousing demand rose from ~39% in H1 2024 to ~55% in H1 2025.

GRADE B WAREHOUSES



- » Mid-level facilities, often converted industrial sheds.
- » Basic infrastructure — limited automation, moderate height (6–8 meters).
- » Reasonably accessible but not always near major highways.
- » Suitable for regional distribution and medium-scale businesses.

According to JLL India, in H1 2024 across the top eight Indian cities the average rent for Grade B warehouses was ~₹20 per sq ft/month, which was up ~6.4% YoY.

GRADE C WAREHOUSES

- » Conventional or makeshift storage spaces (godowns, basic sheds).
- » Poor infrastructure — low height, manual handling, limited safety systems.
- » Local distributors, traditional retail stores.
- » Agri/commodity storage.
- » Low-cost 3PL uses.
- » Overflow storage for seasonal goods.
- » Some micro last-mile hubs in smaller towns.

warehousing industry is evolving into a strategic enabler of trade, manufacturing, and sustainability. With expanding Tier-2 and Tier-3 hubs, digital integration, and green compliance gaining pace, India is well on its way to becoming a global warehousing powerhouse — where logistics moves from being a cost centre to a competitive edge.

India’s warehousing evolution is no longer about where goods are stored — it’s about how efficiently they move, how sustainably they’re managed, and how strategically they power growth.

From storage to strategy, the country’s warehouses are redefining logistics for a trillion-dollar economy in motion.

Could you share an overview of Essar Ports' current port and terminal capacities, along with the cargo volumes being handled today?

Essar Ports has been one of the foremost port companies in India, having created world-class assets at scale. Over the past three decades, the company created state of the art, mechanised port capacity of 220 MMTPA, covering liquid, dry bulk, and break bulk facilities across East and West coast of India, North America, the UK and Indonesia.

We have monetised about 160 MMTPA of capacity at rich valuations. Today, Essar Group has a total port capacity of 60 MMTPA, comprising 20 MMTPA in Salaya, Gujarat. This is an all weather, deep draft, dry bulk cargo terminal facility.

At Salaya, we are also developing a Gati Shakti Railway Terminal under the PM Gati Shakti Scheme, connecting our facility directly to the national railway network and the Western Dedicated Freight Corridor. This will enable Salaya port to cater to the entire North Western hinterland of India. In the UK, we have 8 berths with 3 mn m³ of storage capacity, this is the largest liquid terminal in the UK. In Indonesia we have a 20 MMTPA coal terminal, this is located in coal rich region of Kalimantan. Overall, we are growing as a global player in the industry.

Essar has historically had a strong presence in port operations. After divesting a few assets in recent years, do you see the company re-emerging as a significant player in India's logistics and port infrastructure sector?

Absolutely. Ports have always been one of Essar's core businesses, and they continue to hold a key place in our long-term growth strategy. We are committed to expanding our footprint in the port

In this interview, **Ashish Rajgarhia**, Executive Director of Essar Ports, shares insights on the groups vision to expand its footprint in the port sector.



Essar Ports

Building digitally enabled green and smart ports

sector globally and particularly in India, recognizing its pivotal role in driving trade, connectivity and long-term economic growth. Further, all of Essar's industrial units, be it Steel plant, Refinery, Power plant have always been alongside the port, as such, we have a large captive requirement within the group itself which we cater to. Alongside this organic growth, greenfield and brownfield projects, we are also pursuing an inorganic strategy; exploring potential acquisition opportunities, participating in PPP opportunities, and developing inland terminals. Together, these initiatives are aimed at building a portfolio of nearly 200 MMTPA capacity. The focus is on creating green and smart ports that are digitally enabled, environmentally sustainable and globally competitive.

How do you assess the current state of India's port and logistics infrastructure? With heightened competition among private and public ports, do you still find the sector attractive for fresh investments?

The Indian Government has unveiled Amrit Kaal Vision 2047 - a comprehensive roadmap for maritime transformation over next 25 years enabling India's leap towards a global maritime hub. The objective of it is to cut down business cost, reduce environmental degradation, improve logistical efficiency, and create jobs. The sector is steeped in opportunities as all India Port Capacity is set to increase to 10,000 MMT, and traffic to ~7,000 MMT by 2047. The government aims to attract ₹75-80 lakh crore for maritime investment by 2047, which shows the scale of ambition

and opportunity available.

The Government of India's vision through Sagarmala, Bharatmala, PM Gati Shakti, and the 3,300 km Dedicated Freight Corridors are modernising ports, highways, and multimodal logistics, envisions to make India a global hub for trade and connectivity. The port sector has plenty of opportunities, and competition is always positive as it makes port operators more efficient and globally competitive.

Over the last two decades, the industry has seen major changes, which have made it one of the most competitive sectors worldwide. This healthy competition will help Indian port players strengthen their position and grow as strong global players, which is exactly what we are aiming for.

In terms of focus areas, are you looking more towards bulk cargo, liquid cargo, or container handling for future investments?

Our focus is on Energy Transition with clear process to handle clean and green cargo like LNG, biofuels, green ammonia and containerised cargo. However, bulk cargo will continue to remain a strong foundation — especially coal, iron ore, and dry bulk linked to power, steel, and industrial growth. Our Salaya terminal is a fully mechanised deep-draft bulk facility, and we are considering expanding it by an additional 50 MMTPA to serve not just traditional bulk but also new segments.

Containers, too, are critical for the future. With containerisation in India still below the global average, there is huge potential. We are actively exploring investments in container handling facilities at Salaya, integrated with rail and road corridors, to ensure lower logistics costs for customers in north-west India and beyond.

Our future focus will be threefold: strengthening bulk, diversifying into energy-linked

liquid cargo, and building capacity for container growth. This mix positions Essar Ports to serve both India's traditional industries and its new-age growth drivers.

Have you already identified or shortlisted any specific investment opportunities or projects?

At Essar Ports, we are targeting both organic and inorganic growth opportunities as well as brownfield expansion potential. Several opportunities are under assessment, and we are confident that our investments will both complement government initiatives and deliver long-term value. Some of the projects under assessment are linked to Essar's

Our focus is on Energy Transition with clear process to handle clean and green cargo like LNG, biofuels, green ammonia and containerised cargo. However bulk cargo will continue to remain a strong foundation — especially coal, iron ore, and dry bulk linked to power, steel, and industrial growth.

upcoming industrial units, and others will be on purely merchant basis. Our direction is clear: build ports of the future that can anchor India's growth story.

From your perspective, what are the key enablers needed to accelerate port infrastructure growth in India? Are there particular policy measures you would like to see streamlined or strengthened?

We have to focus on port-based industries, manufacturing sector, and international trade to drive cargo at port which will enhance the viability of the investment on the new port infrastructure. Accelerating the capacity growth of port sector will require a carefully sequenced set of enablers.

In the immediate term, the priority must be to address connectivity bottlenecks by strengthening last mile road and rail links to major ports, simplifying regulatory processes through single window digital clearance, and faster approvals.

Medium term focus should shift towards structural transformation – expanding port capacity through new berths, deeper channels and mechanisation. In the broader horizon, India must build fully green and smart mega-ports with AI driven digitised operation. We should keep expanding and modernizing capacity.

India has handling capacity of over 2,600 million tonnes a year, but by 2047 we are aiming to touch nearly 10,000 million tonnes as per the Amrit Kaal Vision. Focus should be on building new deep-draft mega ports, while upgrading existing ones with automation and smarter systems.

What is the investment outlay for ports?

Before monetisation, we had 220 million tons capacity. Currently, we are at 60 million tons. The goal is to reinstate capacity to 200–250 million tons, adding 150–200 million tons of new capacity—part captive, part commercial. Investment will be funded through a mix of debt and equity. While we don't want to quote a number yet, the group is committed to spend whatever capex is required. In broad terms, it could be in the range of \$2–3 billion over the next 2–3 years. 📍

Open skies, seamless corridors

GMR's vision to make Bhogapuram India's next cargo hub



In this interview, **Sanjiv Edward**, CEO-Cargo & Logistics, GMR Group, highlights how India's Open Sky Policy and reforms enabling multi-airport access and sea-air corridors like Bhogapuram-Vizag can transform Andhra Pradesh into a leading multimodal cargo hub.

How do you define the Open Sky Policy in the Indian context, and what policy reforms are needed to permit foreign cargo carriers to operate from multiple airports within a state? In what ways could this help Andhra Pradesh establish itself as a leading cargo hub?

Open sky policy refers to a regime wherein there is unrestricted access to one's market within passenger and / or cargo services such as in India, Non-Schedule Freighters being allowed to operate from any airport in India. This allows Indian Economy to work efficiently to

cater to global supply chains with necessary equipment and supply at the airside for optimum gains. With this Andhra can attract global freighter companies, which is needed for a Hub creation and to sustain air traffic demand, as and when required, for fulfilling the global supply chain emitting from fast growing industrial infra in the state given the fact that Andhra Pradesh's Gross State Domestic Product (GSDP) growth rate for the fiscal year 2023-24 was 10.44 per cent (at current prices). For the first quarter of the fiscal year 2025-26, the state registered a growth of 10.50 per cent, surpassing the national GDP growth of 8.80 per cent.

Global hubs like Dubai and Singapore have successfully

built integrated air-sea logistics ecosystems. Are there any Indian airports that have adopted a similar model?

For a global hub such as Dubai and more specifically to DWC – Al Maktoum International Airport, there is a well-established logistics connection between DWC and Jebel Ali Port, this integration establishes Dubai "Sea-Air Hub," facilitating unified, bonded transfers of goods. Aforesaid dedicated corridor establishes the fact of Dubai's infrastructure and strategic location to create a powerful multimodal hub, allowing cargo to move efficiently between the port and the airport, often within hours for critical shipments. This can be replicated here between Bhogapuram and Vizag Port for greater synergies.

And therefore Air-Sea model is a proven method to reduce



cost and time for an agile supply chain system. And all such airports which are close to sea ports have built in this facility and product to aid the trade. With its geographic advantage, on the east coast of India (with major productions powerhouses – Electronic,

Greenfield airports like Bhogapuram give us a chance to design them from day one. The masterplan already includes a cargo village, and the state is planning highways and ring roads that link ports directly.

Engineering, RMG, Sea Food etc. in SE Asia) – Bhogapuram could be the next biggest proponent of the same. In fact, with its advantage of 'Green Field Terminal' it is rightly poised to become the leading Air to Sea port of the country.

Further proximity to sea port while being advantageous can also be the catalyst for growth and geography plays a key part. As we know that inland ports – CFS / ICDs play the same role as a sea port. And therefore, we need to ensure that we are adequately connected to the same via multi-modal chains or multimodal logistics parks.

Therefore, looking at the success of SIN, HKG, DXB etc. we must have a smooth, IT driven TP process with regulatory support to fulfil multimodal TP module.

What steps should be taken to create internationally recognized certification hubs within India?

The pharmaceutical industry is India's pride, and it needs logistics that meet the same global standards. To be credible as a certification hub, we must combine

three elements.

First, certified infrastructure at airports i.e., GDP and CEIV-compliant pharma zones, multi-temperature warehouses, segregated docks, and continuous monitoring. At Hyderabad, GMR already operates a dedicated Pharma Zone that meets WHO and GDP standards.

Second, on-site accredited testing. Today exporters often wait for off-site labs or even overseas validation. By setting up NABL or Central Drug Testing Laboratory satellite units inside the cargo precinct, we can deliver certification in 24–48 hours right where shipments are accepted.

And third, end-to-end certification. Airlines, handlers and terminals all need to be part of the same CEIV or GDP-certified lane. The good news is the momentum is already there, Air India recently obtained GDP certification, and several handlers have CEIV-certified facilities in Mumbai and Hyderabad.

The opportunity for India is to scale what Hyderabad has pioneered i.e., replicate pharma zones at other airports, bring accredited labs on campus, and certify entire supply chain lanes. That will firmly position India as a trusted global hub for pharma exports.

We need to ensure our process of manufacturing withstands any scrutiny at any juncture without fail. This will ensure the quality that we guarantee across the board. And while we adopt globally acclaimed certifications such as CEIV and GDP which are of global standards, we must include our own quality standards and be open to external audits in our Foreign Trade agreements such as FTAs etc. This will ensure quality standards at overall levels, and acceptance thereof, also giving opportunity to buyers to assess their own needs. This will ensure customer confidence and aid

towards internationally recognized certification hubs within India.

Do we currently have any airport-seaport corridors in India that allow seamless, time-bound cargo transfers?

Yes, as noted above, some traffic does exist but we do not have dedicated infra just for air to sea cargo. We must create dedicated TP lanes for such shipment for faster and efficient movement under custom bond for the same. Imagine this lane could service a pharma shipment which is not only timebound but critical to save a life. For example, in 2010, in Delhi during commonwealth games, there were many such corridors created, on existing roads for games buses to travel within city without any hindrance. Bhogapuram can be a pilot project to create this kind of a facility and be a global hub.

Greenfield airports like Bhogapuram give us a chance to design them from day one. The masterplan already includes a cargo village, and the state is planning highways and ring roads that link ports directly. If we add bonded logistics land, digital customs integration, and secure commitments from an anchor integrator, Bhogapuram can be India's first real sea-air hub for exports like seafood, pharma and perishables.

It's about vision and Bhogapuram has all the ingredients to make that vision work.

How can the industry minimize handling points, while ensuring higher safety and still promoting multimodal efficiency?

Every time cargo is handled, the risk of damage or temperature excursion increases. The solution is simple i.e., fewer handovers & stronger custody. 

Pangaon ICT

An untapped reefer gateway

Ahamedul Karim Chowdhury, Independent Consultant, Former, Head of ICD, Kamalapur & Head of Pangaon ICT



Bangladesh's Pangaon Inland Container Terminal (PICT) sits on the Buriganga River about 13-15 km southwest of central Dhaka. Opened in 2013, it was Bangladesh's first river-port terminal and was designed to handle about 116,000 TEUs per annum. The facility includes two berths, a 180-meter quay, and a 3,500 TEU static capacity if install RTG as yard equipment in container yard. It was built to ease congestion at Chattogram Port but remains underutilized. With Dhaka's growing metropolitan population of around 24 million, Pangaon's proximity to the capital gives it unique potential to handle refrigerated imports and reduce logistics pressure on seaports.

Analysis

Strategically, Pangaon ICT's location is ideal. The terminal lies 283 km upriver from Chattogram's

deep-sea anchorage, but just 15 km by road from Dhaka's consumer market. Despite its design capacity, throughput remains far below expectations. Official figures suggest around 30,000 TEUs were handled in 2023—only about a quarter of its potential. By 2024, monthly volumes dropped below 4,000 TEUs, a utilization rate of less than five per cent.

One of the biggest deterrents is cost: routing containers through Pangaon adds roughly \$800-1,000 per TEU compared to direct movement through Chattogram, even though the river route is environmentally friendlier and less congested. Bangladesh imports significant volumes of fresh fruit, sourcing more than 85 per cent of total consumption from abroad. Yet only about 30 per cent of local demand is met through domestic production, highlighting the growing dependence on imported perishables. Pangaon could serve

as a refrigerated cargo hub for Dhaka's wholesale markets—only a 15 km haul away.

The terminal has basic reefer infrastructure with 48 plug points for refrigerated containers, but operational use is nearly zero. Carriers like Maersk currently not accepting any reefer deliveries to Dhaka or Pangaon. Without stable power, temperature-controlled storage, and reliable transport links, importers are forced to clear perishables through Chattogram, adding both distance and time.

Connectivity and access challenges

One of the most critical challenges for Pangaon ICT is road connectivity. The terminal's potential is undermined by limited direct access to Bangladesh's export-oriented industrial zones located in Savar, Tongi, Kaliakoir, Maona, Bhaluka, and the Mymensingh region. Although the



government planned a 'Middle Circular Road' to connect these industrial belts around Dhaka, large portions of the route remain incomplete. The most crucial missing link is the 17+ kilometer stretch between Kalakandi



The most crucial missing link is the 17+ kilometer stretch between Kalakandi and Hemayetpur. Once this segment becomes operational, it will directly connect Pangaon ICT with the country's major manufacturing clusters, ensuring faster cargo movement, reducing transportation costs, and boosting export efficiency.



and Hemayetpur. Once this segment becomes operational, it will directly connect Pangaon ICT with the country's major manufacturing clusters, ensuring faster cargo movement, reducing transportation costs, and boosting export efficiency.

Freight and operational constraints

Mainline operators have shown limited interest in promoting Pangaon ICT. Many continue to impose disproportionately high

freight premiums on both dry and reefer containers, rather than offering competitive rates based on actual cost structures.

This approach discourages exporters and importers from using Pangaon despite its strategic location. Additionally, local barge and small ship owners operating between Chattogram and Pangaon have formed syndicates that artificially inflate freight rates. Such practices reduce cost efficiency and hinder the competitiveness of Pangaon's inland shipping services.

Recent developments

Momentum for Pangaon's revival has gained attention in 2025 following a proposal by Mediterranean Shipping Company (MSC) to invest around \$400 million to modernize and operate the facility.

The project, under consideration as a public-private partnership with the Chattogram Port Authority, includes major upgrades such as automated cranes, yard expansion, digitalized operations, and channel dredging for larger barges.

MSC plans to deploy small inland ships linking Pangaon with Chattogram, Mongla, Paira and Upcoming Matarbari maybe and even to build cotton storage facilities for Dhaka's textile industry. Negotiations remain ongoing, and if approved, this could become a landmark investment transforming inland logistics connectivity for the capital region.

Challenges

- High costs and low traffic: Pangaon-bound shipments cost \$800–1,000 more per TEU than Chattogram, undermining competitiveness.
- Minimal vessel calls: The frequency of feeder vessels has dropped to roughly three per month, making planning unreliable for importers and exporters.
- Customs delays and inefficiency: Coordination between customs, port operators, and freight forwarders is still poor, adding up to three to four days to total transit time.
- Lack of cold-chain facilities: There is no dedicated cold storage or temperature-controlled warehousing to support reefer operations, despite available plug points.
- Absence of direct carrier incentive: Since MLOs prefer high-yield, high-volume seaport operations, they rarely extend service to Pangaon even though it offers greener logistics and reduced road congestion.
- Distance and syndicate issues: Pangaon's upriver location and unregulated trucking syndicates around Keraniganj often inflate haulage costs, eroding any potential savings from waterway transport. 🚫



A playbook for increasing Indian shipping tonnage

Building a stronger maritime nation



MM Saggi

India's maritime sector stands at an inflection point. With a fleet of around 1,600 vessels and 14 million gross tonnage, the country controls barely 7 per cent of its EXIM trade — a paradox for a nation with a vast coastline, strategic location, and rapidly expanding trade base

As global shipping majors begin reflagging vessels to India, the time is ripe for a bold policy shift that aligns national interest with shipowner incentive. This article outlines a pragmatic playbook for augmenting Indian shipping tonnage, ensuring tangible benefits for both the flag state and the shipping community.

1. Defining the Principle: A Win-Win for Flag State and Shipowners

Tonnage augmentation succeeds only when policies deliver mutual value. For the flag state, the reward lies in enhanced trade security, employment, and economic activity. For shipowners, it must translate into tax efficiency, ease of operation, and credibility. The foundation of growth must rest on this symbiotic equation — national interest coupled with commercial viability.



2. Learning from Global Models: Open, International, and Hybrid Registries

Open registries such as Panama, Liberia, and the Marshall Islands thrive on simplicity — low or no taxes, flexible crewing rules, and global management freedom. For

these nations, ship registration revenues significantly boost GDP, making them global leaders in tonnage. Hybrid or international registries, like the Norwegian International Register, strike a balance between national control and commercial freedom. They

retain national tonnage by offering operational flexibility and fiscal benefits comparable to open registries, while maintaining high standards and credibility. Asian hubs such as Singapore and Hong Kong present a nuanced approach — requiring local office presence to generate employment and support services, while still ensuring low tax burdens and high regulatory credibility. This ensures mutual economic benefit and enhances their global influence. India can draw from each model to design a tiered, competitive registry framework.

3. The Case for Indian Tonnage Growth: Strategic and Economic Rationale

India's tonnage expansion isn't just an economic aspiration — it's a strategic imperative. Greater control over EXIM carriage enhances:

- Trade and energy security, reducing dependence on foreign fleets.
- Employment generation, both onboard and across ancillary sectors — shipbuilding, ship repair, ship management, broking, and marine insurance.
- Foreign exchange savings, as Indian-flagged ships retain freight earnings domestically. Export competitiveness, through rationalized freight and reduced logistics cost.
- Geopolitical influence, positioning India as a maritime power in the Indo-Pacific.

An initial goal of 40per cent share in EXIM trade (from 7per cent today) would mirror global norms of balanced cargo participation (40:40:20 among exporting, importing, and third-party carriers).

With EXIM trade estimated at \$1,000 billion and average freight at 5per cent, Indian-flagged vessels could potentially capture \$20 billion in freight revenue —

a sixfold increase over current levels — resulting in foreign exchange savings ofc \$16.5 billion annually.

4. Financing Growth: From Subsidies to Smart Tax Incentives

Traditional subsidy models for shipbuilding and fleet expansion are unreliable, as ship ordering cycles fluctuate and fiscal space remains limited. Instead, India should pivot toward long-term tax exemptions and subventions:

- Zero or minimal taxation on ship earnings and imports.
- Duty and GST exemptions for ship spares, bunkers, and related services.
- Tax holidays for shipowners establishing management or crewing offices in India.

Since the current revenue from Indian shipping is negligible, such “losses” would be notional — yet they could unleash exponential future gains in tonnage, trade, and employment.

5. Building Confidence through Long-Term Contracts and Financing Support

Long-term charter contracts, ideally for the vessel's life cycle, provide revenue predictability, which comforts financiers and attracts investment. Linking charter hire to regional freight indices ensures fairness for both shipowners and cargo interests. India should also strengthen ship financing through domestic banks, insurance companies, and leasing mechanisms, backed by policy assurance.

6. Leveraging Bareboat-Cum-Demise (BBCD) Registrations

The BBCD model can rapidly expand the Indian fleet by allowing chartered vessels to temporarily fly the Indian flag with cargo preference benefits. This mechanism requires minimal upfront capital, offering a bridge to

full ownership while immediately boosting national tonnage and employment.

7. Creating an Indian International Register (IIR)

An Indian International Register could attract Persons of Indian Origin (PIOs) and Indian-controlled foreign fleets. Offering tax parity with open registries, operational freedom, and partial cargo preference, such a register would channel national capital back under the Indian flag — much like Singapore's early model.

8. Linking Incentives to National Interest

Tax reliefs, cargo preferences, and other benefits should be gradually conditioned on domestic linkages — for instance:

- Ships built or repaired in India.
- Employment of Indian crew.
- Financing through Indian banks.
- Insurance via Indian underwriters.
- Management and chartering through India-based entities.

This will build a self-reinforcing maritime ecosystem that supports the shipbuilding, repair, finance, and insurance industries.

9. Reforming the Flag Administration

Even the best fiscal incentives will falter without administrative efficiency. India must streamline registry procedures, digitize approvals, delegate or outsource routine functions, and benchmark services against global standards. Efficiency and credibility are the true magnets for tonnage. 🇮🇳

(The author is a former Nautical Advisor to Govt of India, Past Independent director Shreya Shipping and Logistics, Member Governing Board, Academic Council and BAR - IMU, Ex Trustee Mumbai, Kandla & JNPT.)

Pharma supply chain

Coping with infrastructure, regulatory, and cold chain hurdles



Q&A with **Venkata Ramana Vijaya Bhaskar Burra**, Director, Supply Chain Management, Pfizer Healthcare India

Could you outline the key challenges your company faces in managing imports and exports of pharmaceutical products?

The challenges that come to my mind are more related to the infrastructure and limitations we have. Despite Vizag's emergence as a pharma hub, there is a huge opportunity for improvement in infrastructure, which remains underdeveloped. For our ocean shipments, container availability, especially the reefer containers, has been a continuous challenge.

We always get the response of blank sailing, which sometimes disrupt our bookings and planned exports. As we all appreciate the fact that no infrastructure or regulatory capability at our existing Airport to handle Pharma exports and imports. While we are really awaiting Bhogapuram airport to start operations, global connectivity remains a concern to be seen and addressed.

How do customs procedures, documentation requirements, or delays impact your supply chain efficiency?

Customs documentation is a critical bottleneck in pharma logistics. The need for precise and complete paperwork—such as Certificates of Analysis, Origin Certificates, and detailed packing lists—can delay clearance if not properly managed. In the recent past ICEGATE software implemented by Customs has thrown intermittent challenges due to documents approval. We also observed that the documents go for review to any official in their network.

Those who review our Pharma documents every day is a challenge in itself for us to explain, as we do not expect them to know our process, requirements. Above this, if the documents go for review to an official in a different zone is a challenge for timely approval. We recently experienced a delay on a Friday, and the containers and trucks were detained for three days, missing our connecting schedules.

How do you handle risks of temperature deviations, especially during air transit and last-mile delivery?

Cold chain integrity is maintained through validated warehouses, qualified packaging, and to make sure that our consignments are intact, we expect real-time monitoring using IoT sensors and GPS trackers from service providers. While we get some amount of data, still awaiting further improvements in this process of tracking. Container and vehicle inspections are mandatory before loading, with documentation for traceability.

Deviations are logged and investigated using structured SOPs and CAPA frameworks. Temperature deviation is tracked as a KPI, used as a proxy for product potency and safety. Any deviation triggers immediate review and corrective action. There is quality infrastructure at the airports to handle pharma consignments, which require trained resources to maintain the intactness and integrity of the consignment, may it is an import or an export.

While handling the pharma consignments, we should keep in mind that value is not always the criterion; mishandling and rejection could cause delays in our projects. This may have bigger and serious impacts in our pursuit of serving patients on time in full.

Can you share examples of any shipment failures due to temperature excursions,

and how those were managed or prevented in the future?

Pharma cargos require various infrastructures to handle DG cargo, consignments require ultra-cold chain solutions, etc. We have excursions which are for different lengths of time. When we receive the consignments with such excursions, we keep them aside and dispatch only when proper documentation support is available with respect to stability.

For our ocean shipments, container availability specially the reefer containers have been a continuous challenge. We always get the response of blank sailing which sometimes disrupt our bookings and planned exports.

In the process we experience delays which result in additional cost to send the finished products by air, instead of ocean shipment. We have seen the cases where the shippers have placed data loggers wrongly and false excursions occur. But we have to address these deviations and provide CAPAs, which again, is a time taking process.

Have you faced specific bottlenecks when dealing with different trade lanes?

That is a valid question, as the lanes, whether an ocean or an air shipment, need to be pre-validated for the Pharma consignments. This occurs before we get the appropriate approvals to execute shipments through these routes. For example, in the

recent past, due to the Suez Canal issue, the consignments had to reroute through the Cape of Good Hope. Pharma companies have to establish the validation through Quality Risk Management documents, and as part of this risk, and so to avoid time loss, commercial consignments are validated by taking risk. As we all KNOW, it is always a challenge when the air consignments are routed through the Middle East or Africa, the high temperatures during summer being a big challenge. Equally, the cold weather conditions in North America pose considerable issues during the winter seasons.

What systems or escalation mechanisms do you have in place to break the cycle of recurring problems? How responsive are airlines and cargo handling agents in addressing these problems?

Most larger pharma organisations have structured, tiered escalation mechanisms for issue resolution and guidance. Any repeated deviation is taken seriously, and organisations, to my experience, leverage their skilled resources by using various data analytics techniques. They have Quality Management Systems and Quality Tracking Systems, which address these issues. These systems also help the teams to understand any history and what actions were implemented, besides looking at the effectiveness of the implemented actions.

I really like the second part of the question, as that is still a challenge for the pharma cargo to get timely and effective CAPAs from the logistics service providers and liners. The CAPAs given most often lack robustness in terms of identified solutions, and any repeat of these incidents is thoroughly reviewed in both internal audits and external inspection in the pharma companies.

What collaborative measures between pharma companies and airlines could improve reliability and speed?

Let me refer to the Indian Pharma companies which are involved in the generic medicines' supply to regulated markets across the globe.

This has been increasing at a healthy rate every year, with existing volumes and the new product volumes getting added. This puts emphasis on making end-to-end supply chains even more robust, including the cold chains. Most often, generics players leverage air cargo for new product launches, as faster deliveries help them to capture better market share. Hence, collaboration and knowledge sharing with logistics service providers and airlines becomes the most important part of the communication we make.

Which has to clear and get the true feedback, so that the colleagues in the Air Cargo logistics understand the criticality as to how to handle these consignments which require different controls and how and when to intervene if need be. Also, help them understand the responses in a timely manner and effectively when there are deviations observed.

What policy changes would you recommend in India to simplify cross-border pharma logistics?

First and foremost, policy change should be rendering the right confidence for the ease and speed of doing business in India. Though it might sound crazy, with the pace at which the pharma manufacturing is growing, 24x7 support from the government agencies for clearing the consignments, both imports and exports. 

The express logistics boom

Speed, scale & next-gen delivery



In this interview, **Satish Lakkaraju**, CEO of Nexgen Logistics and Board Member at ACFI, discusses how Tier 2 and Tier 3 cities are emerging as game changers in India's logistics sector.

The Indian express deliveries market has been expanding rapidly. How do you view its current state?

The Indian express logistics sector has been on a remarkable growth trajectory. In 2018, it was valued at around ₹22,000 crore and by 2023, it had crossed ₹32,000 crore. This is no surprise, given how e-commerce, digital payments, and technology adoption have transformed the landscape. The momentum is far from over. We expect the sector to continue growing at a CAGR of 19–23 per cent through FY2030, with Tier 2 and Tier 3 cities emerging as strong growth engines. While last-mile domestic logistics continues to evolve, we see cross-border express deliveries becoming an equally powerful driver, particularly as global e-commerce flows expand and the Indian diaspora seeks reliable shipping solutions from home.

What factors have contributed to this strong post-COVID growth?

The pandemic fundamentally altered consumer behavior. Online shopping, which was once a convenience, has now become a long-term habit. The ease of

digital transactions through UPI and mobile wallets has further accelerated this shift. In addition, cross-border demand has taken off in ways we couldn't have imagined a decade ago. Platforms like Garudavega and GarudaBazaar have seen an influx of demand from NRIs and overseas buyers looking for secure and affordable deliveries from India. It's this combination of digital adoption, behavioral shifts, and diaspora demand that continues to sustain growth.

How do you see different segments contributing to the market's growth?

Domestic B2C e-commerce remains the dominant contributor, but we are seeing outbound cross-border shipments grow rapidly. SMEs and individual exporters are increasingly looking at global markets, and the diaspora demand is consistently strong—whether it's for food items, electronics, or cultural products. Interestingly, religious and cultural customs have also become a key driver of C2C and B2C logistics. On the policy side, initiatives such as the Foreign Trade Policy 2023, new PLI schemes, and FTAs with countries like the UAE

and UK are giving exporters greater confidence. Together, these factors are reshaping the balance between domestic and cross-border express deliveries.

Tier 2 and Tier 3 cities are increasingly being mentioned. What role are they playing?

They are game changers. Earlier, international shipments were largely concentrated in metros. Today, small businesses in places like Guntur, Vizag, Coimbatore, Guwahati, Imphal, Shillong, and Bhubaneswar are directly exporting to global markets such as the US, UK, and UAE. This is nothing short of a democratization of international trade. It means that global connectivity is no longer the privilege of large cities—it is spreading deep into the heart of India.

Technology clearly underpins a lot of this growth. How has Garudavega leveraged it?

Technology has been central to scaling our operations. We've built real-time tracking systems that work across multiple geographies, automated customs documentation to smoothen cross-border processing, and

dynamic pricing algorithms that balance cost and performance across shipping zones. Our mobile app has become a critical tool for customers—it allows them to schedule, track, and manage shipments conveniently.

Quick commerce has been transforming customer expectations. How is this trend influencing you?

Even though Garudavega doesn't operate directly in the domestic Q-commerce space, the impact is undeniable. Customers now expect speed, transparency, and real-time visibility everywhere. In response, we've expanded our global hubs to support 3–5 day deliveries to key destinations like the US, UK, UAE, and Australia. We've also scaled pickup-on-demand services in Tier 2 and Tier 3 cities, covering an ever-expanding list of zip codes. Abroad, we partner with local last-mile players to ensure faster deliveries at the customer's doorstep.

What are the biggest operational challenges in cross-border express logistics?

There are several. International air cargo capacity from Tier 2 cities is still limited, and express gateways are concentrated in hubs like Delhi and Bengaluru. Customs clearance delays at destination countries, changing tariffs, and varying regulations also create hurdles. Service quality can differ across last-mile partners, depending on geography and even geopolitics. Documentation for personal shipments is another ongoing challenge, as these are not always streamlined under conventional trade systems. To overcome these, we've established centralized hubs in cities such as Bengaluru, Chennai, Hyderabad, Mumbai, Cochin, and Delhi where we consolidate, clear, and dispatch cargo efficiently.

How competitive is the express delivery landscape today?

The competition is intense. Domestically, Q-commerce and e-commerce-driven models are reshaping customer expectations. Internationally, the market is fragmented, with many aggregators and integrators entering the fray. What differentiates Garudavega is our regional trust and personalized service, especially for the Indian diaspora. Customers choose us because of our speed, transparency, and reliability, but also because we've built consistency and trust over the years.

What must legacy courier companies do to stay relevant?

They need to modernize. Real-time shipment visibility is now non-negotiable, and regulatory expertise in cross-border logistics is critical. Sustainability too cannot be ignored. Companies must invest in EV fleets, eco-friendly packaging, and carbon tracking. Globally, best practices like urban consolidation hubs and automated sorting systems are raising efficiency levels.

Speaking of sustainability, what steps are you taking?

Sustainability is at the heart of our growth strategy. We are optimizing routes to reduce fuel consumption, partnering with EV-first fleets for pickups in India, and actively exploring carbon offset programs for international air freight. Overseas customers, in particular, are increasingly conscious of environmental impact, so these initiatives aren't just about compliance—they align with customer expectations as well.

What policy changes would you like to see to support cross-border express growth?

There are a few critical gaps. Clearance procedures for C2C and personal effects need simplification.

India's Foreign Trade Policy should provide clearer guidelines for courier-mode imports and exports. Return shipments also need faster processes, as current rules vary widely by weight and value. Finally, there should be incentives for creating regional cargo hubs and bonded warehousing near Tier 2 cities.

What is Garudavega's vision for expansion?

We are already operating from over 440 locations across India and aim to cross 1,000 locations within the next four years. The vision is simple: to give every Indian, regardless of geography, equal access to reliable cross-border logistics. To do this, we are adopting a hub-and-spoke model that ensures quality even as we scale. We're expanding through franchise partnerships, regional alliances, and smart technology integrations.

Tier 2 and Tier 3 cities are game changers. This is nothing short of a democratization of international trade. It means that global connectivity is no longer the privilege of large cities—it is spreading deep into the heart of India.

Finally, can you give us an overview of Garudavega's position in the market?

Garudavega, under NexGen Logistics Pvt. Ltd., is now a premier brand in cross-border courier services for the Indian diaspora. We deliver parcels, cargo, and documents to key markets including the US, UK, Canada, UAE, and Australia. Beyond this, NexGen Logistics also provides freight forwarding, customs brokerage, and integrated logistics solutions. 

Beyond boundaries

How DP World uses cricket and golf to drive its global brand story

In an age where logistics brands compete not only in boardrooms but also in hearts and minds, DP World has redefined the playbook for corporate visibility.

In an age where logistics brands compete not only in boardrooms but also in hearts and minds, DP World has redefined the playbook for corporate visibility. By smartly aligning itself with two of the most powerful global sports — cricket and golf — the company has built a bridge between commerce and culture, between supply chains and shared passions. From the Beyond Boundaries cricket initiative to the DP World India Championship, the Dubai-headquartered logistics powerhouse has turned sports into a storytelling platform — one that humanizes trade, inspires youth, and demonstrates the company's broader purpose: making the world's trade flow better.

Cricket: a sport that connects nations and communities

For DP World, cricket has been more than just sponsorship — it's a social movement. The company's "Beyond Boundaries" initiative, launched alongside the ICC Cricket World Cup 2023 in India, exemplifies this purpose-driven marketing. Through the program, 50 repurposed shipping containers were transformed into mobile cricket pavilions, each stocked with equipment for grassroots clubs. These containers — placed in regions like Palghar, Maharashtra and Shivaji Park Gymkhana — doubled as shaded community hubs with scoreboards, seating, and

sun shelters. By blending logistics innovation with community development, DP World demonstrated that a container can carry more than cargo — it can carry opportunity. The initiative's association with cricket legend Sachin Tendulkar amplified its impact, giving it both emotional and cultural resonance. Tendulkar's advocacy for inclusivity — particularly his focus on safe spaces for girls in sports — added a deeper social layer, aligning perfectly with DP World's emphasis on diversity, empowerment, and equality.

The company also displayed marketing mastery by integrating social impact into fan engagement. For every 100 runs scored during the Cricket World Cup, DP World pledged additional cricket kits — a simple yet powerful concept that transformed spectators into participants in the brand's mission. This strategy not only showcased corporate empathy but also positioned DP World as a brand that plays for the community, not just the scoreboard.

Golf: positioning the brand in the league of global leadership

If cricket grounds DP World's identity in mass appeal, golf elevates it into the realm of global leadership, sophistication, and precision — values that mirror modern logistics.

The launch of the DP World India Championship (October 2025)



As the global leading provider of smart logistics solutions, we seek to change what's possible for everyone. We are confident that this new initiative will serve to make cricket possible for many young people across India and the world.



RIZWAN SOOMAR, CEO & MANAGING DIRECTOR, MENA (EXCLUDING GCC) & INDIA SUBCONTINENT

at the historic Delhi Golf Club is a bold statement of intent. The tournament — co-sanctioned with the Professional Golf Tour of India (PGTI) and part of the Race to Dubai "Back 9" series — boasts a record \$4 million purse, making it the richest golf event ever held in India. With Rory McIlroy, Tommy Fleetwood, Viktor Hovland, and Shubankar

Sharma teeing off together, the event positions India firmly on the world golf map while spotlighting DP World as the driving force behind that transformation.

This isn't just sponsorship — it's strategic brand architecture. Golf offers DP World a narrative of precision, planning, and global reach — the same attributes that define its logistics empire spanning 75 countries and 108,000 employees. The tournament's association with heritage (Delhi Golf Club's Lodhi-era setting) and modernization (Gary Player's redesign) also mirrors DP World's dual commitment to tradition and innovation.



serve as accessible training centers for underserved youth. The recent Clubhouse opening at ZEN Golf Range & Academy in Gurugram demonstrates how DP World integrates sustainability with inclusion — turning logistics infrastructure into community impact zones.

As Daniel van Otterdijk, Group Chief Communications Officer at DP World, aptly put it: "We're using logistics to create opportunities— giving new life to our containers and opening new doors for communities to connect with golf."

From fairways to freight lanes: a seamless brand philosophy

DP World's twin investments in cricket and golf reflect a carefully curated brand philosophy — where every sponsorship tells a story aligned with its business DNA. Both sports embody discipline, strategy, and global connectivity, much like logistics itself.

Cricket resonates across emerging markets — especially in India, the Middle East, and Africa, where DP World operates major ports and logistics parks. Golf, on the other hand, connects DP World with global decision-makers, investors, and influencers — extending the brand's narrative into premium, high-value circles.

Together, they form a 360-degree communication ecosystem — from village cricket fields to championship fairways — seamlessly blending mass engagement with elite positioning.

A masterclass in sports-driven brand positioning

In marketing circles, DP World's sports strategy stands out as a masterclass in experiential branding. It doesn't just borrow the spotlight from sports — it creates shared value for the communities, athletes, and industries it touches.

By weaving together sustainability (repurposed containers), inclusivity (youth and women in sports), and excellence (global tournaments), DP World has built a brand narrative that transcends logistics — one rooted in purpose, pride, and participation.

Whether it's the roar of a cricket crowd in Mumbai or the silence before a tee shot in Delhi, DP World's message is the same: Trade connects the world — and so does sport.



Complementing the championship, the DP World Clubhouse initiative expands the brand's social footprint. Constructed from repurposed shipping containers, these Clubhouses



A seismic shift in oil trade

US sanctions, Russia, and India's pivot

The decision by the United States Department of the Treasury to impose fresh sanctions on Russia's two biggest oil companies — Rosneft Oil Company and LUKOIL — marks a watershed moment in the geopolitics of oil, maritime flows and India's bargain-shopping in the crude market.

Between them, Rosneft and LUKOIL account for around 3.3 per cent and 2 per cent of global oil output respectively — in aggregate representing more than 5 per cent of global crude production. The sanctions freeze their U.S. assets, prohibit U.S. persons from dealing with them, and crucially signal the possibility of secondary sanctions against foreign entities — including banks, traders and refiners who continue to purchase their oil.

For global oil markets, this means two things at once: supply tightening (given constrained Russian flows) and re-routing/trade disruption as buyers scramble for alternative barrels. For India, which has been a major beneficiary of discounted Russian crude, the implications are especially acute.

Global oil markets: Pricing and cargo flows under stress, supply disruption, and price jump

The immediate market reaction was sharp. Brent crude shot up 5 per cent on the day of the sanctions announcement, as traders priced in the risk of Russian supply being squeezed, and importers forced to

shift away from discount Russian barrels. Analysts estimate the sanctions could curtail Russian exports by 0.5 – 1 million barrels per day (bpd) in the short term. The consequent effect: buyers who had relied on the heavily-discounted flows from Russia must now pay up, or source from costlier and longer-haul suppliers — which these sanctions effectively force them to do.

Cargo-flow disruption & rerouting

The sanctions further trigger a domino effect in shipping and logistics:

- Imports of Russian crude in India and China face sharp review. Indian refiners are already saying they will “sharply curtail” Russian oil imports to avoid falling afoul of the new U.S. restrictions.
- Redirecting flows means increased freight costs, longer supply chains, different tanker utilisation — all of which raise cost, complexity and risk for shipping firms, charterers and delivery schedules.
- The era of Russia's “shadow



fleet” and ship-to-ship transfers (used to squeeze through sanctions/price caps) is getting more exposed — which may increase the regulatory and insurance risks for vessel operators.

In short: Global oil trade is entering a higher-cost, higher-risk phase. Buyers who previously benefitted from deep discounts for Russian barrels will now either pay more or forego them — and shipping/logistics chains must adjust accordingly.

India's import strategy under test: India's strong position in Russian imports

In recent years, India emerged as a major buyer of Russian seaborne crude — leveraging deeply discounted barrels to feed its refining complex, raise margins and boost competitiveness. However, with the new sanctions targeting exactly the Russian companies from which Indian refiners import (Rosneft, LUKOIL) and raising the risk of secondary sanctions on intermediaries, the calculus is changing. Indian sources



say shipments tied to Rosneft/ LUKOIL will face cut-off after 21 November 2025 under the new rules.

Cost pressure and alternative sourcing

The effect for India:

- Less access to cheap Russian barrels means either sourcing

from other producers at higher cost, or renegotiating terms. That raises refining feed-costs and potentially squeezes margins.

- Higher feed costs translate into higher domestic fuel costs or thinner margins for refiners — unless compensated by government policy or by passing on cost to consumers.
- Shifting supply chains also means longer haul, more freight cost, and possibly different quality/grade issues (Russia's Urals vs Middle East or Africa).

Strategic and economic ramifications

Beyond cost, there are strategic questions:

- India's ability to lever discounted Russian oil for competitive advantage will be curtailed.
- Given that some U.S. tariffs on Indian exports to the U.S. stemmed from India's large Russian oil purchases, reducing Russian imports may ease trade tensions. For national energy security and refining

industry strategy, India now has to balance affordability with risk mitigation (financial, legal, regulatory) in a freshly complex global oil regime.

What this means for maritime and logistics sectors

For shipping, chartering and maritime service providers, the ripple effects include:

- Tanker trade patterns will shift. Vessels previously servicing Russia-India/China flows may see reduced volumes or need to re-deploy. Freight rates on certain routes may rise.

The sanctions freeze their US assets, prohibit U.S. persons from dealing with them, and crucially signal the possibility of secondary sanctions against foreign entities — including banks, traders and refiners who continue to purchase their oil.

- Insurance and financing for ships involved in Russian crude transport face higher risk. Some banks/insurers may shy away — increasing cost of capital or requiring more robust compliance.
- Ports, bunkering, ship-broking and ancillary supply-chains in India and elsewhere will need to re-wire logistics flows, adjust inventories, and manage supply-chain continuity.
- Strategic implications: Indian ship-owners, freight forwarders and logistics players will need to integrate regulatory and sanction-risk assessment more tightly into their business models.

Navigating the way ahead: Key take-aways for India & shipping stakeholders

1. Diversify crude sourcing: With Russian flows now uncertain, Indian refiners and logistics firms must expand upstream sourcing (Middle East, Africa, Latin America) and factor in higher freight/costs.
2. Upgrade compliance and risk-management: Shipping firms, charterers, ports and service-providers must adapt to heightened sanction-risk, ensuring that no part of their trade chain is exposed to secondary sanction regimes.
3. Re-evaluate contracts and finance: Long-term charters, freight contracts and ship-finance deals must include sanction-risk buffers, alternative sourcing clauses and logistic cost hedges.
4. Leverage scale and efficiency: India's refining and shipping sector must drive efficiency gains to offset higher feed-costs — e.g., larger cargoes, longer contracts, integrated logistics.
5. Policy coordination: Government must engage with refiners, shipping/ logistics players to cushion the transition — possibly via strategic reserves, cargo-preference mechanisms or refining incentives to smooth cost shock.
6. Maritime infrastructure readiness: With trade flows shifting, ports, bunkering hubs and shipping routes must adapt. India's major ports and refineries should anticipate changes and pre-position logistical support for new trade corridors. 

Shore leave

The vanishing lifeline in global shipping

Global trade thrives on speed, scale, and efficiency—but beneath this relentless drive is a largely unseen workforce of seafarers, whose sacrifices and silence sustain 90 per cent of world commerce. Their welfare, long overlooked in policy discussions, now demands urgent and deliberate attention.

Global trade thrives on speed, scale, and efficiency—but beneath this relentless drive is a largely unseen workforce of seafarers, whose sacrifices and silence sustain 90 per cent of world commerce. Their welfare, long overlooked in policy discussions, now demands urgent and deliberate attention. Yet, even as automation, digitalisation, and vessel sizes advance, one fundamental aspect of seafarer welfare is under unprecedented strain: shore leave. Once a routine respite from life at sea, shore leave has become increasingly rare, caught in the crosscurrents of port security, geopolitical tensions, commercial pressures, and systemic shifts in port infrastructure. As this crucial right diminishes, the consequences are being felt acutely—not just in crew morale, but in mental health

statistics, safety records, and legal compliance across the sector.

A systemic erosion of a basic right

Historically, shore leave has served as a vital decompression period, allowing seafarers to reconnect with normal life, seek medical attention, and enjoy fresh air beyond the steel confines of a vessel. But today, it is becoming a privilege few can count on. The International Transport Workers' Federation (ITF) reported in late 2024 that only 28 per cent of seafarers were regularly able to go ashore—a dramatic decline from 51 per cent in 2019, before the pandemic. While Covid-19 restrictions catalysed the initial decline, the trend has persisted due to more entrenched factors:

- Accelerated port turnaround times.
- Increased in-port operational

demands.

- Mega-port development has shifted key terminals far from city centres, making shore leave logistically difficult and time-consuming.
- Stringent visa requirements
- Geo-political tensions

These aren't temporary hiccups—they reflect deep structural changes in the shipping ecosystem that deprioritise crew welfare in pursuit of efficiency

The hidden human cost

The implications of restricted shore leave reach far beyond rest and recreation. According to a **2024 global mental health study** by the International Seafarers' Welfare and Assistance Network (ISWAN), 56 per cent of seafarers reported symptoms of anxiety or depression, with lack of shore leave cited as one of the top contributing factors. Alarmingly, the Seafarers Hospital



Society also found that seafarers are twice as likely as shore-based workers to suffer from poor mental health. One Chief Officer interviewed in a 2025 Seafarers' Rights International (SRI) report put it bluntly: "I haven't stepped foot on land for 142 days. It feels like the world outside has forgotten us." This is not just about emotional strain. Lack of shore leave contributes to:

- Increased fatigue and reduced alertness, linked to higher incident rates. The UK MAIB (Marine Accident Investigation Branch) has consistently flagged fatigue as a causal factor in maritime accidents
- Delayed access to medical care, with potentially serious health outcomes. A 2023 study in The Lancet Global Health found untreated health conditions among seafarers increased by 37 per cent during voyages with limited port access. Lower retention rates, especially among younger crew members, who cite mental health strain and isolation as key reasons for leaving the industry.

Shore leave Happiness Scores (2020-2025)

- Data from the Seafarers Happiness Index (SHI) over the past five years (2020-2025), focusing specifically on shore leave trends and key issues affecting seafarers' access to and satisfaction with shore leave.
- The analysis reveals that shore leave has consistently been one of the lowest-scoring aspects of seafarer happiness, with significant fluctuations related to the Covid-19 pandemic and its aftermath. While there have been improvements since the height of the pandemic, persistent barriers to shore leave continue

to negatively impact seafarer wellbeing.

The COVID legacy and post-pandemic challenges

- While the Covid-19 pandemic intensified shore leave restrictions, many of those limitations remain in place today. Health protocols, reduced port call durations, and crew change crises have normalized conditions where shore leave is seen as "optional" rather than essential. Some ports, especially in Asia and the Middle East, still impose quarantine requirements or deny shore leave outright.

It's surprising to note that where shore leave is concerned, USA and Singapore are one of the bigger defaulters- when it comes to access to shore leave, a large number of terminals are private due to which only limited access to the shore is allowed.

- Its surprising to note that where shore leave is concerned, USA and Singapore are one of the bigger defaulters- when it comes to access to shore leave, a large number of terminals are private due to which only limited access to the shore is allowed.
- The result? A generation of seafarers who have served contracts of up to 12 months without ever setting foot on shore.

Industry and regulatory response

Organizations like the ITF, ICS, and IMO continue to advocate for better conditions:

- The IMO's 2023 "Fair Treatment of Seafarers" guidelines emphasize the right to shore leaves as a part of decent working conditions.
- Ports like Rotterdam and Manila have implemented seafarer welfare hubs, allowing secure, monitored access to port cities.
- Global Maritime bodies should ensure compliance with MLC consistently.
- Several shipping companies now encourage shorter contracts (4-6 months) and prioritize port calls that permit shore access.

Still, enforcement remains inconsistent, and many seafarers are at the mercy of local authorities and port security policies.

What needs to change

For the industry to truly value its workforce, concrete action is needed:

1. Standardized global policies: A uniform, enforceable framework for shore leave rights across jurisdictions.
2. Digital shore leave clearance: Using blockchain or digital ID systems to streamline port entry for vetted seafarers, across the globe.
3. Increased advocacy: Greater pressure from charterers, shipowners, and flag states to ensure compliance with MLC regulations.
4. Investment in port welfare: Building and maintaining seafarers' centres that provide services, transport, and recreational activities. The MLC recommends that welfare boards are established at port, regional or national levels, as appropriate, to assist in the co-ordination of welfare services.
5. Prioritising seafarer's : Shipowners should look at the staff onboard as a long-term investment and prioritize their well-being. 

Where wind meets water

V.O. Chidambaranar Port (VOC Port) in Thoothukudi, Tamil Nadu, has rapidly evolved into one of India's foremost gateways for renewable energy exports, particularly for windmill blades and related components.

Leveraging its strategic location, specialized infrastructure, and growing global demand for clean energy, the port has positioned itself as a critical node in India's green export network.

A record-breaking performance

Over the past few years, VOC Port has consistently set new records in handling windmill blades, underscoring its growing dominance in this niche export segment. In August 2025, the port achieved a milestone by exporting 101 windmill blades on a single vessel, surpassing its earlier record of 75 blades in March 2025. Such achievements highlight both, operational efficiency and the port's readiness to cater to increasing export volumes from India's renewable energy manufacturers.

For the fiscal year 2024–2025, VOC Port reported a remarkable 40 per cent growth in windmill blade handling compared to the previous year. This upward trajectory has continued into 2025–2026, reflecting both the rising global demand for Indian-made renewable energy equipment, and the port's

sustained focus on infrastructure enhancement.

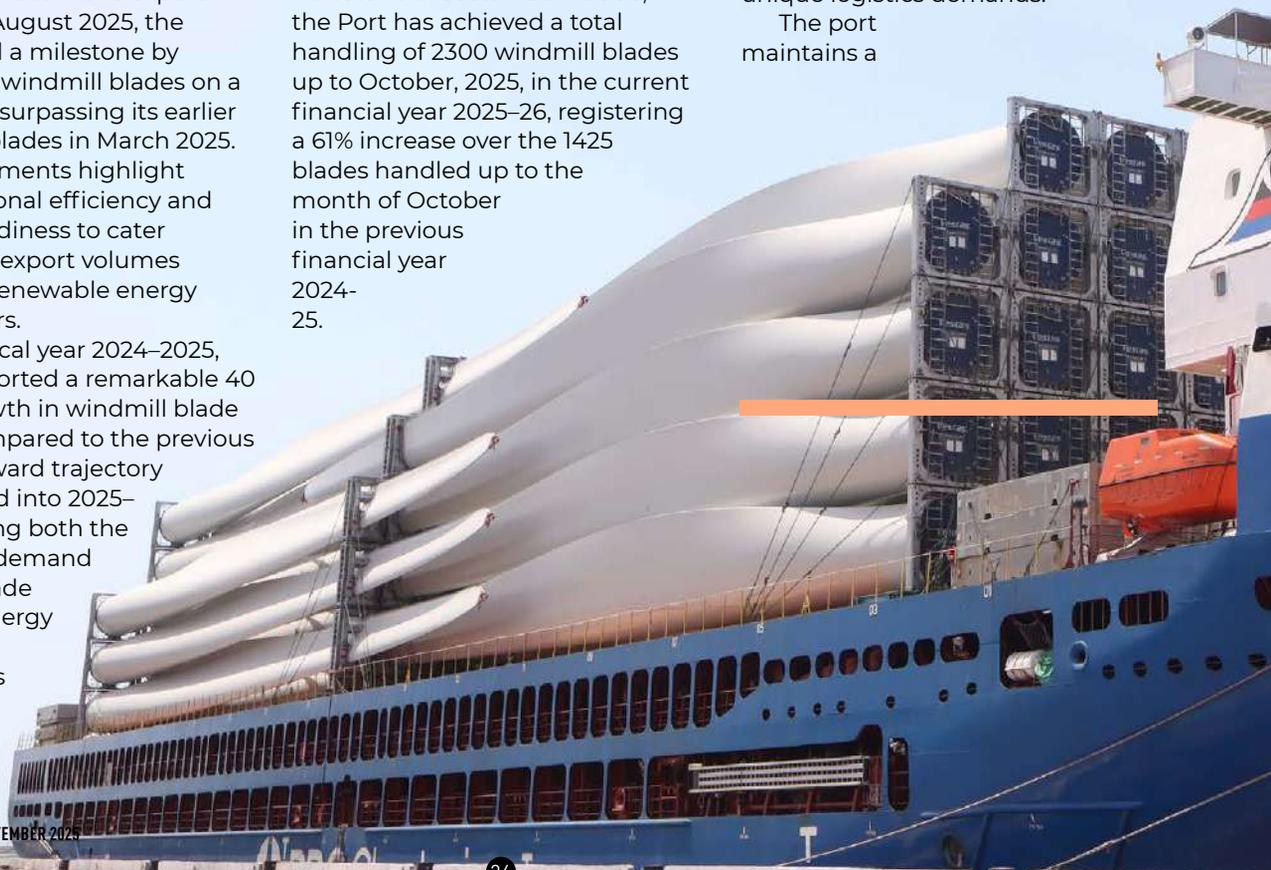
VOC Port has also created a new milestone with the successful handling of 103 windmill blades in a single ship in November 2025, marking the first time such a large number of blades has been handled at the Port. This achievement surpasses the earlier record of 101 blades exported in August 2025, setting a new benchmark in renewable energy cargo handling. Marking a new milestone in sustainable trade, the Port has achieved a total handling of 2300 windmill blades up to October, 2025, in the current financial year 2025–26, registering a 61% increase over the 1425 blades handled up to the month of October in the previous financial year 2024–25.

The surge in windmill blade handling reinforces the Port's position as India's leading hub for wind energy exports. He added that VOC Port is now developing a dedicated terminal exclusively for windmill blades and components, aimed at further strengthening its capabilities in handling renewable energy cargo and supporting India's clean energy ambitions.

Infrastructure tailored for oversized cargo

Handling windmill blades—often exceeding 80 meters in length—requires precision, planning, and dedicated facilities. VOC Port has invested significantly in creating specialized infrastructure that meets these unique logistics demands.

The port maintains a



100,000 square meter storage area exclusively for oversized cargo, providing ample space for assembly, inspection, and pre-shipment handling. Dedicated gates and congestion-free internal roads facilitate the smooth movement of long-haul trucks carrying retractable blade trailers, ensuring minimal delays and safe passage.

To manage the heavy and delicate cargo, VOC Port is equipped with crawler cranes and harbour mobile cranes, enabling safe and efficient loading operations. The port's operators are trained to handle complex lifting manoeuvres required for large components such as turbine blades, nacelles, and tower sections.

In a forward-looking move, VOC Port is now developing a

dedicated terminal exclusively for windmill blades and components. Once operational, this facility will further enhance the port's handling capacity and strengthen its position as a specialized export hub for renewable energy cargo.

Linking India's renewable manufacturing to global markets

The windmill blades exported through VOC Port are predominantly manufactured in industrial hubs like Bengaluru, Trichy, and Chennai, where several global and domestic wind energy companies have established production units. The port's proximity to these centers, combined with efficient hinterland connectivity, gives it a natural logistical advantage.

The export destinations are truly global — the blades shipped from VOC Port reach markets in the United States, Turkey, Australia, Spain, Finland, and several other European countries. This international footprint underscores India's expanding role in the global renewable energy supply chain.

Driving India's green growth story

VOC Port's transformation into a hub for windmill blade exports aligns seamlessly with India's broader renewable energy ambitions. As the nation targets 500 GW of renewable capacity by 2030, ports like

Thoothukudi will play a vital role in facilitating equipment exports,

attracting global OEMs, and supporting India's "Make in India" and "Green Energy" missions.

By combining operational excellence with sustainability-focused infrastructure, V.O. Chidambaranar Port has not only reinforced its reputation as one of India's most efficient ports but also positioned itself as a key enabler of the country's clean energy future.

IRSE



The surge in windmill blade handling reinforces the Port's position as India's leading hub for wind energy exports. He added that VOC Port is now developing a dedicated terminal exclusively for windmill blades and components, aimed at further strengthening its capabilities in handling renewable energy cargo and supporting India's clean energy ambitions. 💧💧

SUSANTA KUMAR PUROHIT, IRSEE
CHAIRPERSON, V. O. CHIDAMBARANAR PORT
AUTHORITY



Rivers of opportunity

The new era of cruise travel in India

The “Cruise Bharat Mission,” launched in 2024, encompasses all waterways, with a particular focus on inland water bodies.

-Kalpana Pandey

The decision to channel various ministries into making national waterways a tourist attraction stems from a variety of factors – increasing demand, rising disposable incomes, promoting the country’s culture and heritage, and the untapped potential that has emerged in this recreational industry.

Sailing towards 2047: Enhancing connectivity, trade, and tourism through inland waterways development

The first Inland Waterways Development Meeting was held on the “Ganges Queen” in Kolkata. The goals of the “River Cruise Tourism Roadmap 2047” were outlined in numbers, including Rs 45,000 crores to be allocated for the development of river cruise

tourism. ₹35,000 crores would be used for cruise vessels, while the remaining ₹ 10,000 crores would help advance the infrastructure. By the end of 2047, these cruises will be fully operational with a good amount of turnover.

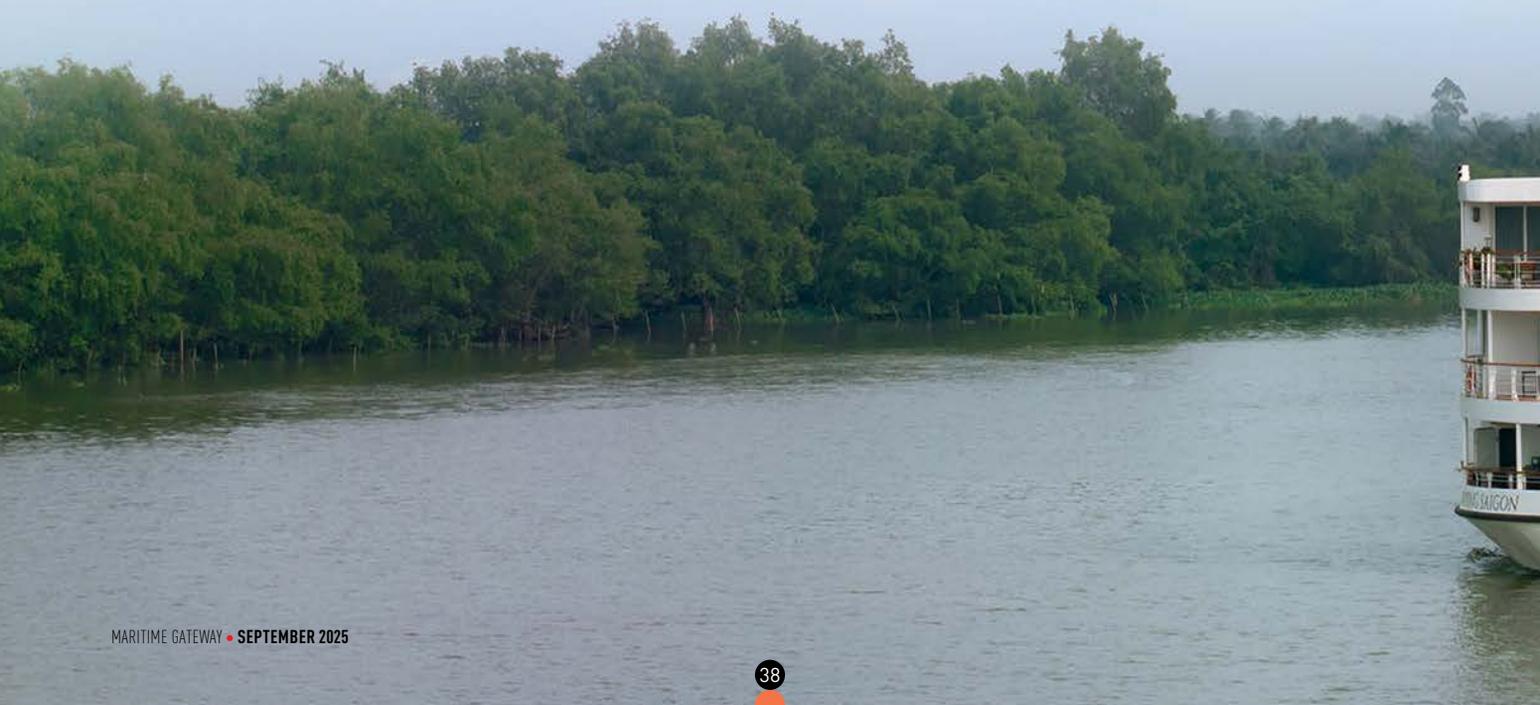
The IWAI has taken multiple steps to ensure a foolproof plan of action for promoting river tourism within the country. Plans to develop navigational channels on waterways, along with aids, are underway. If required, dredging will be carried out along national waterways.

To further develop the inland waterways (IW) industry, the strategy focuses on four crucial areas. To increase navigability and overall operating efficiency, it first highlights the need to construct and improve infrastructure along

23 National Waterways (NWs) that have been given priority. Second, improving regional connections with neighbouring countries such as Bangladesh, Nepal, Myanmar, and Bhutan is the primary objective to increase cross-border integration and trade. Third, the plan calls for building terminal infrastructure to accommodate ferry and roll-on/roll-off (Ro-Ro) services, which can improve last-mile connectivity and multimodal transportation alternatives. Furthermore, certain legislative changes are being pursued to encourage private investment and promote long-term expansion in the industry

Prospects of Ro-Ro and ferry services

Ferry services have the potential to be an innovative means of



public transportation on many routes, particularly in cities. It will aid the Varanasi-Patna region and the Kolkata-Haldia length. By approving ferry services that provide connectivity, Goa's urban transportation options could undergo a transformation. Similarly,

The country already has a well-established ammonia industry linked to fertilizers and chemicals, producing over 15 million tonnes annually. With the government's National Green Hydrogen Mission (NGHM) targeting 5 MTPA of green hydrogen by 2030, India could potentially produce 15–20 MTPA of green ammonia, making it one of the world's leading exporters.

ferry services that double as a public transportation option along with tourist attractions can be advantageous for Mumbai.

The Ro-Ro and ferry services in India are already being

used significantly. Over 145 million passengers are ferried across 9 states annually. West Bengal, followed by Kerala and Maharashtra, are the top states that utilise their ferry services.

MV Ganga Vilas – the longest motor vessel river cruise

The first luxury river cruise ship in India, the MV Ganga Vilas, was launched on January 13, 2023, representing a significant milestone for inland waterway tourism in the country. The ship, run by Antara Cruises, spans 3,200 kilometers in 51 days from Varanasi to Dibrugarh, crossing 27 river systems. The cruise promises a first-rate travel experience and has been welcomed into the Limca Book of Records as the longest river cruise in the world. It has three decks, eighteen suites, and a capacity of thirty-six passengers. Over 50 locations will be visited throughout the journey, including national parks, UNESCO World Heritage Sites, and historic riverbank cities like Patna, Kolkata, Dhaka, and Guwahati.

The inaugural cruise was flagged off on 13 January 2023 in Varanasi. 32 tourists from Switzerland traveled on the inaugural trip, demonstrating its popularity on a global scale.

The MV Ganga Vilas, created under the India-Bangladesh Protocol (IBP) agreement with assistance from the Indian Inland Waterways Authority (IWAI) and the Government of Bangladesh, depicts the growing interest in cross-border connections and immersive river tourism in South Asia.

Charting the waters ahead: India's inland cruise future

Inland waterway development is increasingly being considered in transportation and tourism planning as India nears its 100th anniversary of independence in 2047. With the operation of ships like the MV Ganga Vilas and rising investments in ferry and Ro-Ro services, cruise tourism is starting to boost local economies and regional connectivity.

Cruise Bharat Mission, with its multi-ministerial vision, signals a long-term commitment not just to infrastructure, but to storytelling—of rivers upping their status from being markers of civilizations to now becoming stages for global tourism. Early indicators include better infrastructure for river-based transportation and more opportunities for livelihood along riverbanks. There are still issues with interstate coordination, environmental impact, and fluctuating river depths. 



Ammonia

The rising contender in the maritime fuel transition

As the shipping industry accelerates its search for low-carbon alternatives, ammonia is fast emerging as one of the most promising candidates for the next generation of marine fuels.

Once viewed as a theoretical option, ammonia is now moving closer to commercial reality, driven by regulatory momentum, technological innovation, and pilot projects at major ports. Yet, as DNV's new report "Ammonia in Shipping: Tracing the Emergence of a New Fuel" highlights, its path to large-scale adoption is not without substantial hurdles.

A two-phase transition

DNV envisions ammonia's uptake in shipping unfolding through two distinct phases. The first phase will focus on developing a pioneering fleet of ammonia-powered vessels. This initial fleet will likely consist of a few dozen ships operating from about a dozen ports equipped to handle ammonia bunkering. Supporting this fleet will be a trained workforce of several hundred seafarers familiar with the handling of this highly toxic fuel. The goal of this stage is to establish

real-world operational experience, validate safety systems, and build confidence among regulators and industry stakeholders.

The second phase will see the scaling up of ammonia use across the global fleet, supported by expanded production, a robust bunkering network, and prescriptive International Maritime Organization (IMO) regulations under the IGF Code. According to DNV, the transition from risk-based approvals to standardized regulatory frameworks will be critical in mainstreaming ammonia as a fuel of choice for deep-sea shipping.

Progress on multiple fronts

Since 2020, measurable progress has been made on several fronts. The number of ammonia-fuelled vessels on order has risen to 39, and commercial marine engines capable of running on ammonia are now available. Trials in major ports such as Singapore and Rotterdam have successfully

demonstrated ammonia bunkering operations, signaling growing readiness among key maritime hubs. Equally significant is the expansion of blue and green ammonia production.

Though current output remains limited, confirmed global projects could raise annual production to around 14 million tonnes by 2030. This growth trajectory will be vital in ensuring sufficient fuel supply as the first generation of ammonia-fuelled ships sets sail.

The India opportunity

India, already one of the world's largest producers of ammonia for fertilizers, holds a strategic advantage in this emerging marine fuel landscape. With government-backed green hydrogen and green ammonia missions under the National Green Hydrogen Mission, the country is well positioned to become a major exporter of green ammonia. Ports such as Visakhapatnam, Tuticorin, and Mundra are being studied for



setting up ammonia and hydrogen export terminals, while private sector players including Adani, ACME, and Greenko are investing heavily in large-scale production and storage facilities.

The potential to convert this domestic strength into a marine fuel ecosystem is significant. Indian shipyards and ports could become early movers in ammonia-ready infrastructure, supporting both domestic coastal shipping and international bunkering along key trade routes in the Indian Ocean. However, this will require the development of regulatory frameworks, port safety standards, and seafarer training programs aligned with global best practices.

Barriers and the way ahead

Despite its potential, ammonia's widespread use faces formidable challenges. Its toxicity remains the foremost concern, requiring stringent safety protocols for handling, storage, and transport. Crew training will therefore play a decisive role in ensuring safety onboard and ashore. The cost of ammonia is another obstacle. Both, blue and green ammonia currently carry significant price premiums over conventional fuels.

Where the world stands today

- 39 ammonia-fuelled vessels are on order globally.
- Commercial ammonia engines are available and undergoing operational trials.
- Bunkering demonstrations have taken place in key maritime hubs such as Singapore, Rotterdam, and Hamburg.
- Blue and green ammonia production is expected to grow from today's small base to around 14 million tonnes per annum (MTPA) by 2030, backed by over 120 announced projects worldwide.
- Global capital expenditure on

ammonia-fuel supply chains is estimated at \$65–70 billion by 2035, according to S&P Global.

DNV Maritime CEO Knut Ørbeck-Nilssen

"The groundwork for ammonia

Though current output remains limited, confirmed global projects could raise annual production to around 14 million tonnes by 2030. This growth trajectory will be vital in ensuring sufficient fuel supply as the first generation of ammonia-fuelled ships sets sail

as a fuel is being laid, and the orderbook proves it's no longer just a theoretical fuel. Ammonia's toxicity and high cost remain a challenge, but with targeted financial support, infrastructure investment, and robust safety regulations, we can progress."

India's Strategic Opportunity

India's maritime ecosystem is uniquely positioned to benefit from this emerging shift. With the government's National Green Hydrogen Mission (NGHM) targeting 5 MTPA of green hydrogen by 2030, India could potentially produce 15–20 MTPA of green ammonia, making it one of the world's leading exporters.

Several Indian conglomerates are investing heavily in ammonia and hydrogen value chains:

- Adani Group is developing 1 MTPA green hydrogen capacity, which can be converted into 5 MTPA green ammonia for export.
- ACME Group has tied up with Oman and Japan for ammonia supply agreements, and its

Karnataka and Tamil Nadu plants will anchor India's southern export routes.

- Greenko is building an Integrated Renewable Energy Storage Project (IRESPP) in Andhra Pradesh that includes green ammonia production and export via Kakinada Port.

Bridging policy, infrastructure, and skills

While India's industrial and renewable base provides a strong foundation, the transition will demand cross-sector collaboration:

- Policy Alignment: India must align its fuel certification and bunkering safety standards with international norms under the IMO and ISO frameworks.
- Infrastructure Development: Ports need ammonia-ready storage tanks, pipelines, detection systems, and bunkering barges. Retrofitting could cost \$50–80 million per port, depending on capacity.
- Seafarer Training: India's vast seafaring workforce gives it a unique edge. Maritime training institutes such as IMU and NUSI can pioneer ammonia-handling courses, ensuring India remains a global manpower hub in the green shipping era.
- R&D and Partnerships: Collaboration with classification societies like DNV, Lloyd's Register, and Bureau Veritas will be crucial to test safety systems and ship designs for tropical operational conditions.

Timeline to 2050: Ammonia's maritime journey

- 2025:** 39 vessels on order, trials in Singapore and Rotterdam
- 2030:** 14 MTPA global ammonia production, India's first bunkering port operational
- 2040:** 10 per cent of global fleet ammonia-ready
- 2050:** 30 per cent of global energy demand from ammonia. 

7 GenAI tricks that make ocean freight feel like Netflix recommendations

In this article, Sridhar Seshadri, Author, Entrepreneur, Technologist, Govt. Advisor, Ex-Meta, Ex-EASports, explores how ocean freight is evolving from static schedules to AI-driven agility, showing how companies can transform their logistics networks into intelligent engines that predict challenges and optimize outcomes in real time.

Why this playbook now?

Ocean freight is no longer just about ships and schedules. It's about predicting, personalizing, and pre-empting like a streaming algorithm. GenAI is turning container logistics into a recommendation engine that's proactive, intelligent, and eerily accurate. Here are 7 GenAI tricks logistics leaders are using right now to gain that edge.

1. Smart Route Recommender "Because congestion is rising at Port Klang, the route via Colombo."

Before GenAI:

- Planner waits for a weekly update from port operations teams or a 3rd-party freight forwarder.
- Route adjustment takes 24–48 hours, and by then, the vessel is already queued.

After GenAI:

- Dashboard shows real-time congestion score at Klang (e.g., 8.7/10).
- GenAI auto-recommends an alternate route via Colombo with ETA impact: +5 hours, cost delta: + \$120.
- The ops lead receives an instant chat alert and email brief.

Impact: Saved 3 days of port waiting time and \$14,000 in demurrage.

2. Predictive container allocation "Allocate 3 extra containers to Vietnam—TikTok trend shows spike in orders next week."

Before GenAI:

- Allocation decisions made based on last quarter's sales data and distributor gut feel.
- Vietnamese warehouse runs out of stock during a viral social media trend, causing lost revenue and urgent air freight costs.

After GenAI:

- GenAI ingests social chatter, search trends, and ad spend data.
- It predicts 25per cent spike in demand for SKU Z12 in Southeast Asia.
- Dashboard recommends pre-positioning containers to Ho Chi Minh port.

Impact: Avoided \$60,000 in air freight and preserved 98 per cent SLA.

3. Natural language queries for your Show me all containers at risk of delay in the next 7 days."

Before GenAI:

- Logistics analyst must run SQL



queries or filter spreadsheets to extract container statuses.

- Takes 2–3 hours per query, especially during customs season.

After GenAI:

- Logistics lead types into the dashboard: "Containers to Europe delayed beyond 72 hours this week?"
- Instantly gets a filtered dashboard + voice reply + CSV download.

Impact: Time savings of 85 per cent for ops team; reduces response lag during audits.

4. AI-Written weekly briefings "Here's what's changing across your top 5 lanes this week."

Before GenAI:

- Analyst prepares a weekly report manually, pulling data from 4 platforms.
- C-suite gets reports late or skips reading due to lack of insights.

After GenAI:



- Every Monday 9 AM, GenAI auto-generates:
- Tailored for roles: Ops gets detail, CEO gets 1-pager.

Impact: Executives are aligned, faster decisions, fewer escalations.

5. Ocean disruption simulator “If Colombo Port goes offline for 3 days, how do we adjust?”

Before GenAI:

- Ops team holds urgent meeting to brainstorm mitigation plans.
- Requires 3-5 senior leaders, 4 hours, and partial guesses.

After GenAI:

- Planner types: “Simulate 72-hour port shutdown in Colombo. Impact on Asia-EU shipments.”
- GenAI produces:

Impact: Decisions made in minutes, not hours. Real contingency plans, not theories.

6. ESG-aware shipping choices “This route emits 15 per cent less CO2. Choose that to hit Q3 targets.”

Before GenAI:

- ESG reporting is manual and quarterly.
- Teams don’t consider emissions in day-to-day routing.

After GenAI:

- While suggesting route op-

tions, GenAI adds: “Route A emits 18.6 kg CO2/unit; Route B only 15.4 kg—same ETA.”

- Logistics selects greener route without cost penalty.
- CO2 savings auto-updated in ESG dashboard.

Impact: Helps meet scope 3 ESG goals without extra cost; great for brand PR.

GenAI is turning container logistics into a recommendation engine that’s proactive, intelligent, and eerily accurate. Here are 7 GenAI tricks logistics leaders are using right now to gain that edge.

7. Autopilot alerts for container exceptions. “You missed this delay flag—intervene now or pay demurrage.”

Before GenAI:

- Ops only finds issues after they’re costly—manual tracking or angry customer calls.
- Alerts flood inboxes, team develops alert fatigue.

After GenAI:

- System tags only high-impact anomalies: “Container #XM292 held at port 52 hours, flagged for incomplete documentation.”

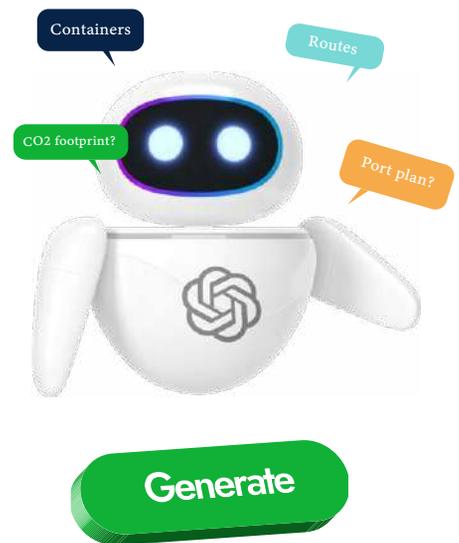
• Suggests:

Impact: 40 per cent fewer demurrage charges; ops team trusts the alert system again.

BONUS:

Ask GenAI these 5 prompts

1. “What containers are delayed by more than 12 hours this week?”
2. “Which route from Mumbai to Europe has the lowest customs delay risk?”
3. “Suggest an alternate port plan if Vietnam closes the border.”
4. “What’s the CO2 footprint of my last 100 shipments?”
5. “Simulate disruption if Colombo Port goes offline for 3 days.”



Your logistics network needs to be an intelligent engine. With GenAI, your freight decisions feel personalized, predictive, and proactive—just like Netflix deciding what you want to watch next. 🎬

Scaling with Strength

In this interview, **Percy Vapiwala**, Executive Director, PSA Ameya talks about how PSA Ameya continues to redefine efficiency, reliability, and sustainability in India's Container Freight Station (CFS) landscape.

Could you share the current performance of your facilities and the value proposition they bring to stakeholders?

PSA Ameya has emerged as one of the most reliable and efficient players in the Container Freight Station (CFS) segment. Our focus remains on delivering operational excellence through robust infrastructure, digital integration for real-time cargo visibility, and personalized customer solutions. By minimizing dwell time and providing full supply chain visibility, we have consistently strengthened stakeholder confidence and trust.

How has the container handling grown year-on-year in FY 2025–26, and what factors have contributed to this growth?

We registered a healthy year-on-year growth of around 12 per cent in FY 2025–26, supported by India's strong manufacturing and export momentum and various government-led initiatives. During this period, PSA Ameya expanded its footprint by 10 acres, commissioned a 9,250 sqm warehouse including a 1,250 sqm temperature-controlled section capable of handling 1,050 pallet positions. Our process optimization, technology-driven operations, and infrastructure upgrades have significantly boosted both capacity and operational efficiency.

What key digital tools or innovations have you deployed

to enhance efficiency and transparency?

We have invested in an Advanced Terminal Operating System (TOS) that offers real-time cargo visibility. Our automated gate operations use OCR (Optical Character Recognition) technology to streamline truck movement. Additionally, our customer portal enables online documentation, digital payments, and cargo tracking—creating a seamless and transparent digital experience for our stakeholders. Automation of workflows has also reduced manual intervention, improving accuracy and productivity across operations.

How are you leveraging data analytics and customer platforms to improve service delivery and decision-making?

Data analytics has become integral to our operations. We utilize analytics to monitor key performance indicators (KPIs), forecast cargo flows, and make agile, data-driven decisions. Our CRM platforms capture customer feedback, monitor engagement, and help us proactively enhance service quality. This data-led approach not only improves customer satisfaction but also drives long-term retention and sales growth.

Can you elaborate on the steps taken to minimize your carbon footprint across operations?



Sustainability is at the core of our operational philosophy. We have transitioned to electric and hybrid equipment, installed a 1 MW solar power plant within our CFS, and converted the entire facility to LED lighting. Additionally, we operate our own Sewage Treatment Plant (STP), waste segregation and water treatment units, ensuring that all treated water is recycled and reused. These initiatives collectively help us reduce emissions and optimize resource utilization.

Are there any specific green initiatives or energy-efficient projects that you are implementing or planning?

Yes, we are planning to replace all diesel-run Reach Stackers (RSTs) with electric models and explore conversion of our Prime Movers to E-Prime Movers in the near future. These steps will further strengthen our transition towards a greener, low-carbon operational model.

In a competitive market, what would you describe as PSA Ameya's key differentiator in customer service?

Customer-centricity defines our approach. We constantly strive to exceed expectations through personalized solutions and service reliability. The recognition and awards we've received from trade partners stand as a testament to our commitment. 

SMART PORT 5.0 DIGITALIZATION



- » HMI-Proximity Warning and Alert System
- » Remote Crane Management System, RCMS
- » Traffic and Parking Management
- » Fuel Management System
- » Locationing Solution
- » Object identification and counting
- » Crowd Management,
- » IT Infrastructure and Data Centre
- » Design and Implementation
- » Assets and Inventory Management
- » Bespoke Solutions
- » Mobility Solution
- » Video Surveillance & Entrance Management
- » Visitor Management System
- » AI & IoT Platform
- » Smart Ports 5.0 System
- » Terminal Automation System
- » Digital Twin
- » Gate Operating System
- » Truck OCR
- » Rail OCR,
- » Crane OCR
- » WMS
- » YMS
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